

**Major Financial Reporting Frauds of the 21st Century: Corporate
Governance and Risk Lessons Learned**

Hugh Grove

Elisabetta Basilico*

Major financial reporting frauds of the 21st Century are studied in this paper for lessons learned and strategies to reduce the incidence of such frauds in the future. As Howard Schilit observed: “I read recently that the one lesson we have learned from history is that we have learned nothing from history. Yet my mantra remains that in order to find fraud, we must study the history of fraud. A common element is all the fraud I have described is that their warning signs were not hard to find; in fact, they were hard to miss” (2010, p.8). Furthermore, as Sir David Tweedy, the chair of the International Accounting Standards Board, observed: “The scandals that we have seen in recent years are often attributed to accounting although, in fact, I think the U.S. cases are corporate governance scandals involving fraud” (2007, p.39).

The goals of this paper are to identify lessons learned from these frauds and demonstrate a risk management strategy to help identify and prevent such frauds from occurring in the future. Concerning major frauds of the 21st Century information age, Malcolm Gladwell posed an interesting question: “Had we taken the lessons of Enron more seriously, would we have had the financial crisis of 2008?” (2009, p.176). This paper is organized around the following topics: 1) timeless corporate governance weaknesses (that have facilitated fraudulent corporate financial reporting) and 2) fraudulent financial reporting prediction models in order to develop risk management strategies for detecting such reporting. These topics will be analyzed with nine major financial reporting frauds of the 21st century: Enron (Grove *et al*, 2004), Parmalat, Satyam (Kapil and Kapil, 2008), Tyco, three telecoms: WorldCom, Qwest, and Global Crossing (Grove and Cook, 2005), and two major banks: Citigroup and Lehman Brothers. This paper updates prior fraudulent financial reporting research (Beasley 1996, Beasley, Carrello, and Hermanson, 1999; and Bell and Carello, 2000). The collapse of Lehman Brothers in the Fall of 2008 is

* The authors are, respectively, at the University of Denver and St. Gallen University.

widely acknowledged as the starting or tipping point for the world-wide financial and economic crisis. These companies were primarily chosen since they represented leading destroyers of market capitalization in the 21st Century. They are also compared to major non-fraud companies in their own industries as a control group, using the fraud prediction models and ratios for a risk management strategy, as follows:

<u>Fraud Company</u>	<u>Market Cap Destruction</u>	<u>Non-Fraud Company</u>
Citigroup	\$240 Billion*	JP Morgan
WorldCom	\$180 Billion	Verizon
Enron	\$67 Billion	El Paso
Qwest	\$65 Billion*	SBC
Tyco	\$63 Billion*	General Electric
Global Crossing	\$54 billion	AT&T
Lehman Brothers	\$32 Billion	Wells Fargo
Satyam	\$8 Billion*	IBM
Parmalat	\$5 Billion*	Sara Lee

*Note: Since these five companies are still in existence, the market capitalization or market value destroyed was calculated, using 12/31/2009 stock prices after the emergence of the financial crisis. The smaller market destructions of Satyam and Parmalat reflect the typical situation where international common stocks have fewer shares available and, thus, are less widely held than U.S. common stocks. These two companies were chosen since their frauds were so outrageous that they were nick-named “Asia’s Enron” and “Europe’s Enron,” respectively.

Timeless Corporate Governance Weaknesses

At least five of our ten timeless corporate governance weaknesses have existed since the 1970s when major shareholder lawsuits occurred, concerning U.S. external auditors’ failures to

detect fraudulent financial reporting (FFR) at their clients' companies (Grove *et al.*, 1982). These five factors are the first and foremost ones of the ten timeless weaknesses as follows:

1. All Powerful CEO and Insider Board Influence
2. Weak System of Internal Control
3. Focus on Short-Term Performance Goals
4. Weak or Non-Existent Code of Ethics
5. Questionable Business Strategies with Opaque Disclosures

For almost forty years, these five factors have interacted and facilitated FFR in the following typical scenario. The Chief Executive Officer (CEO) is also the Chairperson of the Board of Directors (COB), called the duality factor in corporate governance research (Allemend *et al* 2010). The CEO often has insider Board influence or even majority control of the Board. In fact, CEOs and senior management were involved in 90% of the 276 companies investigated by the Securities and Exchange Commission from 1987-2001 (Cullinan and Sutton 2002). Top management often intentionally keeps the company's system of management and internal controls very weak. Such weakness facilitates the achievement of short-term performance goals which are the focus of top managers in line with their executive compensation packages. There is also a weak or non-existent code of ethics which also facilitates the achievement of these short-term performance goals as do the use of questionable business strategies. When such performance results are reported, they are discussed with opaque disclosures or sometimes key performance results are just hidden in the financial statements.

In his lengthy study of financial shenanigans, Schilit commented: "All of the companies I cite have at least one thing in common: Their management sets a tone that encourages the use of tricked-up accounting. Companies that play games with their accounting mirror the philosophy that nothing is more important than meeting and beating Wall Street's numbers, and that philosophy begins at the top" (2010, p.1). Warren Buffett (2006) concurred in observing that if a company makes its numbers, say twenty quarters in a row like Enron, a red flag exists since the nature of business is cyclical with many ups and downs, not constant growth.

The last five corporate governance weaknesses are more recent developments but typically do follow the first five weaknesses in FFR cases as follows:

6. CEO is Uncomfortable with Criticism
7. Insider Stock Sales
8. Senior Management Turnover
9. Independence Problems with the Company's External Auditors
10. Independence Problems with the Company's Investment bankers

This subsequent sixth factor occurs as external users, primarily financial analysts and investors, are frustrated with the questionable business strategies and opaque disclosures and ask tough questions. Often, the CEO and other top managers respond by attacking the questioner since they have insufficient responses to such tough questions. They are not used to such tough questions from their less than independent or inadequate Boards of Directors. Meanwhile, they are quietly selling their own shares of the company's common stock. Then, they "vote with their feet" by unexpectedly leaving the company, usually for the personal reason of "devoting more time to my family." Finally, also facilitating FFR, they are independence problems with "watch-dogs" of the free market system, external auditors and investment bankers. These entities compromise their independence or integrity to earn additional fees from their client companies. Thus, the interaction of these ten timeless corporate governance weaknesses, typically in the prior sequence, facilitates FFR by public companies (Grove *et al.* 2009, Grove and Cook, 2007). These ten weaknesses or factors are elaborated below with corporate examples for the FFR companies in this paper and matched with recommended principles of strong corporate governance (Hilb 2008).

Ten Timeless Corporate Governance Weaknesses

Facilitating Fraudulent Corporate Financial Reporting

1. All-Powerful CEO and Insider Board Influence

The Chief Executive Officer (CEO) is also the Chairperson of the Board of Directors (COB). Also, insiders (senior company managers) on the Board effectively have either significant influence or majority voting control.

