Accounting Discretion, Corporate Governance and Firm Performance

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Abstract: We investigate whether accounting discretion is (i) abused by opportunistic managers who exploit lax governance structures, or (ii) used by managers in a manner consistent with efficient contracting and shareholder value-maximization. Prior research documents an association between accounting discretion and poor governance quality and concludes that such evidence is consistent with abuse of the latitude allowed by accounting rules. We argue that this interpretation may be premature because, if such association is indeed evidence of opportunism, we ought to observe subsequent poor performance, ceteris paribus.

Following Core et al. (1999) we conduct our analysis in two stages. In the first stage, we confirm and extent prior literature and document a link between poor governance and managers' accounting discretion. However, in the second stage we fail to detect a negative association between accounting discretion attributable to poor governance and subsequent firm performance. This suggests that, on average, in our relatively large sample, managers do not abuse accounting discretion at the expense of firms' shareholders. Rather, we find some evidence that discretion due to poor governance is positively associated with future operating cash flows and ROA, which suggests that shareholders may benefit from earnings management, perhaps because it signals future performance.

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1. Introduction

The latitude allowed by Generally Accepted Accounting Principles (GAAP) enables managers to exercise judgment in preparing financial statements. Whether managers exercise such discretion in an opportunistic or efficient manner is one of the long-standing questions of positive accounting research (Watts and Zimmerman 1978; Christie and Zimmerman 1994). In particular, do self-interested opportunistic managers *systematically* exploit lax governance structures and abuse accounting discretion allowed under GAAP in a bid to increase their wealth at the expense of shareholders? Or do managers, in general, exercise accounting discretion in an efficient manner consistent with long run shareholder value maximization?

We adapt a methodology proposed by Core, Holthausen and Larcker (CHL 1999) to examine whether the opportunism or efficiency motivations dominate managers' accounting judgments, on average. In particular, we investigate whether poor governance quality is associated with greater accounting discretion, and whether firms with weaker governance structures report poorer future performance as a consequence, *ceteris paribus*.

We proceed in two stages and begin by examining the cross-sectional relation between an aggregate index of accounting discretion (composed of abnormal accrual usage, accrual-based smoothing of earnings, and the tendency to avoid negative earnings surprises) and governance quality after controlling for other economic determinants of accounting discretion such as firm size, leverage, growth opportunities, risk, performance and stakeholder claims. Under the efficient contracting explanation, firms make optimal governance choices conditional on their economic environment. If governance choices are optimal and in turn induce optimal contracting, we should observe *no* cross-sectional association between governance structures and the level of accounting

discretion. In other words, in equilibrium, a well-specified set of economic determinants should adequately describe observed opportunism in accounting discretion as such opportunism is *expected* by the contracting parties and contracted upon.[1] However, similar to prior research, in the first stage we find significant associations between accounting discretion and proxies for weak governance structures (e.g., greater short-run managerial compensation, balance of power tilted in favor of managers over shareholders, CEO-chair duality and closer relations between the executive team and the board).

Much of the prior literature stops at this stage and interprets the association between accounting discretion and poor governance quality as evidence that lax governance structures engender excess managerial opportunism (e.g., Becker et al. 1998, Gaver et al. 1995, Chen and Lee 1995 and Guidry et al. 1999, Frankel et al. 2002, Klein 2002, Menon and Williams 2004).[2] We argue that such an interpretation is premature <u>unless</u> one can show that excess accounting discretion has negative consequences for shareholders' wealth. In particular, the observed relation between accounting discretion and poor governance quality could represent either: (i) managerial opportunism *unexpected* by the contracting parties, e.g., as an outcome of unresolved agency problems; or (ii) an indication that we have not adequately specified a model for the equilibrium level of accounting discretion, e.g., variables included as economic determinants in the first stage are incomplete.

If *unexpected* managerial opportunism (efficient contracting) is the dominant driver of accounting discretion, then we would expect to observe a negative (null or positive) relation

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[1] Information asymmetry, incomplete and costly contracting prevent contracting parties from eliminating all opportunism.

[2] Another stream of literature examines the association between governance and accounting discretion in extreme cases, such as the SEC enforcement actions (e.g., Beasley 1996, Dechow, Sloan and Sweeney 1996, Beneish 1999 and Farber 2004). The advantage of investigating SEC actions is that there is no need to develop a model for expected accounting discretion. However, the disadvantage is that these firms represent self-selected, perhaps pathological cases. In contrast, we are interested in assessing whether abusive exercise of accounting discretion by firm management is a systematic occurrence in a relatively broad sample of firms.

between accounting discretion attributable to governance quality and future performance in second stage regressions. A positive association between accounting discretion attributable to governance quality and subsequent performance suggests that shareholders *benefit* from earnings management, perhaps because it signals future performance (e.g., Subramanyam 1996).

In this second stage, we do not find a negative association between accounting discretion due to governance and subsequent firm performance. This in turn suggests that the coefficients on governance variables in the first stage accounting discretion regressions do not adequately explain the effectiveness of the firm's governance structure. Rather, the coefficients on governance variables in the first stage regressions likely proxy for determinants of equilibrium accounting discretion. On average, these second stage results do not support the claim that managers exploit lax governance structures to exercise accounting discretion at the shareholder's expense. In contrast, we find some evidence that discretion due to poor governance is positively associated with future operating cash flows and ROA, consistent with shareholders benefiting from earnings management.

We make three contributions to the literature. First, our paper is among the first large-sample attempts at disentangling whether efficiency or managerial opportunism drives accounting discretion.[3] Second, a number of prior studies reject the null hypothesis of no association between

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[3] Christie and Zimmerman (CZ 1994) also attempt to differentiate between efficiency and opportunism explanations of accounting discretion. In particular, CZ find that, relative to surviving industry peers, takeover targets (that are assumed to be inefficient) had a higher frequency of income-increasing accounting methods (depreciation, inventory methods and the treatment of the investment tax credit) for 11 years leading to the takeover action. However, the incidence of managerial opportunism was lower than the frequency with which managers pick accounting methods to maximize firm value. Because their sample was deliberately chosen to maximize the chances of finding opportunism, they conjecture that opportunism is likely even less important for a random sample of firms. Our study complements CZ by providing large sample evidence to test their conjecture. Moreover, we extend CZ in three ways. First, we examine the performance (cash flow, ROA and stock returns) consequences of potential opportunism using accounting discretion while CZ do not investigate this issue. Second, unlike CZ who examine three visible accounting method choices, we investigate three broader, perhaps more subtle, measures of accounting choice i.e., accrual management, smoothing, and avoidance of earnings decreases. Third, we consider the role of a number of corporate governance mechanisms on managers' accounting discretion while CZ only consider the discipline imposed by the market for corporate control.

accounting discretion and either managerial compensation or governance structures as evidence that managerial opportunism drives accounting discretion (see Fields et al. 2001 for cites). We point out that an association between weak governance structures and accounting discretion *per se* need not imply managerial opportunism. The researcher would also have to document subsequent poor performance, either via stock returns or operating performance, to convince readers that managerial opportunism drives accounting discretion. In addition, we allow for the possibility that, on average, accounting discretion can even benefit shareholders by, say, allowing managers to signal their inside information about future performance.

Third, we contribute to the literature on the relation between governance and accounting discretion by using a relatively comprehensive set of governance variables. Extant research tends to relate accounting discretion with individual aspects of governance (e.g., Warfield et al. 1995 on greater managerial ownership, Becker et al. 1998 on a Big-6 audit firm, and Klein 2002 on the independence of the audit committee and the board of directors, and Frankel et al. 2002 on the mix between consulting and audit fees paid to auditors). However, individual aspects of the governance structure are likely interrelated and ignoring such correlation can lead to spurious inferences (Bhagat and Jefferris 2002). To address this issue, we employ a proxy for overall governance quality using g scores, a measure of shareholder rights, compiled by Gompers et al. (2003), and supplement this metric with a number of other governance proxies.

The remainder of the paper is organized as follows. Section 2 discusses the two-stage framework underlying our empirical tests. Section 3 introduces three individual measures and the one combined index of accounting discretion. Section 4 discusses the economic determinants and governance variables hypothesized to explain accounting discretion. Section 5 provides empirical results on the stage 1 relation between governance quality and accounting discretion, and the stage 2

empirical analyses that attempt to discriminate between efficiency and opportunism as competing explanations for accounting discretion. Section 6 presents concluding remarks.

2. Conceptual Background

2.1 Overall structure of the tests

The overall structure of the tests on the relation between governance and accounting discretion is summarized in Figure 1 and discussed in greater detail below.

Organization and re-contracting phases

To frame the underlying issues in the empirical tests, we adopt the perspective that firms make many fundamental structural business decisions early in their life. These choices, if not simultaneous, tend to anticipate each other and are broadly determined by the basic nature of the business, including the markets in which they expect to operate (e.g., product, labor, supplier and capital markets). Current and anticipated economic fundamentals about the business model and the external environment affect initial owner/manager agency relationships, relationships with other stakeholders (including customers, employees, suppliers, and creditors) and firms' growth opportunities. These decisions also anticipate and influence access to capital, operating leverage, capital structure and the potential size of the firm. Such decisions include early business-stage long-run choices such as governance structure and incentive compensation contracts ($T = 0$ in Figure 1).

At this early stage of the firm's life when governance and organizational structures are being created, contracts are written that divide the firm's cash flows among various parties. At every point in time thereafter ($T = K$ in Figure 1), the contracting parties realize that managers' future decisions can transfer wealth among these parties. While changes in economic conditions can trigger re-contracting, contracting parties naturally anticipate and price-protect against any *expected* managerial opportunism. Expected managerial opportunism refers to the loss in value

other contracting parties forecast that managers will cause, given contracting costs (Christie and Zimmerman 1994). The firm-value-maximizing level of expected managerial opportunism occurs when the marginal cost of monitoring the manager is equal to the marginal benefit from reducing expected managerial opportunism. In this sense, efficient contracting encompasses *expected* managerial opportunism and only *unexpected* managerial opportunism is inefficient.

Short-run accounting discretion

Against this backdrop of the long-run economic environment of the firm, managers face additional incentives to exercise accounting discretion that can influence the firm's *reported* short-run performance. *Unexpected* managerial opportunism occurs when, in the short-run, circumstances change such that some of the firm's control systems allow managers to use accounting discretion to enrich themselves more than predicted. Apart from explicit abuses in accounting discretion due to earnings-linked bonus plans, managers can abuse accounting discretion to expand or maintain private control rights and prevent outside monitoring (Leuz, Nanda and Wysocki 2003). We conjecture that the potential for substantial unexpected opportunism is likely to be a relatively short-run phenomenon. This is because contracting parties are likely to re-write contracts in response to unanticipated changes in economic conditions that might have increased the potential for such opportunism. Consistent with such a perspective, our tests focus exclusively on short-to-intermediate-run accounting discretion, i.e., abnormal accruals, extent of earnings smoothing using accruals, and reporting small positive earnings surprises.

