FINANCIAL MISREPRESENTATION, EXECUTIVE COMPENSATION, AND FIRM PERFORMANCE: AN EMPIRICAL STUDY

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ABSTRACT

Financial misrepresentation has serious, detrimental economic and social impacts. We present hypotheses regarding the factors that incline a firm to misrepresent its finances. Using a matched sample design, we find that three factors increase a firm's probability of misrepresenting its financial position: performance below its industry's average performance, performance significantly above its own past performance, and its CEO receiving a high proportions total compensation as stock options.

CONCEPTUALIZING CORPORATE MISCONDUCT

This paper examines the factors that encourage firms to engage in one specific form of corporate misconduct – misrepresentation of its financial position. Revelations of financial misrepresentation often result in ruinous corporate economic outcomes, and damage to stakeholders (employees, customers, suppliers, etc.). In addition, such misconduct can have a detrimental societal impact, both by damaging many stakeholders and by damaging institutions that rely on accurate reporting.

We operationalize financial misrepresentation as financial restatements for accounting irregularities. Although firms often restate their financials for non-controversial reasons (e.g., stock splits, mergers, or formal changes in accounting methods), accounting restatements also arise from material errors and misrepresentations, termed 'irregularities'. The Government Accountability Office (GAO) defines 'irregularities' as any "instance in which a company restates its financial statements because they were not fairly presented in accordance with generally accepted accounting principles (GAAP)", including material errors and fraud (GAO, 2002:2). Many well-known corporate misbehaviors of recent years included an element of financial misrepresentation.   We analyze a sample of restatements based on accounting 'irregularities' announced between January 1, 1997 and June 30, 2002.

HYPOTHESES

Incentives. Research on managerial *incentives* often draws on agency theory, assuming that managers optimally respond to inducements. Similar predictions can come from a less-stringent model simply assuming that the size of rewards for specific outcomes increases how hard individuals work towards those outcomes. Empirical evidence consistently shows that people respond to incentives.

Agency theorists assume managers try to maximize their utility, which arises from compensation and other factors that might stand in opposition to shareholder objectives (e.g., excessive pay or perquisites). To increase shareholder returns, agency scholars recommend reward systems that link CEO compensation to firm performance or stock returns. Jensen and

Murphy (1990) firmly advocated incentive pay with a corresponding increase in total pay for CEOs. Such incentives remain a 'best practice' promoted by practitioners and consultants. Although agency researchers disagree about some details, most assume that increased CEO stock options ameliorate the principal-agent problem. Practice has followed these recommendations with massive increases in option grants, resulting in increased total CEO compensation.

While the conventional wisdom supports using stock options to align the incentives of management and shareholders, some scholars acknowledge possible adverse effects of such compensation (e.g., Bebchuk & Fried, 2003). Even Jensen and Murphy now recognize that equity-based incentives might make the agency problem "worse, not better" (2004: 47). This paper sheds light on these adverse effects.

A corporate manager with an incentive to increase reported earnings or positively influence stock price has several possible courses of action; try to improve real financial performance, try to influence investor impressions to increase stock price, or manipulate accounting to artificially increase reported performance above actual performance. Such manipulation can raise reported financial performance and stock prices – at least in the short term – above what honest reporting would have justified.

Both agency and behavioral arguments lead to the same conclusion. In an agency model, the CEO balances the expected utility of misrepresenting versus that of being honest. To mislead, the weighted utility of undiscovered misrepresentation must exceed the combined utility of honest reporting and the weighted negative utility of being caught misrepresenting; the utility from undiscovered cheating must exceed utility of honesty. Assuming the performance effect from undiscovered misrepresentation exceeds the performance from being honest, then linear increases in incentives will increase the benefits of misrepresentation more than the utility of the honest outcome, thus increasing the likelihood of cheating. Alternatively, a behavioral analysis may assume that managers prefer honesty but can succumb to sufficient temptation. In such a model, stronger incentives increase the temptation. In either case, we expect the probability of financial misrepresentation to rise with the strength of the incentive system. This leads to our first two hypotheses:

H1: *The proportion of CEO pay from stock options increases the likelihood of financial misrepresentation.*

H2: *The proportion of CEO pay from bonuses increases the likelihood of financial misrepresentation.*

Aspirations. Cyert and March's (1963) behavioral theory of the firm emphasizes how performance versus aspirations influences firm behavior. When current performance falls below the organization's level of *aspiration*, the firm searches for ways to improve reported performance to a satisfactory level. Whereas prior research examined legitimate ways for firms to improve performance (e.g., Greve, 1998), when firms with performance below their own past performance or the performance of competitors search for ways to improve reported financial performance, they may also deem financial misrepresentation a possible solution.