- **Corporate Examples:** The CEO, often the company founder, was also the COB at **Parmalat, Enron, Global Crossing, Tyco, Lehman Brothers, and WorldCom**. The brother of **Satyam's** CEO was the COB with several Satyam Directors coming from the CEO's circle of friends from his Harvard University days. Thus, Satyam insiders had significant influence on the Board of Directors. The **Qwest** COB, who was the company founder and largest single shareholder, hand-picked the CEO. Parmalat's CEO, CFO, and the company lawyer continued to run the corporation together after it went public and controlled the Board of Directors. Both Enron and **Citigroup** paid their Board Directors such high compensation that at one time both were in the top ten U.S. Board compensation packages. Enron also contributed significantly to its Directors' favorite charities. Accordingly, these companies had significant influence on their Board of Directors.
- **Strategic Guideline: Effective Board Structure**
A small, legally accountable, well-diversified board should be comprised of a maximum of seven members, including an independent Chairperson, independent members, and the CEO. The board should conduct its activities through only two committees: an integrated audit and risk management committee and an integrated board management committee.

2. Weak System of Management Control

The system of internal control (checks and balances; separation of duties, etc.) is so weak that senior management can override it anytime it wants.

- **Corporate Examples:** **Satyam's** CEO has admitted that \$1.5 billion cash on its balance sheet was non-existent and that its revenues and operating margins were less than one-

tenth of what was reported. Satyam admitted that it did not have a financial expert on its audit committee. **Parmalat's** CEO has admitted shifting over EUR 500 million cash from the company to other businesses. However, an investigative report prepared by an independent auditor for prosecutors in Milan put that Parmalat number closer to EUR 1 billion cash. Although Parmalat had reported profits each year, this report said that Parmalat only had one profitable year between 1990 and 2002. Major international investment and commercial banks, like **Lehman Brothers** and **Citigroup**, had inadequate risk assessment procedures, especially for their mortgage-backed security investments (toxic assets). Board audit committees failed to perform this key risk assessment function, helping to cause the bankruptcy of Lehman Brothers and the necessity for government bailout money for Citigroup and other major U.S. and international banks. There were weak management controls at **Enron**, **Global Crossing**, **Tyco**, **Qwest**, and **WorldCom**, according to the Securities and Exchange (SEC) investigations of fraudulent financial reporting at these companies.

- **Keep It Controlled Guideline: Board's Auditing Function**

To improve the quality of internal control, effective cooperation is needed between the external auditor, the board, the audit committee (to which it reports) and the internal auditor (which should also report to the audit committee). The effectiveness of the internal control system and compliance should be a central focus of the audit committee.

3. Focus on Short Term Performance Goals

The overriding performance goal is to “make the numbers,” for each quarter and each year, especially for executive compensation. More performance emphasis is given to revenue, or “top-line” growth, than earnings, or “bottom-line” growth. Aggressive accounting practices facilitate the achievement of such goals.

- **Corporate Examples:** **Qwest's** CEO was criticized by his own board for having a short-term focus on making the numbers, particularly double-digit revenue growth. For example, to help make its revenue goals in one year, Qwest recorded thirteen months of advertising revenues from its telephone directories, instead of the normal twelve months. Qwest also did quarter and year-end swaps of its fiber optic networks with other companies, such as **Global Crossing** and **Enron**, in order for all these companies to

make their double-digit revenue growth targets. Both **Satyam's** CEO and Board constantly focused upon double digit revenue growth every year. A German firm rejected a proposed merger with Enron, citing Enron's huge off-balance-sheet debt in its Special Purpose Entities (SPEs) and use of aggressive accounting practices to create gains from its SPE transactions. Similarly, another German firm rejected a proposed merger with Qwest, citing its huge on-balance sheet debt and aggressive accounting practices. **Tyco** and **WorldCom** were "greedy corporations" as they were purely interested in short-term financial gain (Gladwell, 2009, p.366) Also, WorldCom's CFO never kept a single share of WorldCom stock in his personal investment account since he exercised and sold his stock options as soon as they vested. Many international banks, like **Lehman Brothers** and **Citigroup**, hid their toxic asset investments off their balance sheets in Structured Investment Vehicles (SIVs) and refused to recognize market value declines or impairments of such assets in their income statements. Board compensation committees at these companies encouraged short-term performance goals related to bonuses, stock options and stock grants.

- **Integrated Guideline: Executive Remuneration**

The total compensation package can be divided into fixed (e.g. 40%) and variable (e.g. 60%) components. The variable component can be made up of several performance measures: 1) long-term financial performance over three years, 2) comparative value indices (e.g. 50% Economic Value Added, 20% customer loyalty, 20% employee satisfaction, and 10% public image), and 3) functional performance assessments (20% board committee performance, 30% individual board member performance, and 50% corporate performance).

4. Weak or Non-Existent Code of Ethics

Company employees are encouraged to push their behavior and financial reporting to ethical and professional limits. The company's code of ethics (if one exists) is not taken seriously.

- **Corporate Examples: Parmalat** unraveled quickly after it had trouble making a routine bond interest payment, prompting tougher scrutiny of its books by Italian regulators and its own auditors. A follow-up audit found that Parmalat's EUR 4 billion cash in a Bank

of America account did not exist. The auditors had sent the confirmation request to the bank through Parmalat's internal mail system where it was intercepted. Then, the written confirmation from the bank back to Parmalat's auditors was forged as were other supporting documents. The EUR 4 billion cash had just been fabricated to help cover up the CEO looting his company. Similarly, **Satyam's** \$1.5 billion in cash disappeared, allegedly into the CEO's various family businesses. Also, the World Bank banned Satyam for at least eight years from its list of information technology providers, citing alleged bribing of its bank staff and data theft. A Fortune financial magazine reporter, Bethany McLean (2001), was the first national reporter to question **Enron's** value in the financial press. She noted that the use of the mark-to-market accounting method for pricing Enron's securities in illiquid markets with no fair value benchmarks was a red flag for fraudulent financial reporting. She said, "Enron often relied upon internal models which created serious potential for abuse." According to former Enron managers, salespeople used wildly optimistic assumptions about the forward price of commodities and other factors to value their contracts so profits would be inflated and their bonuses would be bigger. One power- industry consultant observed that's valuation by rumor. There's no way for those results to be taken seriously. In a home video at a retirement party for an Enron manager, Enron's CEO, Skilling, boasted that he could "add a kazillion dollars to the bottom line anytime" by using this mark-to-market method (Grove *et al* 2004). **Tyco's** CEO, CFO, and general council secretly took out \$170 million in no/low interest loans from the company that had not been approved by Tyco's Board compensation committee. These loans had been hidden from Board members, shareholders and employees. Then, the CFO "forgot" to include \$12 million of loans forgiven by Tyco as income in his personal income tax return. The three telecom companies, **Global Crossing, Qwest,** and **WorldCom,** all created cultures of fear to help override any codes of ethics and achieve earnings management goals. Weak codes of ethics facilitated the hiding of toxic asset investments in the SIV off-balance-sheet accounts by various banks, like **Lehman Brothers** and **Citigroup.**

- **Keep It Controlled Guideline: Board's Auditing Function**

There are three main audit tasks of the board: 1) financial reporting—observation and realization of the financial targets, 2) operations—observation and assessment of

operational targets, and 3) compliance—surveillance of compliance with laws, regulations, and guidelines, such as a code of ethics.

5. Questionable Business Strategies with Opaque Disclosures

An opaque disclosure strategy may exist for the company's business model and related financial reporting. The well-known investor, Warren Buffet (2004) has given this advice: "If you don't understand what a company does, don't invest in it. If management refuses to fill in holes and keeps investors in the dark, run!"

