

RESEARCH BRIEF • FEBRUARY 2022

Information versus Investment

Based on BFI Working Paper No. 2022-07, "[Information versus Investment](#)," by Stephen J. Terry, Boston University; Toni M. Whited, University of Michigan; and Anastasia A. Zakolyukina, Chicago Booth

KEY TAKEAWAYS

- ✓ Shareholders rely on managers to convey accurate information about firm earnings and make optimal investment choices.
- ✓ This dynamic also has implications for the broader economy, as the accurate disclosure of financial information allows for the efficient pricing of assets, which is essential for the health and transparency of capital markets.
- ✓ However, firm managers' incentives to accurately disclose information do not always align with shareholder, or the broader economy's, value.
- ✓ This work determines a socially optimal level of disclosure regulation by accounting for the dynamic incentives of firm managers.

When Enron, a Texas-based energy trader and supplier, filed for bankruptcy in December 2001, its stock was trading at \$0.26 per share. The prior year its share price peaked at \$90.75. This stunning fall was not the result of economic shocks or events out of Enron's control. Rather, Enron was exposed as engaging in fraudulent financial activities, including inflating company earnings, manipulating energy markets, and embezzling corporate funds.¹

Enron was not alone. Other high-profile companies at the time, including Tyco and WorldCom, bent, broke, or ignored rules aimed at protecting shareholders. In the case of WorldCom, a whistleblower exposed more than \$4 billion of fraudulent balance sheet entries for the telecom firm.² Congress responded with the passage of the Sarbanes-Oxley Act of 2002 (SOX) that, among other actions, created an oversight board to establish and oversee audit rules, and to enforce compliance.³

However, the passage of SOX did not necessarily end the practice of firm managers issuing inaccurate information. Indeed, firm managers are often conflicted by two primary shareholder responsibilities: making long-term investment choices (wherein shareholders and managers have common

¹investopedia.com/updates/enron-scandal-summary

²soxlaw.com

³congress.gov/bill/107th-congress/house-bill/3763

incentives) and disclosing short-term earnings information (wherein managers' compensation may incent them to lie or distort their investment choices). SOX may have only shifted how this misinformation occurs, moving from the misreporting earnings by manipulation of accounting accruals to misreporting earnings by distorting investments.

This paper addresses these conflicting incentives for firm managers by focusing on bias in accounting accruals and distortions to investment in intangible assets, which, according to accounting rules, have an immediate impact on earnings. The authors quantify the real implications of managers' incentives to distort information to the public and derive a socially optimal level of disclosure regulation. By offering a deeper understanding of how disclosure regulations alter incentives and affect manager behavior, this work offers important implications for policymaking in a post-SOX world.

Is a little lying a good thing?

In the corporate world, shareholders rely on firm managers to carry out two distinct tasks: making long-term investment choices and disclosing information about firm performance. These tasks also have important implications for the firm and the broader economy. Firm investment ensures long-term growth, which has a positive impact on the economy, while accurate disclosure of financial information allows for the efficient pricing of assets, which is essential for the health and transparency of capital markets.

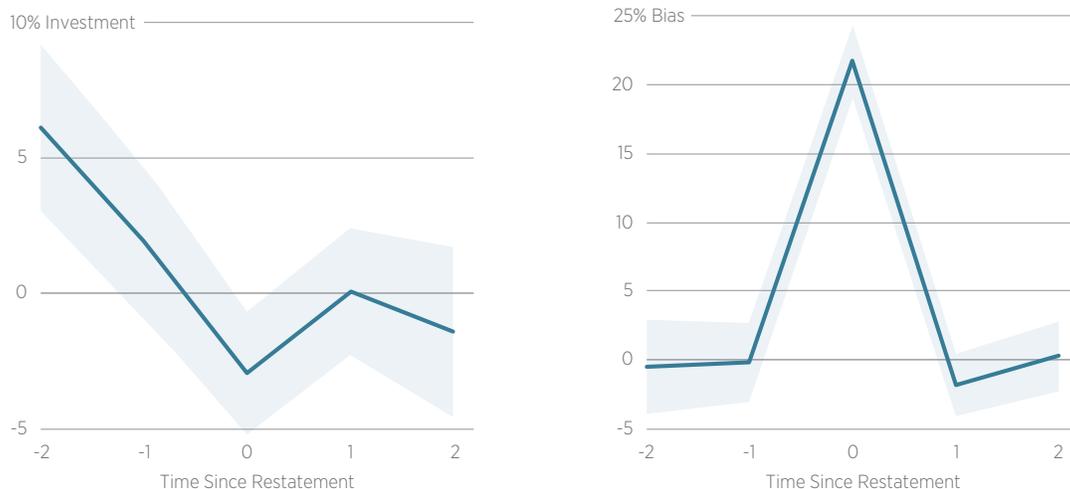
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performance. However, this is not always true for a key party in this equation—the firm managers. The incentives of these managers may not be aligned with shareholders and, by extension, the rest of the economy. Managers' compensation contracts often give them short-term incentives to both beat average earnings and smooth reported earnings. Achieving both targets can be done by misreporting earnings via accrual-based manipulation or real investment distortion.