2.2 Empirical methodology – stage 1

The empirical methodology used here to assess whether efficient contracting or unexpected managerial opportunism dominates is drawn from Core, et al. (CHL 1999). The null hypothesis in this paper is that observed governance features respond to the economic environment and induce

optimal contracting, which drives overall optimal exercise of accounting discretion and subsequent firm performance. Under this null hypothesis, shareholders choose governance structures to maximize long-run firm value conditional on the firm's current and anticipated information and operating environments. Assuming that observed aspects of governance induce optimal contracting, economic determinants of accounting discretion described in the prior literature (e.g., see Watts and Zimmerman 1990, Skinner 1993, Bowen, Ducharme and Shores 1995) ought to largely describe the cross-sectional variation in the equilibrium level of accounting discretion. That is, *expected managerial opportunism* should already have been factored into the choice of economic determinants and governance structures at this stage. Hence, under efficient contracting, there should be *no* association between accounting discretion and governance features of a firm, once the economic determinants of such accounting discretion are *completely* specified. This is because the governance structure is itself characterized by the included economic determinants of accounting discretion. Therefore, under the null hypothesis of efficient contracting as summarized in Figure 1, T= K+1, we should observe no association between accounting discretion and governance proxies in the following stage 1 empirical relation:

Accounting discretion = f [Economic determinants, Governance variables]   (1)

However, if we observe an association between accounting discretion and poor governance, such association would be consistent with three plausible explanations. First, the association could imply that the null hypothesis of efficient contracting is rejected in favor of the alternate hypothesis that weaker governance structures are conducive to rent-extraction by managers via abuse of accounting discretion, and thereby represent *unexpected* managerial opportunism. That is, managers exercise accounting discretion in excess of the equilibrium level predicted by economic determinants. For example, an opportunistic CEO could exploit his firm's weak governance structure and make accounting decisions to strategically meet or beat earnings

benchmarks (unwarranted by the firm's underlying economic performance) in order to temporarily boost stock price, exercise his options, safeguard his bonus (Matsunaga and Park 2001, Bartov and Mohanram 2003) or his job (Matsunaga and Park 2002; Farrell and Whidbee 2003). In the remainder of the paper, opportunism means the *unexpected* managerial actions that transfer wealth to managers from shareholders and lead to a net loss in aggregate shareholder wealth.

Second, in contrast to the opportunism explanation, an association between accounting discretion and governance quality could be the result of some unmodeled aspect of accounting discretion in the first stage that is correlated with the included governance variables (see CHL (1999)). That is, the accounting discretion model in equation (1) may not completely specified in the sense that the included economic determinants fail to adequately describe the expected (equilibrium) level of accounting discretion. In this scenario, the governance measures, rather than proxying for the effectiveness of the governance structure, proxy for aspects of efficient contracting omitted from the economic determinants. For example, consistently meeting or beating earnings benchmarks could be positively associated with the CEO also being chair of the board because the CEO is a competent manager. Subramanyam (1996) shows that discretionary accruals are related to future performance. Bartov, Givoly and Hayn (2002) and Lev (2003) argue that meeting or beating analyst consensus estimates can signal managerial competence.

Third, it is also plausible that the governance variables capture trade-off between monitoring quality and the extent of accounting discretion. In other words, governance quality and accounting discretion may be substitutes, especially when monitoring is difficult. For example, firms with diffuse ownership have greater information asymmetry and earnings are potentially useful in reducing the asymmetry (Warfield, et al. 1995). In such situations, managers may have incentives to use the discretion provided by GAAP to communicate their private

information to investors (Healy and Palepu, 1993; Subramanyam 1996; Bartov et al. 2002). Thus, firms with low managerial ownership may exhibit greater accounting discretion. We attempt to distinguish between these alternative interpretations of results from stage 1 by using an empirical method described below in stage 2.

2.3 Empirical methodology - stage 2

To disentangle managerial opportunism from the efficient contracting interpretation, we use the simple insight that if accounting discretion attributable to poor governance characteristics is a manifestation of managerial rent-extraction, there should be consequent loss in shareholder wealth as evidence of the abuse comes to light. Therefore, we conduct a second test where we (i) estimate the accounting discretion attributable to governance proxies from equation (1) which we label as "predicted excess accounting discretion"; and (ii) examine the association between such excess discretion and subsequent long-run economic performance (as depicted in Figure 1, T = K+1+N). We argue that losses in shareholder wealth due to unexpected managerial opportunism would be reflected in poorer long-run economic performance. The label "predicted excess accounting discretion" is chosen because it represents the predicted component of discretion arising from the governance variables in excess of our controls for the standard economic determinants of accounting discretion in stage 1. We measure long-run economic performance in stage 2 regressions as the average three-year ahead future cash flows, average three-year ahead return on assets (ROA), and three year-ahead abnormal stock returns calculated from the Fama-French (1993) three-factor model. If the observed association between accounting discretion and poor governance quality in stage 1 (equation 1) is a manifestation of unresolved agency problems or managerial entrenchment, we expect to observe loss in subsequent shareholder wealth, proxied either by future operating performance (cash flows and/or ROA) or future stock returns.

The stage 2 empirical relations are:

Future performance =
f [Predicted excess accounting discretion due to governance variables, Control variables] (2)

where future performance is future operating cash flows, ROA and stock returns, respectively.

Three outcomes are possible from the above relations. A negative association between predicted excess accounting discretion due to governance and subsequent performance would support prior research that suggests weaker governance leads to managerial rent extraction (opportunism). A null association would be consistent with efficient contracting and complete model specification in the first stage. Firms presumably choose governance structures optimally with the knowledge that agency costs cannot be fully eliminated and earnings management is an *expected* agency cost, and hence not opportunistic. A positive association between predicted excess accounting discretion due to governance and subsequent performance suggests that shareholders *benefit* from earnings management, perhaps because it signals future performance (Subramanyam 1996, Bartov et al. 2002). In this scenario, earnings management is not opportunistic but, rather, is consistent with shareholder value maximization and efficient contracting. In summary, the key formal hypotheses tested in the paper are:

$H1_A$ (Alternative A – Opportunism): Negative association in stage 2 regressions between predicted excess accounting discretion due to governance variables and future performance is consistent with model misspecification in the first stage and managerial rent extraction.

$H1_0$ (Null – Efficiency): No association in stage 2 regressions between predicted excess accounting discretion due to governance variables and future performance is consistent with a) complete model specification in the first stage, and b) efficient contracting.

$H1_B$ (Alternative B – Efficiency/Signaling): Positive association in stage 2 regressions between predicted excess accounting discretion due to governance variables and future performance is consistent with a) model misspecification in the first stage, b) investors benefiting from accounting discretion, perhaps because managers are signaling future performance, and c) efficient contracting.

2.4 Measuring future performance

The above discussion does not distinguish between accounting and stock-market based measures of future performance to discriminate between the alternate hypotheses. However, each of the three performance measures (operating cash flows and ROA and stock returns) has unique strengths and weaknesses that influence the interpretation of empirical results. We discuss these below.

2.4.1 Operating cash flows:

Using future operating cash flows as a measure of future performance has the advantage of not relying on stock returns and hence on the assumption that stock markets are not efficient in their ability to detect managerial opportunism. Moreover, any mechanical relation between current accruals and future earnings due to accrual reversals is avoided. However, operating cash flows lack timeliness as a performance metric (Dechow 1994). In particular, negative cash flows could be the result of investments in positive NPV projects and not the result of poor operating performance. Hence, operating cash flows are likely to be a good measure of future performance only for stable firms. This motivates the use of an earnings based metric (e.g., return on assets (ROA) as another measure of future performance.

2.4.2 ROA

Earnings-based performance metrics such as ROA (measured as income before extraordinary items scaled by lagged total assets) suffer less from timeliness problems highlighted above. However, because accruals reverse over time, use of accounting discretion in the past might be correlated with the use of accounting discretion in the future, and hence with future ROA. It is unclear how such inter-temporal relations in accounting discretion would affect our empirical tests. In contrast, an empirical test that uses future operating cash flows as the

performance measure (after controlling for lagged operating cash flows) is less likely to be affected by accrual reversals.

2.4.3 Stock returns:

Finally, using stock returns as a measure of future performance may result in less power in discriminating between efficient contracting and opportunism because it is a joint test of stock market efficiency and contracting efficiency. For example, even if opportunism were the true state of the world, investors in an efficient stock market might anticipate such opportunism and factor it into the existing stock price. As a result, future stock returns could be unrelated to accounting discretion even in the presence of managerial opportunism. Thus, an examination of future stock returns, in isolation, cannot rule out opportunism especially in the case of null results.[4]

However, there is still merit in using future stock returns as a performance measure because recent empirical evidence in Gompers, Ishii and Metrick (2003) suggests that the stock market does not instantaneously impound information about governance. In particular, they find that a trading strategy that assumes long (short) positions in well (poorly) governed firms earns abnormal future stock returns. Hence, if the Gompers et al. (2003) result were to generalize to our sample, we should be able to detect opportunism by observing negative future stock returns.

In sum, we employ three different performance metrics, each with its own advantages and limitations. The evidence from these metrics, taken together, provides more information about the robustness of our findings. Moreover, the use of different measures of future performance allows for additional interpretations. For example, if predicted excess accounting discretion was unrelated to future stock returns but was negatively related to future cash flow performance, we

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[4] Another issue is that stock returns reflect both changes in expectations about discount rates as well as changes in expectations about future cash flows. We are more interested in the changes in expectations of cash flows. Note that Voulteenaho (2002) finds that firm-level stock returns are indeed driven primarily by cash flow news and not by discount rate shocks.

could infer that managers exploit accounting discretion for opportunistic ends although investors see through such behavior and price-protect themselves.

3. Accounting discretion (dependent) variables

We measure accounting discretion in three ways: (i) abnormal accruals usage; (ii) smoothing of earnings via accruals; (iii) avoiding earnings decreases by reporting small quarterly positive earnings surprises. We discuss each in turn.

3.1 Absolute value of abnormal accruals (|ABACC|)

The absolute value of abnormal accruals is a gauge of the magnitude of adjustments that managers make to arrive at reported earnings numbers, i.e., higher absolute values represent greater exercise of accounting discretion, *ceteris paribus*.[5] Abnormal accruals (|ABACC|) are measured by subtracting "normal" accruals from total accruals. We use a modified version of the cross-sectional version of the Jones (1991) model to estimate expected or "normal" accruals for each two-digit SIC code for each of the fiscal years 1993-1998 as follows (see Dechow 1994, Kasznik 1999):[6]

$$\text{Normal accruals}_t/\text{Total assets}_{t-1} = \alpha_1 \left[(1/\text{Total assets}_{t-1})\right] + \alpha_2[(\Delta\text{Revenue}_t - \Delta\text{Receivables}_t)/\text{Total assets}_{t-1}] + \alpha_3[\text{Property plant and equipment}_t/\text{Total assets}_{t-1}] + \alpha_4[\Delta\text{Cash from operations}_t/\text{Total assets}_{t-1}] \quad (3)$$

To be consistent with the time windows over which the other two measures of accounting discretion are computed, we use the three-year average of |ABACC| in our empirical analyses over four rolling three-year time windows, 1993-1995, 1994-1996, 1995-1997 and 1996-1998.

3.2 Smoothing measure (SMOOTH)

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[5] We do not consider signed abnormal accruals because the exercise of accounting discretion involves the use of both income-increasing and income-decreasing accruals (Warfield et al. 1995; Bartov et al. 2000, Frankel et al. 2002, Klein 2002). Signed measures of abnormal accruals are more appropriate when researchers can hypothesize the direction of the earnings management conditioned on a specific event (e.g., import regulations as in Jones 1991 or the Persian Gulf crisis as in Han and Wang 1998). Our study is designed to capture accounting discretion independent of sign for a cross-section of firms over time rather than around a single conditioning event.

[6] If a two-digit year combination does not yield at least 10 observations, then we estimate normal accruals as per equation (3) for such a firm at the one-digit SIC code level.

We measure earnings smoothing as the standard deviation of operating cash flows divided by the standard deviation of earnings (Hunt et al. 1997, Leuz, et al. 2002 and Pincus and Rajgopal 2002). Ratios in excess of one indicate more variability in operating cash flows relative to the variability in earnings, which is consistent with using accruals to smooth earnings. Firms that have higher smoothing ratios than the cross-sectional industry average are assumed to exercise greater accounting discretion.

To compute the earnings-smoothing ratio (SMOOTH), we consider quarterly earnings and operating cash flow data over the same four rolling three-year time windows used to compute the three-year |ABACC| average, 1993-1995, 1994-1996, 1995-1997 and 1996-1998. Firms with fewer than 6 firm-quarters of earnings or operating cash flow data are deleted from the sample to increase the reliability of the estimates.