- **Corporate Examples:** Questionable business strategies existed along with opaque (unclear) disclosure strategies at **Enron**. The Fortune reporter McLean (2001) said: "How exactly does Enron make its money? Details are hard to come by because Enron keeps many of the specifics confidential for what it terms competitive reasons. The numbers that Enron does present are often extremely complicated. Seemingly basic questions, like the effects of lower natural gas prices and less volatility in energy markets on Enron's profits, are still unanswered." Another example of intentionally opaque, complex financial reporting and disclosure came from Enron's related party transactions with SPEs. As the short seller Jim Chanos said, "We read the disclosure over and over and over again and we just didn't understand it—and we read footnotes for a living" (Grove *et al* 2004). An A.G.Edwards energy analyst, Michael Heim said he had never seen such complicated disclosures and it was hard to follow the movement of money. Also, Enron's CEO and CFO both repeatedly told financial analysts that Enron would never be liable for bank loans with its SPEs. However, there were credit triggers in the bank loan covenants that did make Enron liable for such loans. The two major credit triggers were Enron's common stock price falling below a certain level and Enron's credit rating falling to junk bond status. When pushed to reveal more, Enron management was uncooperative and pleaded confidentiality concerns. **Parmalat** used a similar SPE strategy to help earn its nickname as "Europe's Enron." It created an elaborate network of related party transactions, using opaque disclosures of its subsidiaries in tax havens such as the Cayman Islands and Luxembourg to hide the declining state of its finances. One subsidiary was called Buconero, which means black hole in Italian. **Satyam** used a similar opaque disclosure strategy to help earn its

nickname as “Asia’s Enron.” After Satyam went public in 1991, it was supposed to stop using its cash reserves to invest in family owned companies. However, such problem practices surfaced again in 1998 and in 2008, just before its confession of fraudulent financial reporting. None of these cash reserve investments were adequately disclosed in Satyam’s financial statements. Neither **Qwest** nor **Global Crossing** disclosed that their revenues from fiber optic swaps and equipment sales were non-recurring in nature. The strategy of both the CEOs at Qwest and **WorldCom** was never to disclose anything that would cause their stock prices to go down. **Tyco** did not fully disclose its transactions with its complex network of subsidiary and affiliated companies. Many banks, like **Lehman Brothers** and **Citigroup**, did not (and still do not) fully disclose the market values of their toxic assets which were often hidden in their off-balance-sheet SIVs.

- **Keep It Controlled Guideline: Communication Function**

The following two functions are most relevant: 1) the content function: to promote transparency of information at board level through the exchange of information that is comprehensive, true, understandable, and relevant to board members, top managers, employees, shareholders, customers, and the public and that relates to financial, market, and other performance measures, and 2) the relationship function: to create a real culture of trust and learning through a constant improvement of the relationships between board members, top managers, shareholders, and other stakeholders, to deal with conflict constructively and to avoid unnecessary confrontations.

6. CEO is Uncomfortable with Criticism

When questioned by outsiders, like financial analysts during conference calls, the CEO is defensive and abusive to these outsiders. The CEO, senior managers, like the CFO, and even board members may wind up lying to outsiders.

- **Corporate Examples: Enron’s** CEO, Jeff Skilling, was uncomfortable with criticism in a conference call with financial analysts as he called one analyst an “asshole” when questioned about Enron’s performance. The prosecutors at the successful fraud trial of Skilling played a tape of that conversation to the jurors. Jim Chanos, who was the first hedge fund manager to question Enron’s performance, called Skilling’s conference call a disaster and the final piece of the puzzle. He began to short Enron’s stock shortly

thereafter while it was still trading around \$70 per share. Similarly, the CEOs of **WorldCom**, **Lehman Brothers**, and **Citigroup** had problems with their conference calls, especially being challenged on the issue of excessive executive bonuses, primarily at the big Wall Street banks after being given U.S. government bailout money. **Qwest's** CEO criticized the Morgan Stanley financial analysts who questioned his company's performance and downgraded Qwest's stock from a buy to a neutral status. He said that they were not the sharpest knives in the drawer and called their report "hogwash." He pledged never to talk to them again and terminated any future investment banking business with Morgan Stanley. **Parmalat's** CEO was uncomfortable with criticism from his Italian bankers and new auditors. Italian law requires audit firms to be rotated every five years. To mitigate this law, he moved 51% of Parmalat's operations and its questionable business practices to the Cayman Islands where the former lead audit firm had been rotated. He began using American bankers and fabricated EUR 4 billion cash that was supposed to be in a Bank of America account in the Cayman Islands.

- **Strategic Guideline: Constructive and Open Minded Team Culture**

To overcome the traditional, mechanistic, confrontational, and secretive board environments, an effective board culture must be created with five factors: an outward, learning orientation, an holistic perspective, a consensus orientation, a constructively open, trusting environment, and a mix of global effectiveness and local adaptability.

7. Insider Stock Sales

Senior managers, especially the CEO and the CFO, are selling their own company's common stock at current prices, rather than holding these shares for the long term. At the same time, they are saying that their company's stock is undervalued and has a great future.

- **Corporate Examples:** Significant insider trading occurred at **Enron** in the last half of 2000 and the first half of 2001 before its stock crashed in the last half of 2001. The former CEO, Ken Lay, and the CEO during that time period, Jeffrey Skilling, as well as the general council, the CFO, and other chief executives all sold large blocks of stock. In 2000, Lay made \$66.3 million and Skilling made \$60.7 million from exercising stock options and selling the shares, roughly double the amounts the year before. A

shareholder lawsuit alleged that 29 Enron executives made \$1.1 billion in profits on insider sales. Since the selling at Enron was prolific and it persisted even as the stock fell throughout 2001, one financial analyst at Thomson Financial, Paul Elliot, called such insider sales a "screaming red flag," and questioned if Lay and Skilling believed that the stock was undervalued and headed for \$120, as they repeatedly told investors, then why were they cashing in so heavily? (Grove *et al* 2004). Lay and Skilling were convicted by the United States Department of Justice for numerous counts of conspiracy and securities fraud. **Tyco's** CEO, Dennis Kozlowski, and the CFO secretly sold over \$400 million of shares without announcing it just before Tyco blew up. Similar insider trading occurred at **Qwest** where eight Qwest senior executives made \$2.2 billion in profits while still "touting" the stock price prospects at Qwest. Qwest's CEO has also been convicted on nineteen counts of securities fraud. Similarly, both **WorldCom's** CEO and CFO have been convicted of securities fraud for insider trading. All these individuals, except the deceased Key Lay, are now serving long jail sentences. **Global Crossing's** CEO returned over \$50 million of insider stock sales to his shareholders.

- **Integrated Guideline: Targeted Remuneration**

An effective company performance system includes four dimensions: 1) customer, 2) shareholder, 3) people, and 4) public company image. Then, targeted remuneration can proceed on the three dimensions previously discussed: 1) long-term financial performance, 2) comparative value indices, and 3) functional performance assessments, not just granting huge stock options to senior executives.

8. Senior Management Turnover

The CEO, senior managers, especially the CFO, and even outside Board members quit their "dream jobs" to "spend more time with their families."

