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Research Note

Learning from ecology: Financial reporting as a 'commons'

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ABSTRACT

This note explores how the financial reporting environment for listed companies is a common good put at risk by participants with incentives to extract benefits at the cost of the investing public. Disclosure of misleading financial information confers economic gain for a few but pollutes the environment and reduces its usefulness for all. After showing how a variant of the prisoner's dilemma may explain Enron-era scandals, the note discusses how U.S. government intervention was the only practical solution to repair damage to the financial reporting Commons. The implication of this note is that government involvement in financial reporting is here to stay.

Introduction

Ecologist Garrett Hardin uses the term *tragedy of the commons* to describe how self-interested individuals can ruin a shared resource (Hardin, 1968). In his metaphor, village residents let their cows over-graze on common land and ultimately deplete grass available for all members of the community. There is no easy solution because benefits of over-grazing accrue to individual farmers while costs of worn-out land are borne by all village residents. Rational actors have little incentive to show restraint. When private benefits are extracted at the expense of public costs on a large scale, a Commons problem may end in disaster (Hardin, 1985). Examining the Enron-era financial reporting environment through Hardin's lens may be instructive to readers interested in accounting regulation.

The thesis of this note is that financial reporting by listed firms (i.e., publicly traded companies with widely held shares) is a common good put at risk from incentives faced by capital markets participants. Disclosure of misleading information pollutes the financial reporting Commons and reduces its usefulness for all others. The purpose of this note is to encourage borrowing ideas from ecologists as we search for ways to avoid another accounting meltdown. This paper begins with a discussion of common goods, invokes a version of the prisoner's dilemma to describe behavior of certain stakeholders, and examines how the U.S. government intervened with Sarbanes–Oxley (SOX) legislation to repair damage to the financial reporting Commons. The implication is that government regulation of financial reporting is not going away soon.

Common goods

Financial reporting is part of society's efforts to allocate scarce resources. IBM, Coca Cola, and American Electric Power operate in different product markets but disclose accounting information in efforts to attract capital from similar investors. For purposes of this paper, the term *preparer* is used to describe company managers who disclose accounting information and *investor* to describe those who use this information to value and trade corporate securities.

Financial reporting is a common good due to its non-exclusive, rivalrous nature. Non-exclusive means preparers may disseminate accounting information at any time. In the absence of selective disclosure, all investors have access to accounting disclosures. Rival use arises because investors trade securities based on new information, so its value diminishes as security prices change to reflect recent buying and selling decisions. A healthy financial reporting environment requires firms to replenish the Commons with new, accurate information as economic events continue to unfold. Consumption of disclosed information without replenishment degrades

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the usefulness of the financial reporting environment. This "subtractability" makes accounting information a common good rather than a public good (Ostrom, 2009).

The U.S. government, benefiting from wealth creation and tax revenue that follow efficient capital allocation, has made healthy financial reporting a priority. To promote replenishment, Congress passed the Securities Exchange Act of 1934. The '34 Act created the Securities and Exchange Commission (SEC) and requires publicly traded firms to issue periodic financial statements audited by independent accountants. Criminal prosecution may be brought against preparers who fail to disclose accurate financial information (SEC Rule 10b-5) and auditors who sign off on misleading statements (*United States v. Simon*, 425 F.2d 796).

Two threats to fair reporting emerged in the 1990s. To encourage trading among its clients, brokerage firms hire security analysts to write research reports that include forecasts of earnings per share (EPS) for listed companies. By the late '90s, most public U.S. firms were covered by security analysts (Berenson, 2003). The average of published EPS forecasts becomes the consensus estimate for the company's next accounting period. Every time a public firm reports results, some investors compare actual performance with analyst expectations to determine whether reported EPS missed, met or beat analyst expectations. Earnings surprises, where reported EPS differ from consensus estimates, have stock price consequences.

Contemporary research finds a stock market reward for firms that meet (Kasznik & McNichols, 2002) or beat expectations (Lopez & Rees, 2002) and a penalty for firms that miss (Skinner & Sloan, 2002). Such stock market behavior motivated executives to nudge accounting balances to avoid earnings misses.

The second threat came from a 1993 revision to the *Internal Revenue Code*. In response to criticism about high corporate pay, Congress disallowed tax deductions for salaries greater than $1 million per year paid to certain executives at publicly traded firms. However, the law allows an exception for performance-based pay (Section 162m). Company boards of directors then substituted equity awards for cash salaries to compensate senior corporate executives. Since executive pay packages were influenced by short-term stock price movements, some managers had an economic incentive to misreport performance to spark temporary boosts to share prices. Executives at these shirking firms extracted private gains (higher compensation through inflated share prices) at the cost of public losses (degradation in the quality of accounting information released into the Commons).

Evidence of a problem with 1990s financial reporting is the landmark speech given by SEC chair Arthur Levitt, who decried a game of winks and nods among preparers and auditors as firms modified earnings calculations to meet analyst earnings estimates and project smooth earnings paths (Levitt, 1998).

Prisoner's dilemma

Ostrom argues that the health of a Commons turns on a community's ability to keep self-interest at bay. Participants may guard against ruin through creation of rules, monitoring tools, sanctions, and conflict-resolution mechanisms (Ostrom, 1990). Such measures are not available on security exchanges because the anonymous nature of security trading impedes cooperation among participants. Ostrom further argues that if a Commons is open-access with no limit on who can appropriate resources, use of the Commons leads to a prisoner's dilemma game (Ostrom, 1990). The prisoner's dilemma, discussed in most introductory economics textbooks, describes situations where rational, self-interested individuals fail to cooperate, even when it is in their mutual interest to do so. The following analysis presents a variant of this metaphor.

		Auditors	
		Cooperate	**Defect**
Preparers	**Cooperate**	Reward, Reward	Sucker's Payoff, Temptation
	Defect	Temptation, Sucker's Payoff	Punishment, Punishment

Note: Each of the four cells presents an ordered pair of payoffs, where the first label describes the payoff to financial statement preparers on the left and the second applies to independent financial statement auditors at the top.

Fig. 1. Payoff matrix for a prisoner's dilemma game.

The '34 Act, as modified, encourages two stakeholders to work together to replenish the Commons with fresh, accurate financial information. Preparers have a duty to disclose accurate quarterly results while auditors have a duty to monitor preparers' efforts and offer an opinion on the propriety of this reporting.

Each group has a temptation to defect. Preparers who receive pay tied to stock prices may have an incentive to adjust accounting balances that would otherwise fall short of analyst expectations. Auditors, typically hired by a firm's Audit Committee for an agreed-upon fee, have discretion about the scope of efforts used to evaluate the propriety of a firm's financial statements as the year progresses. Reducing an audit's scope improves the profitability of the engagement and speeds up its completion. Faster, less invasive audits may also bring happier preparers who may be more inclined to purchase non-audit services from their independent accountants.

Fig. 1 shows these relationships in a payoff matrix. Each stakeholder may choose to cooperate or defect. For preparers, cooperation means releasing financial statements that present accounting balances in a fair, unbiased manner. Defection means making adjustments to the firm's accounts so that managers provide a distorted story to outsiders. For auditors, cooperation means making good-faith efforts to verify that reported balances are valid, accurate, and complete. Defection means that auditors do not perform a sufficient quantity of work, or do not perform work with sufficient professional skepticism, to reach a valid opinion on the fairness of the client's financial statements.

The matrix has four possibilities. If both parties cooperate, each receives the reward of cash-based compensation

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