3.3 Incidence of small positive earnings surprises (FREQ)

Evidence presented by Burgstahler and Dichev (1997), DeGeorge, Patel and Zeckhauser (1999) and Matsumoto (2002) suggests that managers use accounting discretion to avoid reporting negative earnings surprises. We measure the frequency (FREQ) with which firms report a small quarterly earnings surprise over the same four rolling-three-year windows as above, where a small positive surprise occurs when the change in seasonally lagged quarterly earnings after tax ($E_q - E_{q-4}$) scaled by total assets at the end of quarter *q-5* falls within the range of (0.00 to 0.0025).[7] Again, firms that have less than six quarters of data are eliminated from the sample. Graham, Harvey and Rajgopal (2004) find that Chief Financial Officers consider seasonally lagged quarterly earnings as an important benchmark to meet or beat.

3.4 Index of accounting discretion (DISCIND)

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[7] Burgstahler and Dichev (1997) use range of 0 to 0.01 for annual earnings. To be consistent we choose 0.0025 as the outer end of the range because we use quarterly data in our analysis.

Each of the three measures described above is a proxy for accounting discretion and, as a result, is likely measured with error.[8] To mitigate measurement error and allow for trade-offs among many types of discretion, we construct an overall discretion index (DISCIND) that combines the three measures (see Leuz, et al. 2003). In particular, we rank each discretion measure for every three-year rolling window from least to most discretion and then scale the ranks by the total number of observations. This ensures that the ranks lie between 0 and 1 where 0 = least discretion and 1= most discretion. The combined measure, DISCIND, is the simple average of the ranks related to the three discretion measures.

3.5 Sample and descriptive statistics

Due to the focus on governance measures, our sample is restricted to firms covered by the *Execucomp* database. The *Execucomp* database compiles data on approximately 1,500 firms that constitute the S&P 500, S&P 400 mid cap and S&P 600 small cap indices from the year 1992. We concentrate on economic determinants and governance data measured from 1992 to 1995 because these factors are related to three-year ahead accounting discretion measures in the first-stage tests (1993-95, 94-96, 95-97, 96-98) which are, in turn, related to three-year ahead cash flows and stock returns in the second stage tests (96-98, 97-99, 98-00, 99-01) (see Figure 2). As shown in panel A of Table 1, restricting the sample to *Execucomp* firms initially yields 6,752 possible firm-year observations. We eliminate 1,129 firm-years in the financial services industry (SIC codes 6000-6999) because accruals in the financial services industry are not comparable with accruals in other industries. After eliminating firm-years for which data are not available to compute accounting discretion measures, institutional ownership, future cash flows, future ROA or stock returns, we are left with 3,154 firm-years corresponding to 1,009 firms.

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[8] For example, model of non-discretionary accruals based on the Jones (1991) has been criticized (Guay, Kothari, and Watts 1996); smoothing objectives can be overridden by other goals such as meeting/beating forecasts and FREQ can be biased by the inclusion of firms that naturally fall in the first non-negative earnings change.

Panel B of Table 1 reports the distributional properties of the three individual measures of accounting discretion as well as the summary discretion index (DISCIND) over the four rolling windows. The three-year average of absolute value of abnormal accruals represents 5.8% of lagged assets for the average firm. The mean SMOOTH ratio of 3.5 indicates that cash flows are more than three times as variable as earnings for the average firm. The average firm reports a small quarterly earnings surprise about 14.7% of the time over a three-year window. By construction, DISCIND, the accounting discretion index has a mean of 0.5.

Panel A of Table 2 reports the correlation statistics among the measures of accounting discretion. The correlation statistics indicate that, while all the correlations among the individual accounting discretion measures are statistically significant (|ABACC|, SMOOTH and FREQ), none are substantial. While one can think of common elements between these proxies (e.g., firms might use abnormal accruals to meet benchmarks or smooth earnings or firms might try to meet or beat earnings benchmarks and such benchmarks might form a smooth earnings trend), the correlation data suggest that these measures capture different types of accounting discretion. Use of the accounting discretion index (DISCIND) has the advantage of capturing attributes of all of the three individual measures.

4. Economic determinants and Governance proxies

In this section, we introduce an expanded version of equation (1) by defining proxies for economic determinants and governance variables, respectively.

Accounting discretion = f [*Economic determinants* (leverage, growth, stakeholder claims, access to capital markets, size, risk, performance, industry controls, year controls), *Governance variables* (g score, board related variables, managerial ownership, incentive compensation, Big 5 auditor)]   (4)

4.1 Economic determinants

Because it is important that our first stage empirical model be as completely specified as possible (as explained in section 2), we attempt to identify a relatively comprehensive list of economic determinants of accounting choice from the prior literature as discussed below.

Leverage:

Consistent with prior empirical work (e.g., Bowen, Noreen and Lacey 1981, DeFond and Jiambalvo 1994, Minton and Schrand 1999), we argue that firms have incentives to exercise accounting discretion either to avoid covenant violations or to prevent adverse affects on their debt rating. We proxy for leverage related incentives with the long-term debt to total assets ratio labeled as LEV. We expect a positive association between accounting discretion and LEV.

Growth opportunities:

Skinner and Sloan (1999) find that the market severely penalizes growth firms for negative earnings surprises. Therefore, growth firms have relatively strong incentives to meet earnings benchmarks, perhaps to avoid increases in the cost of capital or to maintain access to capital. Furthermore, growth firms have an incentive to smooth earnings via accruals because earnings volatility increases perceived firm risk (Beaver, Kettler and Scholes 1970), which, in turn, adversely affects the cost of capital needed to fund new projects (Minton and Schrand 1999). We proxy for growth opportunities with the book-to-market ratio (BM) and expect a negative association between accounting discretion and BM.

Stakeholder claims:

Bowen et al. (1995) show that firms that have more ongoing implicit claims with stakeholders such as employees, suppliers and customers choose relatively aggressive accounting methods to influence stakeholders' assessments of the firm's reputation. Graham et al. (2004) find that CFOs consistently rank stakeholder concerns as an important motivation underlying financial

reporting decisions. Consistent with Bowen et al. (1995) and Matsumoto (2002), we conduct a

factor analysis of the following three variables to capture stakeholder claims: (i) D_{DUR} if a firm

belongs to a durable goods industry; (ii) R&D/Sales and (iii) LABOR intensity (1-property, plant

and equipment/total assets). The factor analytic process identifies one factor, STCLAIM, with an

eigenvalue greater than one. The factor retains 64% of the variation in the input variables. We

expect a positive association between accounting discretion and STCLAIM.

Demand for external financing:

Prior research suggests that frequent access to capital markets provides managers with

incentives to influence reported earnings numbers (Frankel, McNichols and Wilson 1995, Teoh,

Welch and Wong 1998a, 1998b). Following Dechow et al. (1995), we measure a firm's *ex-ante*

demand for financing and access to capital markets as a firm's free cash flow (FCF) scaled by

current assets. We define FCF as the difference between cash flow from operations for year *t-1*

and the past-three year average (*t-1, t-2, t-3*) of the firm's capital expenditures, scaled by current

assets at *t-1*. We set a dummy variable ($D_{CAPITAL}$) to one if the free cash flow measure (FCF) is

less than minus 0.50 and zero otherwise.[9] We expect a positive association between accounting

discretion and $D_{CAPITAL.}$

Size, risk and performance:

Watts and Zimmerman (1990) argue that larger firms face more political costs and hence

have incentives to exercise accounting discretion to reduce unwanted political visibility. We use

the natural logarithm of sales (LnSALES) to proxy for size and expect a positive association

between accounting discretion and LnSALES. Minton and Schrand (1999) find that firms with

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[9] Note that for firms with negative FCF, the absolute value of 1/FCF indicates the number of years for which the firm can service its cash flow requirements through current assets, absent any external financing. Hence, if the FCF measure is -0.5, it suggests a firm can use current assets to fund its current level of operating and investing activities for approximately two years.

greater earnings volatility have higher costs of equity and debt capital. Hence, riskier firms might

use more abnormal accruals to reduce the perception of risk (Warfield et al. 1995) or to smooth

earnings and lower their cost of equity capital. Following Minton and Schrand (1999), we proxy

for risk with the standard deviation of quarterly operating cash flows computed over the three year

window prior to the window over which the accounting discretion variable is computed (σ_{CFO}).

Finally, Kothari, Leone and Wasley (2002) argue that tests related to accounting discretion that do

not control for performance are often mis-specified. To control for the effect of performance on

accounting discretion, we introduce return on total assets (ROA) in the model. ROA is computed

as income before extraordinary items scaled by lagged total assets.

Industry and time dummies:

We introduce two-digit industry dummies (IND) and time dummies (YEAR) to account

for any unobserved variation in the contracting environment of the firm (Himmelberg, Hubbard

and Palia 1999).

4.2 Descriptive statistics on economic determinants

Definitions and descriptive statistics for the economic determinants are provided in panel

C of Table 1. The average sample firm has a market capitalization of $2,797.05 million, a

leverage ratio of 0.17 and an ROA of 0.066. For the same time period, the average *Compustat*

firm has a market capitalization of $964.38 million, leverage ratio of 0.20 and an ROA of –0.08

(untabulated). Thus, relative to the average *Compustat* firm in the sample period, our sample

firms are much larger, less levered, and more profitable. Each of these differences is statistically

significant at the 0.01 level.

4.3 Governance proxies

As discussed earlier in section 2, if governance induces optimal contracting and if the firm-level economic determinants are completely specified, we should observe no relation between governance and accounting discretion. However, if the *managerial opportunism* view of accounting discretion describes the data, we should observe that lax governance leads to greater exercise of accounting discretion. In the following paragraphs, we describe the various governance proxies and motivate the direction of the association between greater accounting discretion and governance proxies, *assuming managerial opportunism holds*.

Shareholder rights – the g score:

We proxy for the overall quality of governance with *g* score — a measure of the balance of power between shareholders and top executives— compiled by Gompers, Ishii and Metrick (2003). Using data on 24 corporate governance provisions compiled by the Investors Responsibility Research Center (IRRC) and state takeover law data for three years: 1990, 1993, 1995, and 1998, Gompers et al. (2003) construct *g* scores for each firm in their sample by adding one point for every provision that reduces shareholder rights.[10] Thus, higher *g* scores indicate less power for the shareholder (hence, a less well-governed firm) and lower *g* scores imply greater power for the shareholder (hence, a more well-governed firm).[11] Because *g* scores are not available for all firms, we introduce (i) a dummy variable, D*g* score, which captures the existence of a *g* score and (ii) an interactive term, D*g* score * *g* score, that captures the cross-sectional

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[10] The 24 provisions examined include anti-greenmail, blank check preferred stock, business combination laws, bylaw and charter amendment limitations, classified board, compensation plans with change in control provisions, director indemnification contracts, control share cash-out laws, cumulative voting requirements, director's duties, fair price requirements, golden parachutes, director indemnification, limitations on director liability, pension parachutes, poison pills, secret ballot, executive severance agreements, silver parachutes, special meeting requirements, supermajority requirements, unequal voting rights and limitations on action by written consent. Similar to Gompers et al. (2003), we modify the g scores to range from 0 to 14.

[11] The computation of g score assumes that all components of governance are equally important. But, recent research by Bebchuk and Cohen (2004) suggests that the presence of staggered boards results in a significant reduction in firm value as measured by Tobin's Q. Hence, we include a dummy variable to incorporate the existence of staggered boards and re-estimate both first and second stage regressions but find that our inferences are unchanged.

variation in *g* scores for firms in the Gompers et al. (2003) sample. While we do not have a

prediction for the existence of a *g* score variable (D*g* score), we expect a positive association

between accounting discretion and the magnitude of the g score (D*g* score * *g* score) if

opportunistic managers use accounting discretion to exploit lax governance.