- **Corporate Examples:** **Enron's** CEO, Jeffrey Skilling, resigned only six months after being promoted to his "dream job", and called it a "purely personal" decision, elaborating that he wanted to devote more time to his family. One investment-fund manager, John Hammerschmidt, observed that was the worst excuse I've ever heard. As soon as I heard that, I dumped my shares. Others, including Sherron Watkins, the Enron whistleblower, have speculated that Skilling knew that Enron's falling stock price would cause Enron's

loan guarantees of its SPE partnerships to be exposed and then lead to Enron's bankruptcy. Similarly, **Qwest's** CFO resigned over one year in advance of its accounting problems surfacing and **Parmalat's** CFO quit nine months before it went into bankruptcy after a bond issue was surprisingly pulled out. **Satyam's** CEO abruptly resigned after admitting fraudulent financial statements, saying it was like riding a tiger, not knowing how to get off without being eaten. Two months after **Tyco** restated its earnings from \$2.20 to a loss of \$0.96, due to unusual costs, the CEO resigned for "personal reasons" which turned out to be a tax evasion indictment. Four months later, both the CFO and the general counsel left as Tyco's false financial reporting was being uncovered.

- **Integrated Guideline: Targeted Executive Selection**

Potential senior managers and board members need to have the following four competences: 1) personality (integrity, independence and breadth of perspective), 2) professional (risk management experience, management and/or board track record, and international experience if necessary), 3) leadership (strategic thinking, planning skills, and controlling skills), 4) social (constructive openness, listening skills, and team role of coach).

9. Independence Problems with the Company's External Auditors

The company often pays the audit firm additional consulting fees that may exceed the audit fees. Using the same audit partner as the lead or engagement partner is often a condition for retaining the audit firm.

- **Corporate Examples:** Italian securities laws require that a company change its external auditors every five years. **Parmalat** got around that requirement in two ways: (1) it initially had its lead audit partner change auditing firms, and (2) it subsequently switched 51% of its business to the Cayman Islands where the former lead audit firm had been rotated. Thus, the same audit partner had signed various parts of Parmalat's audits for twenty years. There were also independence problems with **Enron's** auditor, Arthur Andersen (AA) which led to AA's demise. Its consulting fees with Enron were \$27 million, larger than its audit fees of \$25 million. Many former AA auditors worked for Enron and Enron outsourced its entire internal auditing work to AA. AA was also the auditor of **Qwest**, **Global Crossing** and **WorldCom** and earned large consulting fees

from those firms as well. Also, PriceWaterhouseCoopers had been the auditor of both **Tyco** and **Satyam** which had not rotated external auditors for many years.

- **Keep It Controlled Guideline: Board's Auditing Function**

The external auditor is the only external institution that can give an objective view of the financial condition of a company and effective cooperation is needed with board and its audit committee. In order to ensure external auditor independence, both the auditors and the auditing firm should be changed periodically.

10. Independence Problems with the Company's Investment Bankers

Favorable "buy" recommendations from an investment banker's financial analysts may be a requirement for a company to do any new business with an investment banking firm. Investment bankers' research may not represent an independent analysis of the company's investment potential.

- **Corporate Examples:** The sell-side financial analysts, who worked for the investment bank firms that earned significant fees from **Enron, Parmalat, Global Crossing, Tyco, Qwest, and WorldCom**, had the same independence problems as the external auditors. Typically, investment fees were much higher than equity research fees. For example, 17 of the 18 sell-side analysts following Enron still had buy recommendations the day after the CEO Jeff Skilling resigned, ignoring that red flag. One investment banking firm fired a financial analyst for changing his investment rating to a "sell" recommendation on Enron and was rewarded with \$50 million of new investment banking fees by Enron. Another big firm told its financial analysts to maintain a "buy" recommendation for Enron no matter what. One of Parmalat's investment bankers upgraded its investment recommendation from hold to buy, saying the current price was a bargain since Parmalat's restructuring was attractive at that price. That bank was subsequently sued by investors.

- **Situational Guideline: Internal Business Context**

The majority of board members should be totally independent directors who have no vested interests. The board should not comprise 1) more than two members of senior management (ideally only the CEO should represent management and should have none of the following vested interests), 2) persons who have an active business relationship

with the firm (such as suppliers, customers, vendors, consultants and auditors), and 3) representatives of the main source of debt and/or equity financing.

Schilit has also warned about the role that these corporate governance factors play in financial shenanigans: “A powerful factor is management’s ability to create a culture of fear and intimidation when pressing employees to make the numbers at any cost. Other factors that analysts should be aware of include the absence of checks and balances among executive ranks and inappropriate compensation structures for executives. There is often a lack of independence, either in fact or in behavior, among boards of directors, and too many boards lack enough investor-centric members. Lack of independent auditors is another problem, and businesses changing auditors is a sure sign of trouble. Other factors include making frequent changes in key personnel and requiring frequent equity or debt infusions” (2010, p.7). Detailed analyses of these ten corporate governance factors for the FFR companies are provided in Table 1 (Please see Table 1).

From the Table 1 summary of corporate governance red flags, there was a possibility of 90 such red flags (10 weaknesses times 9 companies). 73 red flags did occur 81% (73/90) of the time. The traditional, first five factors that have occurred over the last 40 years of FFR were here as well. Four of the five factors had 100% applicability. The other one, focus on short-term performance goals was relevant in 8 of the 9 cases. Only Parmalat did not have this weakness as it was primarily focused upon looting the company of cash, not as much distorting the income statement. Also, the newer, last five factors that have emerged more recently were applicable from 56% to 78% of the time. Concerning each company, there were red flags for corporate governance weaknesses anywhere from 60% (6 out of 10 factors) for the two banks to 100% for Enron and Qwest. Thus, these corporate governance weaknesses worked very well as red flags for FFR in these nine companies.

The first weakness, all powerful CEO and insider Board influence, has been argued here to be the key initial facilitator to enable FFR. Empirical research has supported this argument. One study used both corporate governance and ratio red flags to distinguish between FFR companies and non-FFR companies in various industries. This first corporate governance weakness was statistically significant at the 5% level in that study. There were 5 industries and

42 companies, including global energy with Enron, telecommunication with WorldCom, Global Crossing and Qwest, and food service with Parmalat (Basilico and Grove, 2008).

Risk Management Strategies

In addition to failures of corporate governance in these FFR cases, the company and Board of Directors' risk management strategies have been insufficient. Why weren't there risk management strategies to check for FFR? Consequently, the SEC now requires publicly traded companies to disclose in their proxy statements, as of March 2010, the role of the Board of Directors in risk oversight (Beasley *et al* 2010). A two-pronged approach to risk management for Boards of Directors is advocated here. First, as seen from the prior analyses of the ten timeless weaknesses of corporate governance, these key factors should be monitored closely by the Board, preferably by an integrated audit and risk committee (Hilb, 2008). Second, emerging and traditional ratios and fraud models should be used by the Board's audit/risk management committee and by external auditors (Grove and Cook, 2004).