Prior research on corporate misconduct supports this notion; firms in low performing industries commit crimes more frequently than firms in high performing industries (Staw & Szwajkowski, 1975), and firms with poor prior performance more commonly commit environmental crimes (Alexander & Cohen, 1996).

This corresponds to research on risk-taking. Misrepresentation is risky; the consequences differ radically depending on whether the behavior is detected or not detected. The distance the firm's performance falls below its reference point increases the likelihood of risk-taking (Bromiley, 1991). Firms close to their reference points may hope to reach them via legitimate means, whereas firms far below their reference points may believe they are unable to do so. Thus the amount relative performance lies below aspiration should increase misrepresentation.

H3:   *For relative performance values below aspiration, the likelihood of misrepresentation will be highest for the lowest (most negative) values of relative performance.*

March and Simon (1958) argue that being slightly below versus slightly above the aspiration point influences behavior. Firms define their performance as acceptable or unacceptable and this dichotomy has substantial impact. With performance near the reference point, a change in performance from below to above the reference point has a greater impact than larger changes in other ranges.

Consequently, we hypothesize that a discontinuity occurs where performance equals aspirations. Following the same arguments as for H3, firms below their aspirations search for ways to move reported performance above aspired performance, and such search may result in misrepresentation. Thus, when performance is above aspirations, the probability of financial misrepresentations should be less than when it is below.

H4:   *Moving from negative relative performance to positive relative performance reduces the likelihood of financial misrepresentation.*

DATA AND METHODS

We started with a list compiled by the GAO of all firms with restatements due to accounting irregularities announced between January 1997 and June 2002, revealing 919 restatements announced by 845 firms. All the restatements reflect accounting 'irregularities', such as material errors and fraud, and exclude restatements for stock splits, mergers, formal changes in accounting methods, or other legitimate business purposes.

We matched each restating firm with a firm in the same four-digit SIC code industry with similar sales. The final sample had 435 misrepresenting firms and 435 matching firms. We used financial data from Compustat and compensation data from S&P Execucomp or firm proxy statements in the EDGAR database (depending on availability). We estimated the model by conditional logit. Conditional logit estimates a logit with a fixed effect for each matched pair. We used three samples with differing treatment of outliers but the results remained the same.

The literature suggests that a firm's aspirations adapt to two factors: past performance (self relative performance) and comparison to other firms (social relative performance). We included separate variables for each. We measured performance and aspirations by firm ROA.

RESULTS

The data strongly support Hypothesis 1; the percentage of CEO compensation comprised by options positively influences the likelihood of accounting misrepresentation (see Table 1). Hypothesis 2, however, is not supported; the coefficients on bonuses are not statistically

significant. The analysis indicates that moving from zero options to 100% of pay via options more than doubles the probability of subsequent misrepresentation.

Hypothesis 3 is partially supported. The distance of a firm's performance below that of its industry reference group increases its likelihood of subsequent misrepresentation. On the other hand, the amount a firm's performance falls below its own prior performance does not significantly influence likelihood of misrepresentation. Thus, the results for social relative performance support Hypothesis 3 and those for self relative performance do not. Moving from the industry reference point to .5 below the reference point increases the probability of misrepresentation to over 40% in a five-year period.

The parameter estimates support Hypothesis 4 for self relative performance but not social relative performance. Moving from just below to just above the firm's past performance lowers the probability of misrepresentation from 8.8% to 5.9% in a five-year period.

The results offer one substantial surprise – the amount firms perform *above* their own past levels also increases the likelihood of misrepresentation. If performance is .4 greater than performance in the prior year, the probability of misrepresentation within a five-year period increases to over 35%.