As a result, the managers face a trade-off between the accurate disclosure of information and the efficiency of their investment choices. Making optimal long-run investments, for example, may negatively impact short-run firm performance and, thus, decrease managers' performance-based equity compensation and bonus plans. To avoid this drop in compensation, a manager may choose to sub-optimally reduce investment or simply lie about earnings. Both of these decisions have implications for the future: sub-optimal investment results in sub-optimal future profits and lying accumulates over time triggering more lying.

Figure 1 - Dynamics Around a Restatement Event: Simulated Data



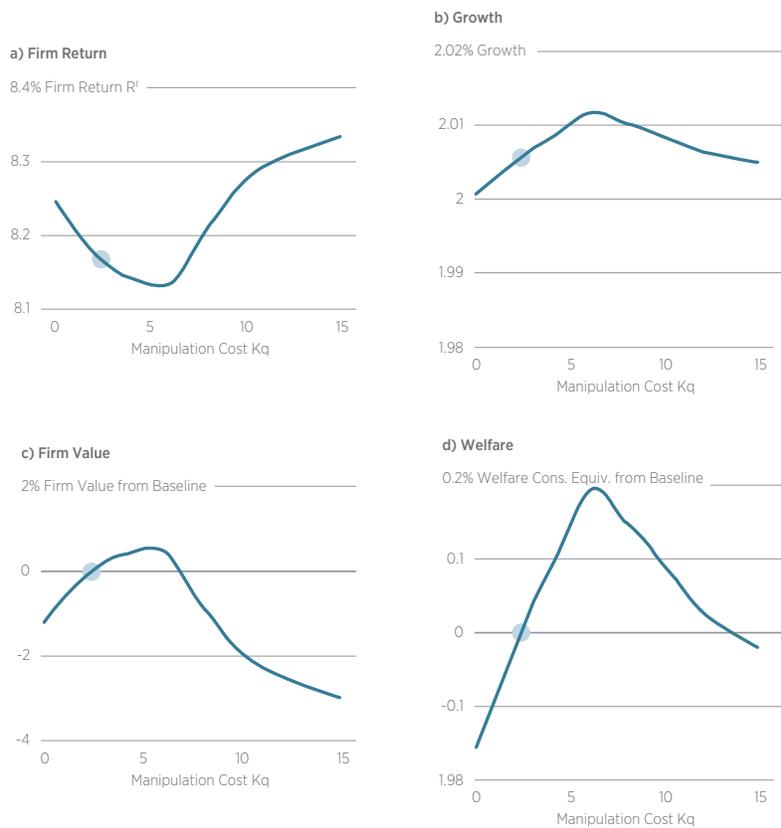
Note: This figure plots the dynamics of intangible investment (left panel) and reporting bias (right panel) around firm restatement events in which book values were biased upwards for the simulated data. The solid line on the left-hand side plots the resulting dynamics of investment, which reveals a quick drop of around 2.5% for the firm in periods in which upward bias is restated, labelled "0." The right-hand side shows upward manipulation of reported earnings by a bit more than 22% on average. Intuitively, the model provides incentives for managers to shift reported profits upward to beat earnings thresholds or smooth earnings. While managers can achieve this goal with either biased reporting or real investment cuts, each tool is costly on the margin. Therefore, managers use both levers to manipulate their earnings upward during restatement periods. Please see working paper for more details.

This dynamic with sub-optimal incentives introduces a curious phenomenon wherein a little bit of lying about short-run firm performance might be a good thing: If managers can get away with such misinformation, they can preserve the benefits of efficient long-run investments—for shareholders, the economy and, ultimately, themselves—while achieving their short-run compensation goals. Of course, these competing incentives can also cause managers to make suboptimal decisions about investments as they attempt to manage short-run firm performance.

How to identify and measure the effects of this trade-off? This question is difficult because it is almost impossible to observe concealed information. Therefore, the authors turn to the arena of earnings misreporting, which they describe as a natural laboratory to examine questions involving information about firm performance. Data on earnings announcements, realizations, and, critically, restatements—corrections of financial statements—are widely available. Moreover, while instances of fraudulent disclosure are infrequent, they exist, allowing the authors to observe a snapshot of investment decisions surrounding deliberate information manipulation.