Seven statistical red flag models and ratios have been used successfully in empirical research on FFR (Grove *et al*, 2010) as follows:

1. Quality of Earnings Ratio (Schilit 2003)
2. Quality of Revenue Ratio (Schilit 2003)
3. Sloan Accrual Ratio (Sloan 1996 and Robinson 2007)
4. Altman Z Score Bankruptcy Model (Altman and Hotchkiss 2005)
5. Fraud Z Score Model (Beneish 1999)
6. Fraud F Score Model (Dechow, Ge, Larson and Sloan 2007)
7. Shaky Books Ratio (Dumas 2009)

These models and ratios are explained in the Appendix. An Excel spreadsheet of all these models and ratios is available from the authors. Then, anyone (Board of Directors' audit committees, external auditors, financial analysts, government regulators, etc.) can just enter the financial statement data in the required data fields and these red flag calculations will be

performed. A summary of these calculations and applications to the nine FFR companies is provided in Table 2 (Please see Table 2).

From the Table 2 summary of FFR red flag model and ratios, there was a possibility of 207 such red flags (23 models and ratios times 9 companies). 118 red flags did occur 57% (118/207) of the time. Three of the seven fraud models worked over half of the time in flagging these nine FFR companies. The best result was 89% for the Altman Z score bankruptcy model, reflecting the questionable financial survival of these FFR companies. Four did go bankrupt: Enron, Global Crossing, Lehman Brothers, and WorldCom. The current ratio also reflected liquidity problems 67% of the time. The quality of revenue worked 78% of the time and the newer Fraud F Score model worked 56% of the time. Although the older Fraud Z Score model only worked 44% of the time, three of its component ratio indexes worked well as red flags over half of the time. The best one at 78% was the sales growth index (SGI), then gross margin index (GMI) at 67%, and days sales in receivables (DSRI) at 56%. These findings confirm the major FFR strategy of aggressive revenue recognition as FFR companies played to the common observation that Wall Street investors pay for growth. Then, executives at these companies were rewarded with higher stock prices to fuel their stock option compensation packages. However, in discussing such warning signs, Schilit observed: “When Enron’s sales jumped in four years from less than \$10 billion to \$100 billion, thus making it one of the six or seven biggest companies in the United States, everyone should have been suspicious. Typically, it takes a quarter of a century to achieve that kind of growth” (2010, p.8).

Such findings have been shown empirically where two common characteristics of FFR companies were identified: high sales growth and poor or non-existent profits (Basilico and Grove, 2008; Basilico *et al*, 2005; Cook and Grove, 2004). These companies were trying to convince Wall Street investors to focus on high sales growth in their new or emerging industries while ignoring poor profitability and poor operating cash flow as new industries were being developed. Such poor profitability, empirical results were reflected here in our traditional ratio analysis. All three profitability ratios flagged either 8 or all 9 of our companies. The management effectiveness ratios, return on assets and return on equity, also were red flags, 100% and 78% of the time, respectively. Such poor profitability then showed up in the very high price to earnings valuation ratio which worked 56% of the time. Several investment bankers have

observed that any PE ratio over 70 is unsustainable. Three FFR companies had PE ratios over 70: Enron (71), Tyco (73), and Citigroup (72).

Some ratios did not work well, due to financial shenanigans of various FFR companies. The quality of earnings only worked 44% of the time. A favorite financial shenanigan was to overstate operating cash flows (OCF) to negate this red flag which has a cutoff of less than 1.0 (OCF / NI). Enron forced its electricity customers to prepay if they wanted to continue to receive electricity. Tyco accelerated accounts receivable collections and delayed accounts payable payments. WorldCom took \$4 billion expenses out of OCF and hid them in capital expenditures as long-term asset investments. Such OCF manipulations similarly negated the effectiveness of the Sloan accrual measure which uses OCF as a major component in its calculations. The Shaky Books ratio was negated by poor or no disclosure of non-recurring revenues and/or expenses which are the primary focus of this ratio. For example, the Qwest CEO never disclosed the one-time nature of Qwest's fiber optics swaps with Enron and Global Crossing in conference calls with financial analysts and in its income statement. Enron hid its mark-to-market holding gains in other revenues and never disclosed them in footnotes. Banks, like Lehman Brothers and Citigroup, failed to disclose their mark-to-market write-downs of toxic assets which were often hid in off-balance-sheet entities. Enron, Parmalat, and Satyam hid much of their long-term debt in off-balance-sheet entities so the debt-to-equity ratio only worked 44% of the time. However, the book debt-to-equity ratio was statistically significant in helping to explain poor financial performance in U.S. banks during the recent financial crisis as bank executives took excessive risks with more debt (other peoples' money or OPM) which required a U.S. taxpayer bailout of many U.S. banks (Grove *et al*, 2010).

Concerning red flags for these nine FFR companies, only Parmalat and WorldCom had less than 50% red flags. Parmalat focused on family insiders looting the company of its cash which was covered up with a non-existent cash account in South America. This phony cash account was also used to hide operating losses of Parmalat. WorldCom did not manipulate its revenues but hid over \$4 billion of expenses in long-term assets, like "prepaid fiber optic capacity," to maintain its profits. Seven of the nine FFR companies were flagged by the combination of newer models and traditional ratios over 50% of the time: Satyam (65%), Enron (61%), Global Crossing (70%), Tyco (70%), Qwest (57%), Lehman Brothers (52%), and

Citigroup (70%). Thus, these models and ratios worked well in flagging FFR problems at these companies in a variety of industries: technology outsourcing (Satyam), global energy (Enron), telecommunications (Global Crossing and Qwest), manufacturing (Tyco), and banking (Lehman Brothers and Citigroup).

To check against this hindsight analysis of fraudulent financial reporting, as a control group, major non-fraud companies in the same industries of the fraud companies were also analyzed with the fraud models and ratios. These fraud indicators did discriminate effectively between the FFR companies and the non-FFR companies. Overall, the models and ratios indicated fraud for the FFR companies 57% of the time in Table 2 versus just 31% of the time in Table 3 for the non-FFR companies. For the FFR companies in Table 2, the fraud indicators ranged from 30% (for just one company) to 70% (for three companies). For the non-FFR companies in Table 3, the range was from 22% (for just one company) to 39% (for two companies). Thus, the fraud models and ratios appeared to have good discriminating ability between FFR companies and non-FFR companies and would be worthwhile for auditors, financial analysts, and regulators to apply. Such fraud prediction models and ratios appear to be effective when companies are misstating their financial statements, omitting disclosures, and generally being non-transparent, as reinforced by Schilit's comments that the red flags were hard to miss and occurred over and over again (Please see Table 3).

Summary

Steven Schwarcz, a professor at Duke Law School, examined a random number of twenty SPE disclosures from different companies and concluded that such disclosures can become so unwieldy that no one would be able to understand them. He concluded in this age of increasing financial complexity, the efficient market's major conclusion of more disclosure, the better, for users has become an anachronism (Gladwell 2009, p.166). Jonathan Macey, a Yale law professor, similarly concluded that just disclosures of financial information are inadequate. He observed: "It is vital that there be a set of financial intermediaries, who are at least as competent and sophisticated at receiving, processing, and interpreting financial information...as the companies are at delivering it." (Gladwell 2009, p.172).

It should be both Wall Street's and Board of Directors' responsibilities to keep pace with such financial information complexities, as well as external auditors, financial analysts, government regulators, and other external users. These newer financial models and ratios have been advocated as a risk management strategy to deal with the increasingly complex financial world (Grove and Cook, 2004). These seven newer models and ratios have been empirically shown to predict stock price declines for companies which have four or five of these financial red flags (Grove *et al*, 2010). Also, the stock market has been shown to adversely react to announcements of Securities and Exchange Commission (SEC) investigations of U.S. companies for possible FFR or earnings management (Cook and Grove, 2009).