Board monitoring:

We proxy for the effectiveness of board monitoring with four measures obtained from

Execucomp: (i) CEO-CHAIR, that is set to one if the chairman of the board is the CEO and zero

otherwise (Hermalin and Weisbach 1998); (ii) ONBOARD identifies the proportion of the top 5

officers that serves on the board; (iii) MEETINGS, the number of board meetings (Vafeas 1999

and Adams 2000);[12] and (iv) INTERLOCK, the proportion of the executive team subject to an

interlocked relation (Peasnell et al. 2001).[13] Under the opportunism hypothesis, we expect

accounting discretion to be positively related to CEO-CHAIR, ONBOARD and INTERLOCK;

and negatively related to MEETINGS.

Institutional ownership:

Institutional owners are often characterized as sophisticated investors who have advantages

over individual investors in acquiring and processing value-relevant information (e.g., Lev 1988,

Shiller and Pound 1989, Hand 1990, Jiambalvo, Rajgopal and Venkatachalam 2002). Hence,

institutions can potentially monitor abuse of accounting discretion by managers. Under the

opportunism hypothesis, we expect accounting discretion to be negatively related to INST,

---

[12] We acknowledge that greater frequency of meetings might signal the difficulty involved in monitoring the firms' operations. This may possibly increase the need to use accounting discretion to communicate value-relevant information to shareholders. We explore the possibility of this alternate explanation in section 5.2 where we examine the relation between the predicted component of accounting discretion attributable to governance and subsequent performance.

[13] An officer is said to have an interlocked relation if that officer a) serves on the compensation committee or b) serves on the board (or compensation committee) of another company that has an executive officer serving on the board (or compensation committee) of his company. *Execucomp* captures this information for each officer of the firm as an indicator variable, PINTRLOC.

measured as the proportion of firm's shares held by institutional investors from the SPECTRUM database.

However, another body of literature has argued that institutional investors are "transient owners" who are overly focused on short-term earnings and hence pressure managers to deliver consistently higher earnings, even via abuse of accounting discretion (Porter 1992, Bushee 1998, Graham et al. 2004). Under such a perspective, we expect a positive association between accounting discretion and INST.

Managerial ownership:

Agency theory predicts that when managers hold less equity in the firm, incentives for managers to pursue non-value-maximizing behavior increase. Prior work finds that managerial ownership is related to lower levels of accounting accrual adjustments (Dhaliwal et al.1982 and Warfield et al. 1995). We measure managerial ownership (MGR) as the percentage of stock holdings (including restricted stock) held by the top managers of the firm obtained from *Execucomp*. We expect a negative association between accounting discretion and MGR.

Incentive compensation – Bonus:

Several studies beginning with Healy (1985) (and including Holthausen et al. 1995, Gaver and Gaver 1998, Guidry et al. 1999) find that compensation plans that pay bonuses on an accounting outcome are positively correlated with income-increasing accounting choices in periods when the accounting income falls within certain explicit or implicit earnings-related bounds. Managers have incentives to smooth earnings volatility as cash based incentive pay tends to increase with earnings persistence (Baber et al. 1998). Matsunaga and Park (2001) find that missing strategic earnings benchmarks such as analyst forecasts appears to reduce CEO bonuses. We measure BONUS as the ratio of bonuses paid to the CEO scaled by a proxy for firm-specific

CEO wealth, measured as the sum of salary, bonus and annual compensation, stock ownership (product of MGR% and market value of the firm's equity), in-the-money exercisable and unvested options. We expect a positive association between accounting discretion and BONUS.

Incentive compensation – Stock options:

Recent allegations blame stock options for inducing managers to make aggressive accounting choices for private gain (e.g., *Economist*, July 4, 2002; Bartov and Mohanram 2003). This suggests a positive association between accounting discretion and employee stock options. We proxy for stock option incentives with the ratio of in-the-money exercisable options held by the CEO scaled by scaled by his firm-specific wealth defined above (EXOPT). We concentrate on exercisable options because we examine short-run earnings management decisions.

Auditor expertise:

Prior research (Craswell, Francis, and Taylor 1995) argues that audit quality increases with auditor's market share. To construct a proxy for auditor specialization, we sort the all firms on COMPUSTAT data by their two-digit SIC code. We define a dummy variable, AUDEXP, which is set to one (zero) if the audit firm for a particular company audits more than 15% (less than 15%) of firms in the two-digit SIC code (Dunn and Mayhew 2004). Thus, we expect a negative relation between accounting discretion and AUDEXP.

4.4 Descriptive statistics on governance variables

Descriptive statistics reported in panel C of Table 1 show that we have a *g* score for 70.9% of the sample. CEOs happen to be chairman of the board in 76.4% of firm-years. Approximately 36.2% of the executive team comprising the top 5 officers is on the board while only 4.1% of the board members are subject to an interlocked relationship for the average firm. The average firm holds 6.37 board meetings a year. The mean (median) bonus for executives as a percentage of

their wealth is 10.2% (3.3%) while that for the value of exercisable options as a percentage of their

wealth is 19.5% (6.5%).

Panel A of Table 2 reports univariate correlations between accounting discretion and the

governance variables. The relations are consistent with the opportunism interpretation with

respect to some governance variables. For example, the accounting discretion index (DISCIND)

is positively correlated with g score (larger g score represents firms with fewer shareholder rights),

CEO-CHAIR, and BONUS. Also, DISCIND is negatively correlated with MEETINGS,

consistent with managerial opportunism. However, such an interpretation would be premature

because of the correlation between governance variables and economic determinants (see Panel B

of Table 2). Hence, in the following section, we consider the multivariate relation between our

accounting discretion index and governance variables after controlling for other economic

determinants.

5. Empirical Results

5.1 First stage results

We estimate the following regression to examine the first stage relation between

accounting discretion and corporate governance after controlling for economic determinants:

$$
\begin{aligned}
\text{Accounting discretion}_{it} = {} & \beta_0 + \beta_1\,\text{LEV}_{it\text{-}1} + \beta_2\,\text{BM}_{it\text{-}1} + \beta_3\,\text{STCLAIM}_{it\text{-}1} + \beta_4\,\text{D}_{\text{CAPITAL }it\text{-}1} + \\
& \beta_5\,\text{LnSALES}_{it\text{-}1} + \beta_6\,\sigma_{\text{CFO }it\text{-}1} + \beta_7\,\text{ROA}_{it\text{-}1} + \beta_8\,\text{D}_{g\text{ score }it\text{-}1} + \\
& \beta_9\,\text{D}_{g\text{ score}}{*}\text{g score}_{it\text{-}1} + \beta_{10}\,\text{CEO-CHAIR}_{it\text{-}1} + \beta_{11}\,\text{ONBOARD}_{it\text{-}1} + \\
& \beta_{12}\,\text{INTERLOCK}_{it\text{-}1} + \beta_{13}\,\text{MEETINGS}_{it\text{-}1} + \beta_{14}\,\text{INST}_{it\text{-}1} + \\
& \beta_{15}\,\text{BONUS}_{it\text{-}1} + \beta_{16}\,\text{EXOPT}_{it\text{-}1} + \beta_{17}\,\text{AUDEXP}_{it\text{-}1} + \beta_{18}\,\text{IND}_{it\text{-}1} + \\
& \beta_{19}\,\text{YEAR}_{it\text{-}1} + e_{it} \hspace{3cm} (5)
\end{aligned}
$$

where the independent variables are defined above and in the notes to Table 1. IND and Year are

two-digit SIC industry codes and time dummies, respectively. We estimate equation (5)

separately for each of the three accounting measures, |ABACC|, SMOOTH, and FREQ as well as

the aggregate measure, DISCIND.[14] Notice that all the independent variables are measured one

year prior to the time window for which accounting discretion is computed, to control for potential

confounding effects or simultaneity bias. Subscripts i and t represent firm and time subscripts.

Figure 2 summarizes the empirical relations and the timing of variable measurement.

Results of estimating equation (5) are presented in Table 3.[15] Although we report the

regression results for each of the discretion measures separately in columns (1) through (3), our

discussion primarily focuses on results using the aggregate discretion index (DISCIND) in column

(4).   As discussed earlier, this index has the potential to reduce measurement error while

incorporating any trade-offs among discretionary accounting choices. Results on the set of

economic determinants are shown at the top of Table 3. Results reported in column (4) suggest

that riskier (σ_{CFO}) and larger firms (LnSales) appear to exercise more discretion in accounting

numbers ($t = 5.25$ and 6.06 respectively). The coefficient on stakeholder claims factor score is

positive ($t = 1.75$; $p < 0.05$, one-tailed) indicating greater use of accounting discretion when

implicit claims with stakeholders are higher.[16]

Several of the nine governance variables are significantly related to DISCIND at

conventional levels. The significant coefficient on the interaction of Dg score and g score

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[14] The use of over-lapping windows to estimate these dependent variables likely creates serial correlation in error terms. To address this issue, we estimate a full information maximum likelihood (FIML) model that uses both a GLS covariance matrix and a first-order autoregressive correction under the PROC MODEL procedure in SAS. The (untabulated) results obtained from using this procedure are similar to those reported in the paper. As another alternative, we also estimate the empirical specifications year by year and find that our inferences are unaltered.

[15] To control for potential outliers, we delete observations with R-student greater than the absolute value of 2 when estimating the coefficient parameters.

[16] The first-stage regression results related to economic determinants are not especially well-behaved. There are instances where LEV, BM and $D_{CAPITAL}$ have signs that are inconsistent with the theoretical prediction. The proxies for economic determinants are admittedly imperfect despite these being consistent with state-of-the-art archival research on earnings management. Further, the interrelations among the economic determinants make it difficult to disentangle their incremental effects. It is quite possible that the economic drivers of accounting discretion depend on the aspect of accounting discretion being studied, but the current state of theory about accounting discretion precludes us from making more nuanced predictions. Lastly, the accounting discretion measures that we use are likely to have measurement error. To address this limitation, we consider alternative measures of discretion described in section 5.4 (iii).

indicates managers with greater power vis-à-vis shareholders exercise more accounting discretion

(t = 3.75).[17] Coefficients on INTERLOCK and ONBOARD are significantly positive (t = 2.22,

2.03 respectively) suggesting that firms that have more interlocked directors and a greater

proportion of the management team on the board of directors exercise greater accounting

discretion. The coefficient on MEETINGS is negative, consistent with fewer meetings and less

monitoring being associated with greater accounting discretion (t = -6.48). Consistent with the

bonus hypothesis, firms where managers derive a greater proportion of their compensation via

bonuses are associated with more accounting discretion (t = 4.92). Consistent with the "transient

owner" perspective, firms with greater institutional ownership are associated with greater

accounting discretion (t = 2.97). Taken together, the signs on several of the governance proxies

are consistent with the interpretation that, when corporate governance is weak, managers appear to

exercise relatively aggressive accounting discretion.

The regression model in column (4) has significant explanatory power (adjusted-R-squared

= 18.24%, F = 10.31). The governance variables, by themselves, also add incremental explanatory

power to the model (adjusted-R-squared = 4.85%, F = 15.03). Thus, the stage 1 findings suggest

that the null hypothesis of efficient contracting is rejected because many of the governance

variables appear to be consistent with opportunism.

5.2 Disentangling efficiency and opportunism – stage 2 results

The regressions reported in section 5.1 include a set of economic determinants that are

intended to capture the cross-sectional variation in the equilibrium level of accounting discretion.

However, as discussed in section 2.3, we focus on the second stage results in order to disentangle

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[17] The coefficient on D_{gscore} is negative and significant (t=-2.60) suggesting that firms that have a g-score report lower accounting discretion. In untabulated work, we repeated our analyses after restricting the sample to only firm-years with a valid g-score and the results are similar to those reported in the paper. We continue to include tests based on $D_{g\ score}$ in the paper because restricting the sample to firm-years with non-zero g scores results in a loss of almost 1/3rd the sample (from 3154 observations to 2236 observations).

efficiency versus opportunism explanations for accounting discretion. We follow the approach in CHL (1999) and examine whether such discretion affects future performance.