FURTHER ANALYSIS

The results offer support for three different factors in financial misrepresentation in public companies – executive compensation via options, low performance relative to industry, and high performance relative to past performance. However, the relations may be non-linear; for example, moving from zero options to 10% of income as options may influence behavior differently than moving from 50% to 60%, or 90% to 100%.

We tested for non-linear relations using dummy variables representing values of the independent variables. Three of the stock option dummies are significant, for the categories of firms with the highest option to compensation ratios. The probability of misrepresentation remains low for most levels of options then rises rapidly when options exceed 76% of compensation – a level reached by one third of the usable sample (see Figure 1). Firms in the top category exhibit a 21% chance of misrepresentation in a subsequent five-year period.

The result that firms with performance above their own prior performance tend to misrepresent their financial results in the next year presents a similar non-linear effect, wherein a large jump in ROA over that of the previous year has the most significant effect.

Table 1 and Figures 1 and 2 about here

Social relative performance also exhibits a non-linear influence. The dummy variables for the two lowest values have positive and significant parameter estimates (see Figure 2). The predicted probability of misrepresentation rises rapidly when the firm's performance falls more than 20% below the industry average. For the worst performers in their industry, the predicted probability of misrepresentation rises to 45%.

DISCUSSION

We suspect that the self relative performance effect reflects a rapid adaptation of aspirations. Managers and market analysts may base their aspirations for a firm on last year's

performance. A firm with an exceptional year faces a difficult problem; if the high performance the year before was partly luck, then the firm may be unable to replicate the high performance but the market will view failing to do so negatively. Trying to equal past performance, such firms may resort to financial misrepresentation.

Two different mechanisms may underpin the strong effect of underperformance relative to industry. Managers may psychologically accept the industry reference point as an essential aspiration level. Alternatively, CEOs may believe that boards of directors tend to dismiss executives of firms that post multiple years far below the industry average.

While the percentage of option compensation significantly influences financial misrepresentation, the bonus percentage does not. This may reflect that options naturally provide (due to the strike price) a highly non-linear incentive, or that options potentially provide much larger sums of money than bonuses. In our sample, for instance, the average options grant of $5,699,512 was valued at approximately *twenty* times the average bonus of $350,000.

While the problems associated with low performance relative to aspirations have always been around, the use of options in executive compensation has increased in recent years. Pundits and commentators have become increasingly critical of the corrosive power of CEO incentive compensation. While our research does not attempt to offer prescriptive policy suggestions, it strongly supports the intuition of these critics: large amounts of stock options substantially increase the likelihood of financial misrepresentation.

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Table 1: Conditional Logit Estimates
1= misrepresented, 0 did not

Options/Total Pay t-1	0.009[***]
	(0.0030)
Bonus/Total Pay t-1	-0.005
	(0.005)
Negative self relative ROA t-1	-0.255
	(1.67)
Self ROA > 0 dummy t-1	-0.423[*]
	(0.198)
Pos. self relative ROA t-1	4.08[**]
	(1.37)
Neg. social relative ROA t-1	-5.17[***]
	(1.27)
Social ROA > 0 dummy t-1	0.352[†]
	(0.206)
Pos. Social relative ROA t-1	-1.27
	(1.45)
Log sales t-1	0.319[*]
	(0.129)

[1] [†] $p< .10$, [*] $p< .05$, [**] $p< .01$, [***] $p< .001$.
N=844. $X^2(9)=67.2$[***] Pseudo R-squared=.12
Observations with abs(Relative ROA) < 1

Figure 1: Predicted Probability of Misrepresentation in Five years for Levels of Option Compensation
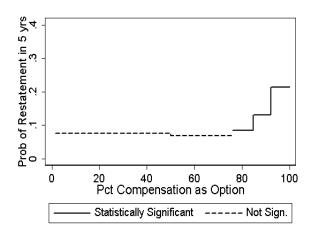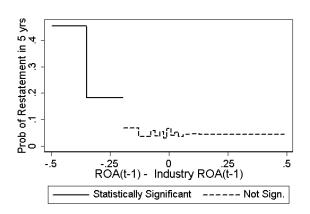

Figure 2: Predicted Probability of Misrepresentation in Five years for Levels of Social Referent Relative Performance