Jack Zwingli, chief executive of the research firm, Audit Integrity, analyzes a range of corporate governance and accounting risk measures to calculate ratings on companies that try to predict a company's financial reporting troubles (Fahey, 2009). Similarly, this paper has advocated a risk management strategy of using a combination of ten timeless corporate governance weaknesses, seven emerging models/ratios, and eleven traditional ratios. The corporate governance weaknesses occurred as red flags 81% of the time for the nine FFR companies and the financial models and ratios occurred as red flags 57% of the time. For the non-FFR companies, the financial models and ratios occurred as red flags only 31% of the time so these indicators appear to have good discriminating ability. Thus, sufficient red flags or warnings should exist from this combination of corporate governance and financial factors. Then, Boards of Directors, external auditors, financial analysts, and government regulators could ask probing questions of management as a starting point to help sort through all the company's financial reports and disclosures to investigate the possibility of FFR. Future research could attempt to create a rating system that combines both corporate governance and financial factors to identify FFR. Such strategies could help turn around the following situation observed by Schilit: "It seems that although the bad people have gotten better at their shenanigans, the good people have not gotten better at their craft and that is a shame" (2010, p.8).

Table 1: Financial Reporting Fraud Detection

	Global				Lehman				World	Totals	
Corp Gov Summary	Satyam	Parmalat	Enron	Crossing	Tyco	Qwest	Brothers	Citigroup	Com	Red Flags	
Corp Gov Weaknesses:											
All Powerful CEO and Insider Board Influence	Y (Yes)	Y	Y	Y	Y	Y	Y	Y	Y	9 9/9 = 100%	
Weak System of Internal Control	Y	Y	Y	Y	Y	Y	Y	Y	Y	9 100%	
Focus on Short-Term Performance Goals	Y	N (No)	Y	Y	Y	Y	Y	Y	Y	8 8/9 = 89%	
Weak or Non-Existent Code of Ethics	Y	Y	Y	Y	Y	Y	Y	Y	Y	9 100%	
Questionable Business Strategies with Opaque Disclosures	Y	Y	Y	Y	Y	Y	Y	Y	Y	9 100%	
CEO is Uncomfortable with Criticism	N	Y	Y	N	N	Y	Y	Y	Y	6 6/9 = 67%	
Insider Stock Sales	N	N	Y	Y	Y	Y	N	N	Y	5 5/9 = 56%	
Senior Management Turnover	Y	Y	Y	N	Y	Y	N	N	N	5 56%	
Independence Problems with the Company's:											
External Auditors	Y	Y	Y	Y	Y	Y	N	N	Y	7 7/9 = 78%	
Investment Bankers	N	Y	Y	Y	Y	Y	N	N	Y	6 67%	
Totals:	Red Flags	7	8	10	8	9	10	6	6	9	73 73/ 90=81%
	%	7/10 = 70%	80%	100%	80%	90%	100%	60%	60%	90%	

Table 2: Fraudulent Reporting: Fraud Companies

	Global				Lehman				World	Totals:	
Ratio Summary	Satyam	Parmalat	Enron	Crossing	Tyco	Qwest	Brothers	Citigroup	Com	Red Flags	
Seven Newer Models											
Fraud F Score (New)	Y (Yes)	N (No)	Y	Y	Y	N	Y	N	N	5 58%	
Altman Z Score	N	Y	P (Poss)	Y	P	Y	Y	Y	Y	8 89%	
Fraud Z Score (Old)	Y	N	Y	Y	N	N	N	Y	N	4	
DSRI	P	N	P	N	P	N	P	N	Y	5	
GMI	N	N	Y	Y	N	P	P	P	P	6	
AQI	N	P	N	N	Y	N	N	N	N	2	
SGI	P	N	Y	Y	P	P	P	P	N	7	
TATA	Y	N	N	N	N	N	N	N	P	2	
Sloan Accrual	N	N	N	Y	N	Y	N	N	N	2 22%	
Quality of Earnings	Y	N	N	Y	N	Y	N	Y	N	4 44%	
Quality of Revenue	Y	N	Y	Y	Y	Y	Y	Y	N	7 78%	
Shaky Books Ratio	N	N	Y	Y	N	N	N	N	N	2 22%	
Traditional Ratio Analysis											
Valuation Ratios											
Price to Book	Y	N	Y	N	Y	N	N	N	N	3	
Price to Earnings	N	N	Y	Y	Y	Y	N	Y	N	5	
Price to Sales	Y	N	N	N	Y	N	N	Y	N	3	
Price to OCF	Y	N	N	N	Y	N	N	N	N	2	
Profitability											
Profit Margin	Y	Y	Y	Y	Y	Y	N	Y	Y	8	
Top-Line Growth	Y	Y	Y	Y	Y	Y	Y	Y	Y	9	
Bottom-Line Growth	Y	Y	N	Y	Y	Y	Y	Y	Y	8	
Management Effectiveness											
Return on Assets	Y	Y	Y	Y	Y	Y	Y	Y	Y	9	
Return on Equity	Y	N	Y	Y	N	Y	Y	Y	Y	7	
Financial Strength											
Current Ratio	N	N	N	Y	Y	Y	Y	Y	Y	6	
Debt to Equity	N	Y	N	N	Y	N	Y	Y	N	4	
Totals:	Red Flags	15	7	14	16	16	13	12	16	9	118
											118 /
%		65%	30%	61%	70%	70%	57%	52%	70%	39%	207=57%

Table 3: Fraudulent Reporting: Non-Fraud Companies

Ratio Summary	IBM	Sara Lee	El Paso	AT&T	GE	SBC	Wells			Totals:	
							Fargo	JP Morgan	Verizon		
										Red Flags	
Seven Newer Models											
Fraud F Score (New)	N	P (Poss)	N	N	N	N	N	N	N	1	
	(No)									11%	
Altman Z Score	N	N	P	Y (Yes)	Y	P	Y	Y	Y	7	
										78%	
Fraud Z Score (Old)	N	N	N	N	N	N	N	N	N	0	
DSRI	N	P	N	N	P	N	N	N	N	2	
GMI	N	N	P	P	N	N	P	N	P	4	
AQI	N	Y	P	N	N	P	N	P	N	4	
SGI	N	N	P	N	N	N	N	P	N	2	
TATA	N	N	N	Y	N	N	N	N	N	1	
Sloan Accrual	N	N	N	N	N	Y	N	N	N	1	
										11%	
Quality of Earnings	N	N	N	N	N	N	N	Y	N	1	
										11%	
Quality of Revenue	N	Y	N	N	N	N	N	N	N	1	
										11%	
Shaky Books Ratio	N	N	N	N	N	N	N	N	N	0	
										0%	
Traditional Ratio Analysis											
Valuation Ratios											
Price to Book	Y	Y	N	N	Y	N	N	N	N	3	
Price to Earnings	N	N	Y	N	N	N	N	N	Y	2	
Price to Sales	N	N	N	N	Y	Y	Y	Y	N	4	
Price to OCF	N	N	N	N	N	N	N	N	N	0	
Profitability											
Profit Margin	Y	N	N	Y	Y	Y	Y	Y	N	6	
Top-Line Growth	N	N	Y	N	N	N	N	Y	N	2	
Bottom-Line Growth	Y	N	N	Y	Y	Y	N	N	Y	5	
Management Effectiveness											
Return on Assets	N	N	N	N	N	N	N	N	N	0	
Return on Equity	Y	Y	Y	Y	Y	Y	Y	N	N	7	
Financial Strength											
Current Ratio	N	N	Y	N	Y	N	N	N	Y	3	
Debt to Equity	Y	Y	Y	Y	Y	N	Y	Y	Y	8	
Totals:	Red Flags	5	7	9	7	9	7	6	8	6	64
											64 /
%		22%	30%	39%	30%	39%	30%	26%	35%	26%	207=31%

Appendix

Red Flag Models and Ratios

Seven different emerging models and ratios were used in this study to develop a more comprehensive red flag approach in screening for and identifying financial reporting problems in publicly held companies than just using traditional ratios. All the models are available from the authors in an Excel file and have been provided to many participants in Continuing Professional Education (CPE) seminars on FFR detection.