We first compute a predicted component of accounting discretion arising from governance variables, and then examine the association between this predicted component and future performance (see Figure 2). The predicted accounting discretion attributable to governance variables can be viewed as accounting discretion not explained by the standard economic determinants of accounting discretion in the first stage ("excess" discretion above and beyond discretion related to economic determinants); we label this as "predicted excess accounting discretion." As explained in section 2.3, if the opportunism explanation dominates, we expect to observe a negative association between predicted excess accounting discretion and future performance. We expect a non-negative association between predicted excess accounting discretion and future performance if the data are consistent with the efficient contracting explanation. A positive association between predicted excess accounting discretion due to governance and subsequent performance suggests that such discretion is in the interests of shareholders, perhaps because it signals future performance (Subramanyam 1996, Bartov et al. 2002).

We compute the predicted component of accounting discretion that is related to governance variables for each time-window as follows:

$$\text{Predicted excess accounting discretion}_{it} = \sum_{j=8}^{17} \beta_j \text{ governance determinants}_{ijt-1} \qquad (6)$$

where β_j is the estimated coefficient on governance variable j reported in columns (1) through (4) in Table 3 for each accounting discretion variable, respectively. We then estimate the association between this predicted component and subsequent performance.[18]

---

[18] An alternative to this empirical design is to regress subsequent firm performance on individual governance variables. However, CHL (1999) point out advantages of regressing predicted excess accounting discretion on future

We measure future performance in three ways: (i) average cash flows from operations scaled by lagged total assets for subsequent three years (FUTCFO); (ii) average ROA, calculated as income before extraordinary items scaled by lagged total assets, for subsequent three years (FUTROA); and (iii) three-year-ahead abnormal stock returns using the Fama-French (1993) three-factor model (FUTARET).[19] The regression specification related to FUTROA is as follows:

$$FUTCFO = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1} + \gamma_2 \sigma_{CFO \ it-1} + \gamma_2 CFO_{it-1} +$$
$$\gamma_3 \text{ LnSALES}_{it-1} + \gamma_4 \text{ IND}_{it-1} + \gamma_5 \text{ YEAR}_{it-1} + \varphi \qquad (7a)$$

$$FUTROA = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1} + \gamma_2 \sigma_{ROA \ it-1} + \gamma_2 ROA_{it-1} +$$
$$\gamma_3 \text{ LnSALES}_{it-1} + \gamma_4 \text{ IND}_{it-1} + \gamma_5 \text{ YEAR}_{it-1} + \varphi \qquad (7b)$$

As before, IND and YEAR are two-digit industry codes and time dummies, respectively. We include the standard deviation of each performance measure (i.e., σ_{CFO} and σ_{ROA}) and the LnSALES in equations (7a) and (7b) to control for the effects of risk and size on future operating performance. We expect the relation between future operating performance and risk to be negative ($\gamma_2 < 0$) in accordance with the findings of Minton, Schrand and Walther (2002). Core et al (1999) find that larger firms have higher future operating performance. Hence, we expect $\gamma_3 > 0$. Current performance (i.e., CFO_{t-1}, ROA_{t-1}) is included to control for potential mean-reversion in accounting performance measures (Barber and Lyon 1996). Under the opportunism (efficient contracting) hypothesis $H1_A$ ($H1_{0/B}$), we expect γ_1 to be negative (zero or positive).

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performance. This approach can incorporate information from the first-stage regressions on the level of accounting discretion on economic determinants and governance variables and thus provides a stronger test of our hypothesis. In particular, using predicted excess accounting discretion provides a single variable formed by the weighted linear composite of the governance variables, where the weights are derived from the covariance between the level of accounting discretion and each governance variable, after controlling for the economic determinants of the level of accounting discretion. This linear composite measure is expected to contain less measurement error than the individual governance variables that comprise it. Moreover, the researcher needs to examine only the sign and statistical significance of the coefficient on the predicted excess accounting discretion variable to disentangle the opportunism and efficiency explanations. In contrast, if the researcher were to regress subsequent performance on each individual governance variable, he/she would have to interpret each of the coefficients on the governance variable for evidence of opportunism, which admittedly would lead to mixed empirical results.

[19] Potential survivorship bias created by the three-year data requirement for future returns might affect our inferences. To address this issue, we re-estimate the upcoming equations (7a), (7b), and (8) with one and two year windows and find qualitatively similar inferences to those reported in the text.

For the third measure of future performance, we rely on abnormal returns as measured using the Fama-French (1993) three-factor model modified for the short-run momentum factor. In particular, we estimate the following empirical specification:

$$FUTRET_{m,\,5-1} = FUTARET_{m,\,5-1} + \delta_1 (MKTRET_m - rf_m) + \delta_2 SMB_m + \delta_3 HML_m \\ + \delta_4 Momentum_m + \eta \qquad (8)$$

where m is an event month, $FUTRET_{m,\,5-1}$ is the raw buy-and-hold return for a hedge portfolio formed by assuming long (short) positions in the fifth (first) quintile of predicted excess accounting discretion. To detect value-destroying opportunism, we take long (short) positions on the fifth (first) quintile because the opportunism hypothesis predicts that firms with relatively high accounting discretion (i.e., firms in the highest quintile of predicted accounting discretion) would generate significant negative returns relative to firms with relatively low accounting discretion (i.e., firms in the first quintile of predicted accounting discretion). Moreover, the Fama-French approach yields potentially more powerful tests of the hypotheses by focusing on the extreme quintiles of accounting discretion.

Quintile portfolios are formed by sorting the accounting discretion measure at the end of each fiscal year. Monthly returns for these quintile portfolios are then obtained beginning April 1 of the calendar year following the fiscal year for which the accounting discretion is measured. These portfolios are held for three years and consequently, monthly returns from overlapping portfolios arise. For example, three different monthly returns for May 1995 for a given quintile portfolio will be calculated based on accounting discretion measure sorted for fiscal years 1994, 1993 and 1992. Following Jegadeesh and Titman (2001), we average the monthly returns across overlapping portfolios for each of the months. Turning to the other variables, $MKTRET_m$ is the value-weighted market return, rf_m is the risk-free rate, SMB_m is the return difference between a portfolio of small and a portfolio of large firms, HML_m is the return difference between a portfolio

of high book-to-market and a portfolio of low book-to-market firms, and $Momentum_m$ is the return

difference between past winners and past losers where the past performance window begins seven

months before month m and ends one month before month m.

We interpret the intercept in the regression equation (8), $FUTARET_{m, 5-1}$, as the abnormal

hedge return to such a strategy. If the data are consistent with the managerial opportunism

(efficient contracting) hypothesis $H1_A$ ($H1_{0/B}$), we expect FUTARET to be negative (zero or

positive). The relative merits of each of the performance measures – earnings (ROA), cash flows,

and stock returns – are discussed in section 2.4.

5.3 Second stage results

Panels A and B of Table 4 reports results on the relation between future operating cash

flows and future ROA with excess accounting discretion (equations 7a, 7b respectively). When

future CFO is considered in panel A, the coefficient on predicted excess accounting discretion in

column 4 (using the summary index, DISCIND) is positive and statistically large ($t = 3.06$), which

is inconsistent (consistent) with the opportunism (efficiency) explanation, $H1_A$ ($H1_B$). The

coefficients on predicted excess accounting discretion in column 2 for SMOOTH is positive while

the coefficients in columns 1 and 3 related to |ABACC| and FREQ are insignificant, again

inconsistent (consistent) with opportunism (efficiency).

In panel B for future ROA, the coefficient on predicted excess accounting discretion is

positive and significant for all measures of accounting discretion. Thus, the evidence on future

operating performance (FUTROA and FUTCFO) in stage 2 does not support the idea that

managerial opportunism is the dominant reason for the observed excess accounting discretion, on

average. Rather, these results suggest that earnings management, especially smoothing, signals

positive news such as managerial competence or positive future operating performance. This

evidence is consistent with the results in Subramanyam (1996) and Bartov et al. (2002) that

documents an association between accounting discretion and future profitability. In particular,

Subramanyam (1996) finds that discretionary accruals are positively priced by the market and are

associated with future cash flows. Bartov et al. (2002) find that firms that consistently meet or

beat analyst consensus estimates earn positive future stock returns.[20]

Table 5 reports results on the relation between future stock returns and excess accounting

discretion (equation 8). Three out of four the coefficients are positive on FUTARET (i.e., the

intercept) in columns 1 through 4 including the summary measure, DISCIND but none are

distinguishable from zero at conventional levels (t = -0.49, t = 1.46 and t = 0.31 and t = 0.91,

respectively). Thus, the evidence from tests of future stock performance is also inconsistent with

managerial opportunism, $H1_A$, being the driver of accounting discretion. If pervasive managerial

opportunism were a dominant explanation for the measures of accounting discretion used in this

study, we should have observed significant negative returns to the hedge portfolio formed on

predicted excess accounting discretion (i.e., a significant negative coefficient on FUTARET),

assuming this discretion was not already fully impounded. Further, the absence of significant

positive coefficients on FUTARET (similar to the positive coefficients on predicted excess

accounting discretion observed in the future operating cash flow regressions in Table 4) suggests

that the stock market may have already anticipated the signal about future operating performance

contained in the revealed earnings management.

---

[20] The positive association between future operating performance and predicted excess accounting discretion might lead a reader to infer that weak corporate governance results in better future performance. We disagree with this interpretation for two reasons. First, under the efficient contracting/signaling hypothesis, the observed level of governance is optimal. Second, predicted excess accounting discretion does not necessarily imply weak governance (see footnote 18). To illustrate this, we conduct a factor analysis of all the governance variables listed in Table 3 and find that the correlation between such governance factor score and predicted excess accounting discretion is only –0.06. Moreover, when we substitute the governance factor score in place of the extent of accounting discretion explained by governance in equations (7a) and (7b), we find that the coefficient on the governance factor score is not statistically significant.

5.4 Sensitivity tests

We conduct several sensitivity tests to examine the robustness of our results.

(i) Earnings restatements sample

One potential concern with inferences from stage 2 results is that we consider a broad sample of undifferentiated firms where one might expect both opportunistic behavior and efficient contracting to influence firms' accounting choices. That is, one could argue that our tests potentially lack power if the wealth decreasing effects of managerial opportunism are offset by the wealth neutral or wealth increasing effects of efficient contracting. As an evaluation of the reasonableness of our main tests and to differentiate the two effects, we identify a sub-sample of firms where managerial opportunism is likely to be dominant *ex post*. In particular, we identify firms that *ex post* restated earnings. These firms are more likely to have engaged in managerial opportunism than our relatively broad sample of firms. Next, we assess whether the predicted excess accounting discretion estimated from stage 1 for the restating firms captures opportunism. We predict that, for restatement firms, the relation between predicted excess accounting discretion and future performance would be systematically lower than that for non-restating firms. To test this prediction, we modify the cash flow and ROA regressions in equation (7) by including an interaction term of the predicted excess accounting discretion and a RESTATE dummy which is set to one (zero) if the firm restates (does not restate) its earnings during the time period over which future performance (FUTCFO and FUTROA) is measured. We also include the RESTATE dummy as a separate variable to capture the differential performance of the restating firms. The model is as follows:

$$\text{FUTCFO} = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1} +$$
$$\gamma_2 \text{ Predicted excess accounting discretion }_{it-1} * \text{RESTATE} + \gamma_3 \text{ RESTATE} +$$
$$\gamma_4 \ \sigma_{\text{CFO } it-1} + \gamma_5 \text{ CFO}_{it-1} + \gamma_5 \text{ LnSALES}_{it-1} + \gamma_6 \text{ IND}_{it-1} + \gamma_7 \text{ YEAR}_{it-1} + \varphi \qquad (9a)$$
$$\text{FUTROA} = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1} +$$
$$\gamma_2 \text{ Predicted excess accounting discretion }_{it-1} * \text{RESTATE} + \gamma_3 \text{ RESTATE} +$$

$$\gamma_4 \, \sigma_{\text{ROA it-1}} + \gamma_5 \, \text{ROA}_{\text{it-1}} + \gamma_5 \, \text{LnSALES}_{\text{it-1}} + \gamma_6 \, \text{IND}_{\text{it-1}} + \gamma_7 \, \text{YEAR}_{\text{it-1}} + \varphi \tag{9b}$$

In equation (9a) and (9b), both coefficients γ_2 and γ_3 are predicted to be negative but we focus on γ_2. If predicted excess accounting discretion is able to discriminate between efficient contracting and opportunism, we ought to detect lower future performance for firms that have been identified as exploiting accounting discretion for opportunistic reasons *ex post*, i.e. $\gamma_2 < 0$.