This would be a simpler exercise if all fraudulent disclosure were detected and if fraud was easily revealed. That is not the case. Likewise, to quantify the economic magnitude of these “information frictions,” the authors use available data on earnings information and fraudulent disclosure to construct a model that reflects the real choices that firm managers face regarding investment and earnings reports. The authors’ model incorporates all the ingredients necessary to generate the trade-off between misreporting and investment efficiency: a compensation structure with both short-term and long-term incentives, persistent investment opportunities that enhance firm growth and social welfare, punishment for misreporting, and an equilibrium effect of earnings informativeness on the cost of capital. For a complete description of the model, please see the working paper, but the upshot for this Research Brief is that the authors use this estimated model to better understand the counterfactual effects of disclosure regulation on firm value, growth, and social welfare, and to suggest an optimal level of disclosure regulation.

Figure 2 • Counterfactual Experiments



Note: This figure plots changes in several outcomes over the same range of experiments (or counterfactuals). Panel A shows that increasing the cost of misreporting initially leads to a decline in the firm cost of capital, because less earnings bias leads to lower information rents, that is, more efficient financial markets. This salutary initial decline in the cost of capital spurs more investment and boosts growth (Panel B), firm value (Panel C), and aggregate welfare (Panel D). However, manager incentives for earnings manipulation remain even as the costs of misreporting or bias increase. The resultant increase in real earnings manipulation, even when paired with less bias in earnings, leads to a net decline in the informativeness of earnings. Intuitively, even though reported earnings are more accurate, they are generated through a process that often features investment cuts to boost profits and, thus, delinks today’s earnings from long-run firm value. The result is an eventual sharp reversal and increase in the firm’s cost of capital. Unsurprisingly, a higher cost of capital eventually leads to lower firm value, growth rates, and welfare. Please see working paper for more details.

In summary, the authors' model finds that a socially optimal level of disclosure regulation arises because regulation exerts two opposing forces on earnings informativeness:

- First, as the tightness of regulation initially rises, earnings misreporting falls, so earnings informativeness rises, and the cost of capital falls. This is the sweet spot for disclosure regulation, as firm value, growth, and social welfare all rise accordingly.
- Second, and in contrast, as the tightness of regulation continues to increase, although earnings misreporting continues to fall, managers react by intensifying their investment manipulation. Managers, in other words, who are increasingly disincentivized to misreport earnings information for their own benefit, now turn to distorting their investment choices, which has its own negative impact on earnings informativeness. This leads to a rise in the cost of capital, a drop in firm value, and a smaller drop in welfare.

The authors find that the socially optimal level of disclosure regulation exceeds their estimated current level, while the optimal level of regulation for the maximization of firm value is lower than the socially optimal level but still higher than the estimated current level. This is because the structure of the manager's compensation contract means that more manipulation is typically associated with higher investment. However, this extra investment is less valuable to the firm than for society, or welfare, more generally, as investment results in increased productivity, growth, and household utility, that is, welfare.

What happens if you eliminate misreporting entirely through disclosure regulation? This would only incentivize firm managers to distort real investment even more. Bottom line: Lower earnings informativeness raises the cost of capital, which results in a 5.7 percent drop in average firm value, but more modest effects on social welfare and aggregate growth.

CLOSING TAKEAWAY

What happens if you eliminate misreporting entirely through disclosure regulation? This would only incentivize firm managers to distort investment even more. Bottom line: Lower earnings informativeness raises the cost of capital, which results in a 5.7 percent drop in average firm value, but more modest effects on social welfare and aggregate growth.

Conclusion

Regulators and policymakers have long been vexed by how best to regulate the disclosure of information by firms, especially considering the incentives of managers to manipulate information for the benefit of their own compensation at the cost of firm performance, shareholder returns, and benefits to the broader economy. This work quantifies the real implications of trade-offs between firm information disclosure and long-term investment efficiency to suggest a socially optimal level of disclosure regulation.

The authors' novel insights suggest that the estimated current level of regulation falls short of the socially optimal level. However, this work has implications beyond lawmaking and regulations, to include corporate boardrooms. The authors show that short-term incentives sometimes can have strong, counterintuitive effects on firm value; therefore, corporate boards might find the magnitude of these effects useful when setting incentive packages.

READ THE WORKING PAPER

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bfi.uchicago.edu/working-paper/202207

ABOUT OUR SCHOLAR



Anastasia Zakolyukina

Associate Professor of Accounting and William Ladany Faculty Scholar, Chicago Booth

chicagobooth.edu/faculty/directory/z/anastasia-a-zakolyukina



Written by David Fetting, BFI Senior Writer and Editor