1. Quality of Earnings

The quality of earnings ratio is a quick and simple way to judge the quality of a company's reported net income. The ratio is operating cash flow for the period divided by net income for the period. The red flag benchmark is a ratio of less than 1.0 (Schilit 2003). Also, large fluctuations in this ratio over time may be indicative of financial reporting problems, i.e., Enron's quality of earnings ratios were 4.9, 1.4, and 2.3 over its last three years of operation. In its last year of operation, Enron forced its electricity customers to prepay in order to receive any electricity which dramatically increased its operating cash flows and quality of earnings ratio. Quality of earnings is also meant to measure whether a company is artificially inflating earnings, possibly to cover up operating problems. This ratio may indicate that a company has earnings which are not actually being converted into operating cash. Methods for inflating earnings (but not operating cash flows) include early booking of revenue, recognizing phony revenues, or booking one-time gains on sales of assets.

2. Quality of Revenues

The quality of revenues ratio is similar to the quality of earnings, except that the emphasis is on cash relative to sales rather than cash relative to net income. It is the ratio of cash collected from customers (revenues plus or minus the change in accounts receivable) to the company's revenue. Similar to the quality of earnings ratio, the red flag benchmark is a ratio of less than 1.0 (Schilit 2003). For example, Enron's quality of revenues went down from 0.98 to 0.92 in its last year of operation. Since manipulation of revenue recognition is a common method for covering up poor results, this simple metric can help uncover schemes used to inflate revenues without the corresponding cash collection. Common methods include extending

increased credit terms to spur revenues but with slow collections, shifting future revenues into the current period, or booking asset sales or swaps as revenue.

3. Sloan Accrual Measure

The Sloan accrual measure (1996 and updated as discussed by Robinson 2007) is based on the analysis of accrual components of earnings. It is calculated as follows: net income less free cash flows (operating cash flow minus capital expenditures) divided by average total assets. The red flag benchmark is a ratio of more than 0.10. For example, Sloan calculated that JetBlue had a ratio of 0.50 and his employer, Barclays Global Investors, shorted the stock and made over 12% in less than one year. This ratio is used to help determine the quality of a company's earnings based on the amount of accruals included in income. If a large portion of a company's earnings are based more on accruals, rather than operating and free cash flows, then, it is likely to have a negative impact on future stock price since the income is not coming from the company's actual operations (Sloan 1996). Since many of the accrual components of net income are subjective, managers are able to manipulate earnings to make the company appear more profitable. In essence, the Sloan accrual measure is used to help determine the sustainability of a company's earnings.

4. Altman Z-Score

The Altman (1968 and updated in 2005) Z-Score is a multivariate statistical formula used to forecast the probability a company will enter bankruptcy within the next two years. The model contains five ratios which are listed below with their coefficients, based on Altman's research. The model was originally developed in 1968 for evaluating the bankruptcy risk of traditional public firms, such as manufacturing, energy, and retail, but it can also be applied to non-traditional and service public firms, such as software, consulting, and banking, as well as private firms. All three versions of the model are available on the Bloomberg software subscription package. The traditional red flag benchmark is a Z-Score of less than 1.8, with a score between 1.8 and 3.0 indicating possible bankruptcy problems (Altman 2005).

(Working Capital / Total Assets) x 1.2

This ratio is a measure of a firm's working capital (or net liquid assets) relative to capitalization. A company with higher working capital will have more short-term assets and, thus, will be able to meet its short term obligations more easily. This ratio is a strong indicator of a firm's ultimate discontinuance because low or negative working capital signifies the firm may not be able to meet its short-term capital requirements.

(Retained Earnings / Total Assets) x 1.4

This ratio is a measure of a firm's cumulative profits relative to size. The age of the firm is implicitly considered due to the fact that relatively young firms have a lower ratio and the incidence of business failures is much higher in a firm's early years.

(EBIT / Total Assets) x 3.3

A healthy company will be able to generate income using its assets on hand. If this ratio is low, then, it demonstrates that profitability is poor, and that the company is in danger of bankruptcy because it is likely more vulnerable to market downswings which affect earnings. This analysis is true for both manufacturing and service companies as this ratio is included in both versions of the bankruptcy model, as well as a private company model (Altman and Hotchkiss, 2005). All three models are available in the Bloomberg subscription databases.

(Market Value of Equity / Book Value of Total Liabilities) x 0.6

This ratio adds a market emphasis to the bankruptcy model. The theory is that firms with high capitalizations would be less likely to go bankrupt because their equities have higher values. In addition, it will gauge the market expectations for the company which should take into account relevant future financial information. This market value of equity variable assumes the efficient market hypothesis is applicable which will be questioned in the following future research section.

(Sales / Total Assets) x 0.999

This ratio, also known as total asset turnover, demonstrates how effective the company is utilizing its assets to generate revenue. If this number is low, then, it indicates that the company is not being run efficiently which creates a higher bankruptcy risk. Altman's service sector bankruptcy model drops this variable to avoid bias toward those types of companies (Altman and Hotchkiss, 2005).

5. Z-Score (Old Fraud Model)

Beneish (1999) developed a statistical model used to detect financial statement fraud and earnings management through a variety of metrics. There are five key ratios used in the model, which are the Sales Growth Index (SGI), Gross Margin Index (GMI), Asset Quality Index (AQI), Days Sales in Receivables Index (DSRI), and Total Assets to Total Accruals (TATA). Each of these measures with its model coefficient, based upon Beneish's research, is outlined below. There is also a constant value in the model of -4.840. The red flag benchmark is a Z-Score greater than a negative 1.49, i.e., a smaller negative number or a positive number indicates possible financial reporting problems (Beneish 1999). For example, Enron had a Z-Score of a positive 0.045 in its last year.

SGI – Sales Growth Index x 0.892

This measure is current year sales divided by prior year sales. It is meant to detect abnormal increases in sales which may be the result of fraudulent revenue recognition. If a company experiences a very large increase in sales from one period to the next, it may be due to shifting revenue to a later period or booking phony revenue. The benchmark mean index for non-FFR is 1.134 and 1.607 for FFR with scores in between indicating FFR possibilities.

GMI – Gross Margin Index x 0.528

This measure is last year's gross margin divided by this year's gross margin. While not necessarily a direct measure for potential manipulation, companies that are experiencing declining gross margins may have increased pressure to improve financial performance. Such pressure may cause them to turn to fraud or questionable financial reporting to maintain net income margins. The benchmark mean index for non-FFR is 1.014 and 1.193 for FFR with scores in between indicating FFR possibilities.