Results from estimating equation (9a) and (9b) are reported in columns (1) and (2) of panel A of Table 6. For simplicity, we restrict the tests to the combined measure of accounting discretion (DISCIND). We find that the γ_3 coefficient on the RESTATE dummy is negative and significant. This finding validates our assumption that restating firms are opportunistic in that there are negative consequences for future cash flows and ROA relative to the average firm in the sample. As predicted, we also observe a negative coefficient on γ_2 for both CFO ($t = -1.64$, $p = 0.051$, one-tailed) and ROA tests ($t = -1.80$, $p = 0.035$, one-tailed).

In panel B, we also assess whether restating firms earn negative abnormal stock returns. In particular, we sort restating firm-years by their respective measure of predicted excess accounting discretion. Similar to equation (8), we form a hedge portfolio by assuming long (short) positions in the fifth (first) quintile of predicted excess accounting discretion for the sample of restating firms. We expect to observe significant negative returns to this hedge portfolio consistent with the hypothesis that among the restating firms, those with excess predicted accounting discretion report relatively worse stock returns. Panel B of Table 6 shows that is indeed the case. The monthly abnormal return on the hedge portfolio is -0.9% ($t = -1.80$). The results reported in this section mitigate potential concerns about the power of our stage 2 tests to discriminate between efficiency and opportunism.

(ii) *Cluster analysis*

Larcker (2003) and Richardson and Larcker (2004) argue that one structural model might

not be appropriate for the entire sample if the relation between predicted excess accounting

discretion and performance is negative for a subset of firms but that negative association is

swamped by the average positive or zero association documented in section 5.3.   To assess

whether that is indeed the case, we use cluster analysis techniques to identify the number of latent

sub-samples in the second stage regressions. In particular, we use the Lo-Mendell-Rubin adjusted

Likelihood ratio (LMRLR) test to compare sequential models with k and k+1 classes. This test

statistic is similar to the Vuong statistic that compares explanatory power of models. For the

FUTCFO variable, we find that three latent classes best fit the data as adding the fourth latent class

does not significantly improve model fit as determined by the LMR statistic (statistic = 656.013, p

= 0.22). For the FUTROA variable, only two latent classes fit the data as including the third latent

class does not statistically improve the fit (LMR statistic = 825.804, p = 0.14).[21] In panel A of

Table 7, we present the results of estimating equation 7a (7b) for these three (two) clusters. It is

noteworthy that the relation between FUTCFO and predicted excess accounting discretion is not

negative for any of the clusters examined.   Moreover, the marginal clusters (1 and 3) have very

few observations relative to cluster 2 indicating that our average result is most influenced by the

cluster with the greatest number of observations (cluster 2) and not driven by marginal clusters.

Turning to the two significant clusters for FUTROA presented in the last two columns of panel A,

we find a positive association between FUTROA and predicted excess accounting discretion. In

sum, we do not appear to have a significant cluster of firms where predicted excess accounting

discretion is associated with poor future operating performance.

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[21] Akaike information criterion and the Bayesian information criterion are other commonly used methods for
determining the number of clusters. However, when we consider these methods, we continue to find three statistically
significant clusters for FUTCFO and two significant clusters for FUTROA respectively. Furthermore, we do not find
a negative association between future operating performance and predicted excess accounting discretion in any of
clusters that rely on these alternate information criteria.

(iii) *Serial correlation*

The use of over-lapping windows likely creates serial correlation in the error terms and thus t-statistics may be overstated. To address this issue, we obtain a single observation for each firm by averaging all the firm-year observations for a given firm. We then estimate regression specifications (5) and (7a) and (7b) using only observation per firm. By construction, we eliminate the time dummies when conducting the regressions. Our results presented in panel B and C of Table 7 indicate that, while some of the results from the first-stage regressions are different, the results of the second-stage regressions are unaltered. In particular, results from stage two indicate that the coefficient on predicted excess accounting discretion is positive for both CFO (t = 2.65) and ROA (t = 2.40) tests.[22]

(iv) *Alternative measures of accounting discretion*

The DISCIND measure aggregates three different aspects of accounting discretion on an equally-weighted basis and hence, is a coarse summary measure of accounting discretion. Therefore, we consider two alternative measures of accounting discretion to ensure robustness of our main results. First, we examine a summary measure that uses factor analytic techniques to synthesize the three accounting discretionary measures used in the study. However, untabulated results are qualitatively similar to those reported in the text.

Next, we compute the aggregate earnings management score constructed by Leuz et al (2003) from their four measures of earnings management evaluated over the four three-year windows: 1993-95, 95-97, 96-98: (i) standard deviation of accruals scaled by the standard deviation of operating cash flows; (ii) absolute value of accruals scaled by absolute value of operating cash flows; (iii) covariance between change in accruals and change in operating cash

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[22] We do not conduct return based second stage tests because results presented in Table 4 Panel C already average observations across overlapping portfolios. As such serial correlation is not a concern in the returns tests.

flows; and (iv) the number of small profits scaled by the number of small losses. The correlation between the Leuz et al. (2003) aggregate earnings management measure and our DISCIND measure is 0.60 (p-value < 0.01). Thus, both earnings management measures appear to capture similar attributes. Furthermore, we repeat our first-stage and second-stage results for the Leuz et al. measures. The inferences from these revised measures are similar to those reported in the paper.

(v) *Discretionary accrual based smoothing*

We redefine SMOOTH in terms of the variance of pre-smoothed to smoothed earnings. In particular, we compute the variance of non-discretionary quarterly earnings scaled by the variance of quarterly earnings. Non-discretionary earnings are defined as operating cash flows adjusted for non-discretionary accruals as per the modified Jones model in equation (3). Again, our inferences are unchanged.

(vi) *Tax motivation*

We introduce a tax motivation for accounting discretion (Shackelford and Shevlin 2001) proxied as a dummy variable that is set to one if the firm-year has positive earnings (Compustat #18) and tax loss carry-forwards (# 52) and zero otherwise. Our inferences are robust to the inclusion of this tax variable.

(vii) *Measurement of predicted excess accounting discretion*

In measuring predicted excess accounting discretion, we include all of the governance variables regardless of whether the coefficient on the variable in the first stage tests is statistically significant or not. To control for potential measurement error induced by the inclusion of variables with statistically insignificant coefficients, we rerun the second stage regression equations (7a,b) and (8) after estimating predicted accounting discretion using only the variables

with significant coefficients in the first stage tests. Our inferences are unchanged when this alternative measure of predicted excess accounting discretion is used.

(viii) *Expanded sample*

The reported tests are based on a sample where we require all three measures of accounting discretion to be available. We repeat these tests for firm-years where this requirement is dropped, i.e., we repeat the tests for all available individual accounting discretion measures and find that our inferences are unaltered.

6. Conclusions

A central issue in the accounting literature relates to the debate about whether managers make accounting choices for efficient shareholder value maximization or for selfish opportunistic enrichment at the expense of shareholders. As pointed out by Fields et al. (2001), much of the prior literature *assumes* the existence of opportunism and interprets an association between greater accounting discretion and poor governance quality as evidence of managerial opportunism.

In this paper, we explicitly consider efficient contracting as a plausible alternative hypothesis and investigate whether accounting discretion is explained largely by efficient contracting or by managerial opportunism. In the first stage tests, we assess the relation between an index of accounting discretion (composed of absolute abnormal accruals, earnings smoothing via accruals, reporting small positive surprises) and proxies for efficient contracting and governance variables. Similar to prior research, we find associations between poor governance quality and accounting discretion.

However, we argue that, for this evidence to support the managerial opportunism hypothesis, it is critical to demonstrate subsequent poor performance as a result of the accounting discretion. Hence, in the second stage tests we evaluate whether the predicted component of

accounting discretion associated with governance characteristics exhibits a negative association with subsequent operating performance and abnormal stock returns. Inconsistent with opportunism, we fail to detect a negative association between the level of accounting discretion due to lax governance and subsequent firm performance. Rather, we find some evidence that discretion due to poor governance is positively associated with future operating cash flows and future ROA. This finding is consistent with Subramanyam (1996) and Bartov et al. (2002) who find that shareholders may benefit from earnings management, perhaps because it signals managerial competence or future performance.

The evidence presented here is subject to at least four caveats. First, our investigation of whether abuse of accounting discretion by managers is a systematic occurrence poses several challenges. In particular, we rely on the literature to develop a model of how firms exercise accounting discretion and our inferences are subject to the quality of this model. Therefore, the empirical tests in the paper have to be interpreted as joint tests of the quality of the set of economic determinants, the functional form of the accounting discretion model, and the theory related to efficient contracting and opportunism. Second, we constrain our firms to data availability in the *Execucomp* database. As a result, our sample has larger, more profitable and somewhat less levered firms compared to the average *Compustat* firm. Accounting opportunism may be more prevalent in the average *Compustat* firm than in the average firm in our sample. Third, beginning in 1998, the Investor Responsibility Research Center (IRRC) has started compiling machine-readable datasets on finer aspects of governance such as the number of independent block holders, the presence and the composition of the audit committee and whether the board has a financial expert. Future work can incorporate these governance variables and re-examine our results. Fourth, our analysis is restricted to the 1990s and our results may be specific

to the time period examined. It would be interesting to conduct analyses similar to those reported

here for a sample of U.S. firms for different time periods and in particular, for non-U.S. firms, to

exploit the cross-country differences in governance systems.

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Figure 1
Framework underlying the Empirical Tests

	Stage in the firm's life cycle			
	T = 0	T = K	T = K+1	T = K+1+N
	Organization phase	*Change in economic environment between 0 and K*	*Short-run accounting discretion observed* Short-run accounting discretion observed = f (economic environment and governance at T = K)	*Subsequent performance examined* Future time period over which cash flows, ROA and returns examined
Economic conditions	Current and anticipated economic environment	New economic environment in place		
Governance structure	Governance structure created as a function of economic determinants	Governance changes respond to new economic environment		
Empirical Predictions			*Empirical stage 1 predictions (current literature typically stops here):*	*Empirical stage 2 hypotheses:*
Efficient contracting	Efficient contracts signed	Revised efficient contracts signed	Economic environment ought to fully explain short-run accounting discretion if the efficient contracting view held.* Furthermore, governance ought to be subsumed by economic environment and hence governance ought to explain none of the short-run acc. discretion if the efficient contracting view held.*	$H1_{0/B}$: If efficient contracting prevails, then the association between predicted accounting discretion due to governance and future performance would be non-negative. $H1_B$: A *positive* association is consistent with a) model misspecification in stage 1, and b) investors benefiting from accounting discretion.
Managerial opportunism	Expected managerial opportunism considered in contracts	Effect on expected managerial opportunism due to changes in economic environment considered	If governance explains short-run discretion, implies either (i) *unexpected* managerial opportunism; or (ii) omitted economic determinants from the empirical model. If (i) → $H1_A$ in stage 2; if (ii) → $H1_{0/B}$ in stage 2. * assumes models are completely specified	$H1_A$: If *unexpected* managerial opportunism prevails, then the association between predicted accounting discretion due to governance and future performance would be negative.