AQI – Asset Quality Index x 0.404

This measure is the percentage of total assets that are intangible assets this year divided by the same percentage calculation for last year. An increase in this index may represent additional expenses that are being capitalized to preserve profitability. Rather than expensing various costs, such as research and development or advertising, these costs are being capitalized as intangible assets. Capitalization increases assets while helping to maintain the profitability of the company. The benchmark mean index for non-FFR is 1.039 and 1.254 for FFR with scores in between indicating FFR possibilities.

DSRI – Days Sales in Receivables Index x 0.920

This measure is DSRI this year divided by DSRI last year. Companies that are trying to boost revenue and profit will often allow customers to have extended credit terms so that they will buy earlier. This practice increases current revenue but may hurt the company in the future. This metric is meant to detect companies which make significant changes in their collection policies or which recognize phony or early revenues. It could reflect a general economic slowdown which could impact most companies and, thus, not be an effective signal. The benchmark mean index for non-FFR is 1.031 and 1.465 for FFR with scores in between indicating FFR possibilities.

TATA – Total Accruals to Total Assets x 4.679

This measure represents total expense accruals to total assets. Such accruals (the change in working capital less cash change less current tax payable change less depreciation and amortization) represent non-cash earnings. Similar to Sloan's accrual measure and the New Fraud Model accrual measure, an increase in expense accruals represents increased probabilities of earnings manipulation and of operating and free cash flow problems. The benchmark mean index for non-FFR is 0.018 and 0.031 for FFR with scores in between indicating FFR possibilities (Wells 2001).

6. F-Score (New Fraud Model)

The new F-Score fraud model (Dechow, Ge, Larson, and Sloan 2007) can be used as another initial test in determining the likelihood of financial reporting manipulation. Similar to the other models and ratios, a fraudulent score for this model does not necessarily imply such manipulation but it serves as a red flag for further analysis. The model contains measures to identify problems in accruals, receivables, inventory, cash sales, earnings and stock issuances as discussed below with their coefficients, based upon their research. There is also a constant value of -6.753 in the model. The red flag benchmark is an F-Score greater than 1.0 and is calculated using an exponential model. For example, the F-Score for Enron in its last year of operation was 1.85. Their research is the most extensive of the two fraud models (designated as the old and the new models) since it was based upon an examination of all AAERs issued between 1982 and 2005 while the prior, older Beneish study was based only on AAERs issued between 1982 and

1992.

Accruals x 0.773

Firms that engage in earnings manipulation typically have abnormally high accruals. A significant amount of non-cash earnings results in inflated earnings and is a warning sign for earnings manipulation. This measure is a complex calculation based upon numerous accrual measures and is scaled by average total assets. Essentially any business transactions other than common stock are reflected in accrual measures (Dechow et.al. 2007).

Change in receivables x 3.201

The change in receivables from last year to this year is scaled by average total assets. Large changes in accounts receivables may indicate revenue and earnings manipulation through the early or phony recognition of revenue. Large swings in accounts receivable can distort cash flows from operating activities.

Change in inventory x 2.465

The change in inventories from last year to this year is scaled by average total assets. Large changes in inventory may indicate inventory surpluses, shortages, obsolescence, or liquidation. For example, if the company uses the last-in first-out (LIFO) method of accounting for inventory in a period of rising prices, selling older inventory will result in lower cost of goods sold, i.e., LIFO liquidation of inventory units or layers. This practice leads to inflated earnings.

Change in cash sales x 0.108

This measure is the percentage change in cash sales from last year to this year. For a firm not engaged in earnings manipulation, the growth rate in cash sales could be compared to the growth rate in revenues but these researchers did not include such an analysis. They argued and modeled that just the change in cash sales is a key metric to monitor when evaluating the potential for earning manipulation.

Change in earnings x -0.995

This measure is a percentage calculated as earnings divided by total assets this year less the same measure last year. Volatile earnings may indicate earnings manipulation. Per Dechow, Ge, Larson, and Sloan (2007), a consistent theme among manipulating firms is that they have shown strong performance prior to manipulations. The cause for such manipulations may be a current decline in performance which the management team attempts to cover up by manipulating financial reporting.

Actual issuance of stock x 0.938

This measure is a dummy variable that is ON if additional securities are issued during the manipulation year and is OFF if no such securities are issued. Such issuances may indicate operating cash flow problems that need to be offset by additional financing. Also, issuance of stock may indicate management is exercising stock options. The exercise of stock options may signify that managers are attempting to sell at the top because they foresee future underperformance of the company. Such insider sales resulted in the criminal conviction of Qwest's Chief Executive Officer and have been a significant non-financial red flag in many fraud cases, like Enron, Global Crossing, and WorldCom. For example, Qwest and Enron insiders made \$2.1 billion and \$1.1 billion, respectively, by exercising and selling their stock options before their firms' financial reporting problems became public.

7. Shaky Books Ratio

The Shaky Books ratio (Domash, 2009) tracks the amount of non-recurring and extraordinary revenues and expenses divided by revenues over a three to five year average. The cut-off is an average over 4% to indicate a red flag for possible FFR. Repeated non-recurring and extraordinary items are red flags that can signal questionable accounting practices to be investigated, especially when management uses non-recurring items inappropriately and repeatedly to boost pro-forma earnings.

Key Individual Ratios

Valuation Ratios

1. Price/Book = Common Share Price / Book Value per Share

Book Value per Share = Total Stockholders' Equity /

Basic Common Shares Outstanding

Benchmarks: S&P 500 (Year 2000) = 4.10; Industry Average of 2 to 3

2. Price/Earnings = Common Share Price/Diluted Earnings per Share

Diluted EPS = Net Income / Common Shares Outstanding + Stock

Options + Convertible Common Shares

Benchmarks: S&P 500 (Year 2000) = 35.70; Average (1990's) = 20 to 25

3. Price/Sales = Common Share Price / Sales Per Basic Common Share

Benchmark: S&P 500 (Year 2000) = 1.90

4. Price/Cash Flow = Common Share Price / Operating Cash Flows

Per Basic Common Share

Benchmark: S&P 500 (Year 2000) = 15.10

Income Statement Profitability

5. Profit Margin = Net Income / Sales

Benchmark: 4% to 8%

6. Top-Line Growth = Sales Change (Prior Year to Current Year)/ Prior Year Sales

Benchmark: 5% to 20%

7. Bottom-Line Growth = Net Income Change (t-1 to t) / Net Income t-1

Benchmark: 5% to 15%

Management Effectiveness

8. Return on Assets = Net Income / Total Assets

Benchmark: 8% to 12%

9. Return on Equity = Net Income / Total Stockholders' Equity

Benchmark: 9% to 16%

Financial Strength

10. Current Ratio = Current Assets / Current Liabilities

Benchmark: 2 or greater

11. Debt/Equity Ratio = Total Debt (Short-term + Long-term)/ Total Stockholders' Equity

Benchmark: 0.5 or greater

Primary Source: Yahoo Finance, a heavily used financial Web site. The benchmarks come from U.S. S&P 500 averages and general ratio guidelines around the time of these major FFRs.

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