Figure 2
Empirical Relations and Timing of Variable Measurement: Stage 1 versus Stage 2

<u>**Stage 1**</u>

Governance Variables
Economic Determinants

Accounting Discretion

(Data Years – 92, 93, 94, 95)   **(Data Year Windows – 93-95, 94-96, 95-97, 96-98)**

<u>**Stage 2**</u>

Predicted Excess
Accounting Discretion
Due to Governance

Future Firm Performance

(Data Year Windows – 93-95, 94-96, 95 -97, 96-98)   **(Data Year Windows – 96-98, 97-99, 98-00, 99-01)**
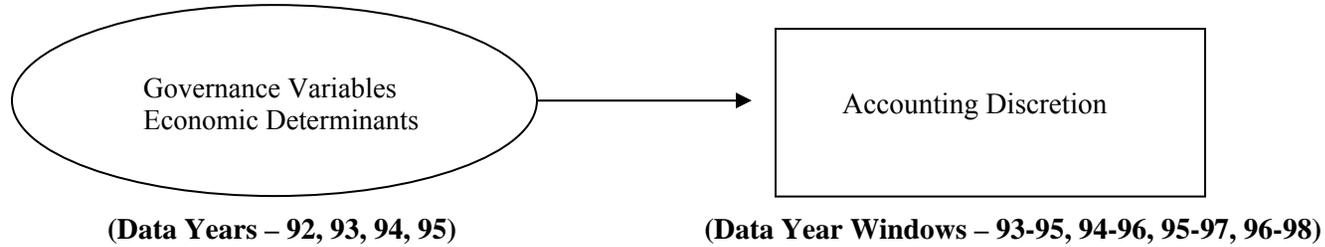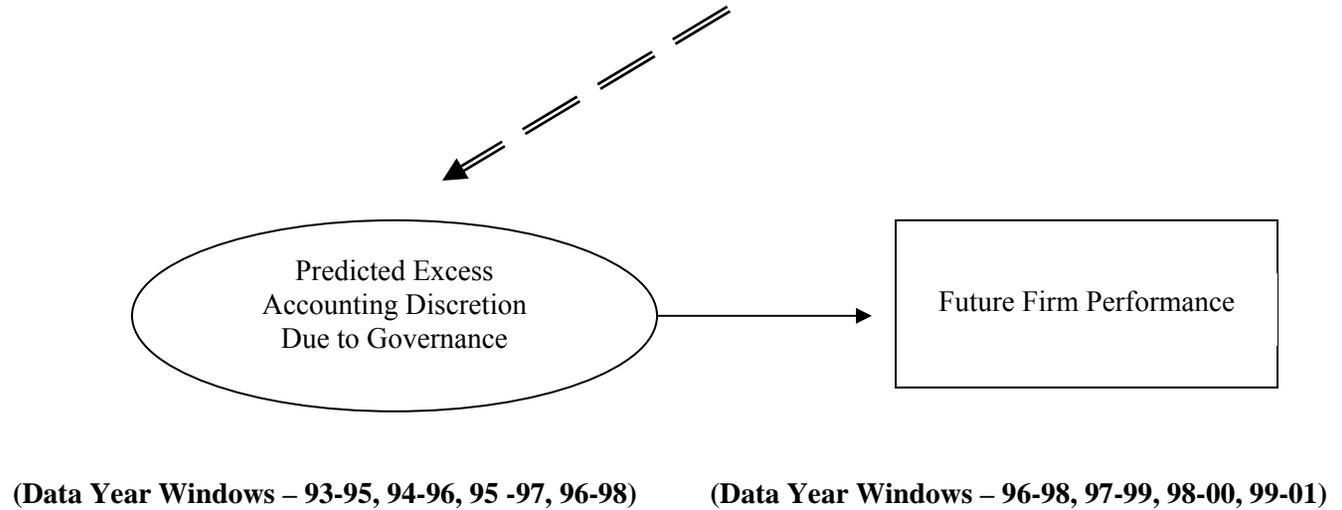
Notes: The purpose of this figure is to describe the data used in each stage. Stage 1 is the relation between accounting discretion and governance, after controlling for other economic determinants. Stage 2 is the relation between future performance and the portion of the "excess" accounting discretion due to governance. A negative (null or positive) association in Stage 2 is consistent with managerial opportunism (efficient contracting).

Table 1
Descriptive Statistics

Panel A: Sample selection

	Firm-years
Firm-years available on *Execucomp* 1992-95	6752
Less: Firm-years in the financial services industries	1129
Firm-years not on *Compustat*	1074
Firm-years for which accounting discretion measures are not estimable due to lack of governance or quarterly *Compustat* data	966
Firm-years for which future stock returns, cash flows or ROA not available	429
Final sample (1009 firms)	3154

Panel B: Accounting discretion variables

(N=3154)

Variables	Mean	Std. dev.	Median	Q1	Q3
|ABACC|	0.058	0.074	0.036	0.016	0.072
SMOOTH	3.508	4.166	2.416	1.279	4.337
FREQ	0.147	0.170	0.083	0.000	0.250
DISCIND	0.501	0.162	0.496	0.388	0.615

Table 1 (continued)
Descriptive Statistics

Panel C: Descriptive data on firm characteristics, future performance, economic determinants and governance variables

(N=3154)

Variables	Mean	Std. dev.	Median	Q1	Q3
General sample firm characteristics					
Equity market value ($mill)	2797.05	6997.65	706.85	298.42	2111.95
Sales ($mill)	2681.73	6633.34	719.29	278.28	2234.44
Total assets ($mill)	2532.42	6385.88	614.57	251.46	1963.48
Economic determinants					
LEV	0.174	0.152	0.152	0.035	0.273
BM	0.439	0.269	0.390	0.256	0.572
STCLAIM	0.000	1.000	0.009	-0.670	0.764
$D_{CAPITAL}$	0.030	0.170	0.000	0.000	0.000
LnSALES	6.660	1.624	6.578	5.629	7.712
σ_{CFO}	0.035	0.031	0.025	0.016	0.040
ROA	0.066	0.128	0.066	0.029	0.111
Governance Variables					
$D_{g\ score}$	0.709	0.454	1.000	0.000	1.000
$D_{g\ score}$ * g score	6.572	4.849	8.000	0.000	11.000
CEO-CHAIR	0.764	0.424	1.000	1.000	1.000
ONBOARD	0.362	0.223	0.333	0.200	0.500
INTERLOCK	0.041	0.118	0.000	0.000	0.000
MEETINGS	6.370	2.963	6.000	4.000	8.000
INST	0.348	0.291	0.400	0.100	0.601
MGR	0.035	0.078	0.000	0.000	0.026
BONUS	0.102	0.142	0.033	0.002	0.150
EXOPT	0.195	0.249	0.065	0.000	0.341
AUDEXP	0.483	0.499	0.483	0.000	1.000

Table 1 (continued)
Descriptive Statistics

Variables	Mean	Std. dev.	Median	Q1	Q3
Future Performance Variables					
FUTCFO	0.113	0.096	0.111	0.070	0.159
FUTROA	0.168	0.095	0.058	0.023	0.099
FUTRET (%)	0.253	2.767	0.162	1.160	1.780

Notes: All data item numbers refer to the annual Compustat tapes, unless otherwise mentioned. |ABACC| is the absolute value of abnormal accruals (scaled by lagged total assets) computed using the modified Jones (1991) model after controlling for change in operating cash flows (see equation 3 in the text). The 'normal accruals' model as per equation (3) is estimated annually. |ABACC| is estimated annually for each 2 digit SIC code over six years 1993-1998 and then average across four three-year windows: 1993-95, 1994-96, 1995-97, 1996-98. Accruals are defined as earnings (#18) – cash flows adjusted for extraordinary items (#308-#124). SMOOTH is the standard deviation of quarterly cash flows adjusted for extraordinary items (quarterly #108-78) scaled by the standard deviation of quarterly net income (quarterly #76) computed over four three-year windows: 1993-95, 1994-96, 1995-97, 1996-98. FREQ is the frequency of times the firm reports a small quarterly earnings surprise over the three-year windows, 1993-1995, 1994-1996, 1995-1997 and 1996-1998 where a small surprise occurs when the change in seasonally lagged quarterly earnings after tax $(E_q – E_{q-4})$ scaled by total assets at the end of quarter q-5 falls within the range of (0.00 to 0.0025). For computing the accounting discretion index, DISCIND, we first rank each individual measure for every three-year window and rescale the rank by the total number of observations in that window such that every firm-year observation in the window lies between 0 and 1. The descriptive statistics reported for the above accounting discretion metrics come from the pooled sample of firm three-year window observations which satisfy two filters: (i) a firm-year has all the three accounting discretionary measures; and (ii) non-missing economic determinants and governance variables are available for each firm-year (N=3154).

LEV is the proportion of long-term debt (data item # 9) to total assets (#6); BM is the book-to-market ratio (# 60/#24 x #25); STCLAIM is a factor score extracted from D_{DUR}, RD and LABOR. D_{DUR} is an indicator variable that takes on the value of 1 if a firm belongs to a durable goods industry, zero otherwise; RD is R&D expense (data item # 46) scaled by total assets (data item #6); LABOR is measured as one minus the ratio of gross property, plant and equipment (# 7) to adjusted total assets [i.e., total assets (#6) plus accumulated depreciation (#196) and LIFO reserve (#240)]; $D_{CAPITAL}$ is set to one if the FCF measure is less than -0.50 and zero otherwise, where FCF is the difference between cash flow from operations (#308) for year t-1 and the past-three year average (t-1, t-2, t-3) of the firm's capital expenditure (#128) scaled by current assets (#4) at t-1; LnSALES is the natural logarithm of sales (#12); σ_{CFO} is the standard deviation of cash flows from operations over the 3 prior years; ROA is income before extraordinary items (#18) scaled by lagged total assets.

$D_{g\ score}$ is an indicator variable that identifies the availability of g score; *g* score is a measure of shareholder power compiled by Gompers, et al. (2003); CEO-CHAIR is a dummy variable that is set to one (zero) if the CEO is (is not) the chair of the board of directors; ONBOARD refers to the proportion of the top executive team that is on the board of directors; INTERLOCK is the proportion of top executives that are "interlocked": i.e.,the proportion of officers who are a) on the compensation committee or b) on the board (or compensation committee) of another company that has an executive officer serving on the board (or compensation committee) of the indicated officers' company (Execucomp data item PINTRLOC); MEETINGS is the number of the meetings held by the board. INST is the level of institutional ownership. MGR is inside ownership as the percentage of stock holdings (including restricted stock) held by the top managers of the firm at the end of year t-1. BONUS is the bonus paid to the CEO scaled by firm specific CEO wealth. CEO wealth is defined as the sum of salary, bonus, other cash compensation, the value of firm's stock held and the value of in-the-money exercisable and unvested options. EXOPT is the ratio of the in-the-money exercisable options to firm specific CEO wealth. AUDEXP is an indicator variable that is equal to 1 if the firm's auditor audits at least 15% of sales in the firm's two-digit SIC code, zero otherwise.

FUTCFO represents the average of cash flows from operations scaled by lagged total assets for three subsequent years. FUTROA is the average ROA (computed as income before extraordinary items scaled by lagged total assets) for three subsequent years. $FUTRET_{5-1}$ is the monthly return for a hedge portfolio formed by assuming long (short) positions in the fifth (first) quintile of predicted excess accounting discretion. Portfolio monthly returns are obtained for three years after April 1 following the fiscal year in which predicted excess accounting discretion is estimated. The monthly returns from overlapping portfolios for each month are then averaged to determine portfolio monthly hedge return.

Table 2
Correlation Statistics

Panel A: Spearman Correlation of Accounting Discretion variables with Economic Determinants and
Governance Variables

	DISCIND	|ABACC|	SMOOTH	FREQ
Accounting Choice Variables				
|ABACC|	0.43			
SMOOTH	0.66	-0.08		
FREQ	0.58	-0.18	0.19	
Economic Determinants				
LEV	0.02	-0.14	-0.02	0.20
BM	0.12	-0.06	0.08	0.18
STCLAIM	0.00	-0.15	0.01	0.15
$D_{CAPITAL}$	-0.07	0.03	-0.11	-0.04
LnSALES	0.13	-0.20	0.11	0.32
σ_{CFO}	0.15	0.24	0.24	-0.23
ROA	0.02	0.04	0.11	-0.13
Governance Variables				
GSCORE	0.08	-0.11	0.06	0.19
CEO-CHAIR	0.05	-0.09	0.07	0.11
ONBOARD	0.03	-0.06	0.08	0.03
INTERLOCK	0.01	0.05	-0.02	-0.01
MEETINGS	-0.09	-0.06	-0.15	0.05
INST	0.06	-0.03	0.13	0.01
MGR	0.02	0.07	0.08	-0.13
BONUS	0.12	-0.08	0.15	0.15
EXOPT	-0.07	-0.03	-0.07	-0.02
AUDEXP	-0.01	-0.05	-0.02	0.06

(N=3154)

Table 2 (continued)
Correlation Statistics

Panel B: Spearman correlation among Economic Determinants and Governance Variables

(N=3154)

	LEV	BM	STCLAIM	$D_{CAPITAL}$	LnSALES	σ_{CFO}	ROA	GSCORE	CEO-CHAIR	ON BOARD	INTER LOCK	MEET-INGS	INST	MGR	BONUS	EXOPT
Economic Determinants																
LEV																
BM	0.19															
STCLAIM	0.37	0.33														
$D_{CAPITAL}$	0.08	0.02	0.15													
LnSALES	0.30	0.06	0.21	-0.17												
σ_{CFO}	-0.29	-0.14	-0.28	-0.05	-0.26											
ROA	-0.44	-0.45	-0.36	-0.16	-0.10	0.16										
Governance Variables																
GSCORE	0.18	0.11	0.16	-0.07	0.47	-0.21	-0.11									
CEO-CHAIR	0.09	-0.02	0.06	-0.01	0.25	-0.07	0.01	0.17								
ONBOARD	-0.07	-0.03	0.01	0.02	-0.00	-0.04	0.08	-0.01	0.07							
INTERLOCK	-0.09	-0.06	-0.10	0.02	-0.12	0.04	0.06	-0.11	-0.01	0.22						
MEETINGS	0.13	0.06	0.05	-0.04	0.29	-0.13	-0.20	0.19	0.02	0.01	-0.08					
INST	-0.06	0.01	-0.06	-0.08	0.06	-0.02	0.09	0.08	0.04	0.02	-0.05	0.02				
MGR	-0.17	-0.04	-0.11	0.01	-0.31	0.18	0.17	-0.25	0.07	0.26	0.16	-0.20	-0.06			
BONUS	0.01	0.03	0.02	-0.09	0.15	-0.02	0.14	0.08	-0.00	-0.05	-0.06	-0.06	0.01	-0.14		
EXOPT	0.02	-0.15	-0.04	0.01	0.13	-0.08	0.02	0.13	0.10	0.01	-0.05	0.21	0.06	-0.05	-0.31	
AUDEXP	0.07	0.01	0.12	0.02	0.14	-0.09	-0.01	0.09	0.07	0.00	-0.07	0.06	0.02	-0.04	0.02	0.04

Notes: All correlations greater than 0.04 are significant at $p < 0.05$, two-tailed level. See notes to Table 1 for variable definitions.

Table 3
Estimation of Determinants of Accounting Discretion

(N=3154)

Variable	Predicted sign	|ABACC| (1)	SMOOTH (2)	FREQ (3)	DISCIND (4)
Economic determinants					
LEV	+	-0.016 (-3.48)	-0.443 (-1.46)	0.026* (1.57)	-0.038 (-1.97)
BM	−	-0.004** (-1.66)	0.147 (0.90)	0.050 (5.68)	0.035 (3.40)
STCLAIM	+	0.003*** (2.66)	0.105** (1.86)	0.001 (0.23)	0.006** (1.75)
$D_{CAPITAL}$	+	0.001 (0.45)	-0.272 (-1.07)	-0.020 (-1.45)	-0.024 (-1.47)
LnSALES	+	-0.002 (-4.07)	0.084*** (2.42)	0.017*** (9.27)	0.013*** (6.06)
σ_{CFO}	+	0.133*** (6.39)	8.760*** (6.54)	-0.276 (-3.91)	0.443*** (5.25)
ROA	+/−	-0.012** (-2.04)	0.690** (1.98)	-0.046** (-2.48)	-0.003 (-0.12)
Gov. variables (signs assume opportunism)					
Dg score	?	-0.004 (-1.43)	-0.341* (-1.84)	-0.003 (-0.30)	-0.031*** (-2.60)
Dg score * g score	+	0.000 (0.51)	0.054*** (3.06)	0.001* (1.34)	0.004*** (3.75)
CEO-CHAIR	+	-0.003 (-1.85)	0.140* (1.44)	0.012*** (2.47)	0.004 (0.62)
ONBOARD	+	-0.006 (-2.02)	0.964*** (5.01)	0.002 (0.16)	0.025** (2.03)
INTERLOCK	+	0.017*** (2.93)	-0.380 (-1.06)	0.050*** (2.66)	0.050** (2.22)
MEETINGS	−	0.000 (0.38)	-0.095*** (-6.51)	-0.002** (-2.00)	-0.006*** (-6.48)
INST	+/−	-0.006** (-2.36)	0.987*** (5.86)	0.006 (0.70)	0.032*** (2.97)
MGR	−	0.004 (0.51)	-0.486 (-0.86)	-0.022 (-0.74)	-0.016 (-0.45)
BONUS	+	-0.012 (-2.79)	1.103*** (3.85)	0.087*** (5.63)	0.089*** (4.92)
EXOPT	+	-0.006 (-2.23)	-0.147 (-0.92)	0.004 (0.44)	-0.003 (-0.31)
AUDEXP	−	0.001 (0.34)	-0.044 (-0.51)	0.003 (0.61)	-0.001 (-0.10)
Adj. R^2 overall		26.26%	21.90%	25.09%	18.24%
F-stat (p value)		15.93 (0.00)	12.96 (0.00)	14.96 (0.00)	10.31 (0.00)
Adj. R^2 Gov. variables only		3.14%	6.73%	5.87%	4.85%
F-stat- Gov. variables (p value)		11.97 (0.00)	21.09 (0.00)	17.95 (0.00)	15.03 (0.00)

Notes: 1) Estimation Equation:

$$\text{Accounting discretion}_{it} = \beta_0 + \beta_1\,\text{LEV}_{it-1} + \beta_2\,\text{BM}_{it-1} + \beta_3\,\text{STCLAIM}_{it-1} + \beta_4\,\text{D}_{\text{CAPITAL }it-1} + \beta_5\,\text{LnSALES}_{it-1}$$
$$+\ \beta_6\,\sigma_{\text{CFO }it-1} + \beta_7\,\text{ROA}_{it-1} + \beta_8\,\text{D}_{g\text{ score }it-1} + \beta_9\,\text{D}_{g\text{ score}}\text{*g score}_{it-1}$$
$$+\beta_{10}\,\text{CEO-CHAIR}_{it-1} + \beta_{11}\,\text{ONBOARD}_{it-1} + \beta_{12}\,\text{INTERLOCK}_{it-1}$$
$$+\ \beta_{13}\,\text{MEETINGS}_{it-1} + \beta_{14}\,\text{INST}_{it-1} + \beta_{15}\,\text{BONUS}_{it-1} + \beta_{16}\,\text{EXOPT}_{it-1}$$
$$+\ \beta_{17}\,\text{AUDEXP}_{it-1} + \beta_{18}\,\text{IND}_{it-1} + \beta_{19}\,\text{YEAR}_{it-1} + e_{it} \qquad (5)$$

2) See notes to Table 1 for variable definitions.

3) */**/*** represents statistical significance at $p < 0.10$, 0.05, 0.01, one tailed when coefficient sign is predicted, two-tailed otherwise. Coefficients on intercept, industry and time dummies are omitted to conserve space.

Table 4
Association between Predicted Excess Accounting Discretion and Future Operating Performance

Panel A: Future operating cash flows

$$FUTCFO = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1} + \gamma_2 \sigma_{CFOt-1} + \gamma_3 \text{ LnSALES}_{it-1} + \gamma_4 \text{ CFO}_{it-1} + \gamma_5 \text{ IND}_{it-1} + \gamma_6 \text{ YEAR}_{it-1} + \varphi \qquad (7a)$$

(N=3154)

Variable	Predicted Sign	|ABACC| (1)	SMOOTH (2)	FREQ (3)	DISCIND (4)
Predicted excess accounting discretion (H1)	'–' → opportunism; non-negative → efficiency (with '+' → signaling)	0.444 (1.32)	0.010*** (3.77)	0.031 (0.41)	0.139*** (3.06)
σ_{CFO}	–	-0.131*** (-2.84)	-0.130*** (-2.83)	-0.135*** (-2.94)	-0.134*** (-2.92)
LnSALES	?	0.007*** (6.87)	0.007*** (7.56)	0.007*** (7.54)	0.007*** (7.77)
CFO$_{t-1}$	+	0.531*** (45.65)	0.526*** (45.06)	0.532*** (45.69)	0.528*** (45.19)
Adj. R^2		49.30%	49.51%	49.28%	49.43%
F (p value)		53.87 (0.00)	54.30 (0.00)	53.81 (0.00)	54.13 (0.00)

Panel B: Future ROA

$$\text{FUTROA} = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1} + \gamma_2 \text{ } \sigma_{\text{ROAt-1}} + \gamma_3 \text{ LnSALES}_{it-1} + \gamma_4 \text{ ROA}_{it-1} + \gamma_5 \text{ IND}_{it-1} + \gamma_6 \text{ YEAR}_{it-1} + \varphi \qquad (7b)$$

(N=3154)

Variable	Predicted Sign	|ABACC| (1)	SMOOTH (2)	FREQ (3)	DISCIND (4)
Predicted excess accounting discretion (H1)	'–' → opportunism; non-negative → efficiency (with '+' → signaling)	1.093*** (3.25)	0.016*** (5.72)	0.221*** (2.94)	0.228*** (4.94)
σ_{ROA}	–	-0.243*** (-3.83)	-0.203*** (-3.19)	-0.244*** (-3.85)	-0.215*** (-3.38)
LnSALES	?	0.006*** (6.33)	0.007*** (7.76)	0.007*** (7.31)	0.007*** (8.05)
ROA$_{t-1}$	+	0.538*** (41.43)	0.532*** (40.98)	0.537*** (41.38)	0.534*** (41.08)
Adj. R^2		47.99%	48.36%	47.96%	48.22%
F (p value)		51.16 (0.00)	51.91 (0.00)	51.10 (0.00)	51.63 (0.00)

Notes: 1) FUTCFO (FUTROA) represents the average CFO (ROA) for three subsequent years. CFO is cash flows from operations scaled by lagged total assets. ROA is income before extraordinary items scaled by lagged total assets. Predicted excess accounting discretion is estimated as the predicted component of accounting discretion that is related to governance variables estimated in the first stage. σ_{CFO} (σ_{ROA}) represents the standard deviation of CFO (ROA). LnSALES is the natural logarithm of sales. IND represents industry dummies. See also notes to Table 1 in the paper for variable definitions.
2) t-statistics are presented below the coefficients in parenthesis. Coefficients on the intercept, industry and time dummies are suppressed for expositional convenience. */**/*** represents statistical significance at p < 0.10, 0.05, 0.01, one tailed when coefficient sign is predicted, two-tailed otherwise.

Table 5
Table 5
Association between Predicted Excess Accounting Discretion and Future Abnormal Returns

$$\text{FUTRET}_{m,\,5\text{-}1} = \text{FUTARET}_{m,\,5\text{-}1} + \delta_1(\text{MKTRET}_m - rf_m) + \delta_2\,\text{SMB}_m + \delta_3\,\text{HML}_m + \delta_4\,\text{Momentum}_m + \eta \qquad (8)$$

(N=144)

Variable	Predicted Sign	|ABACC| (1)	SMOOTH (2)	FREQ (3)	DISCIND (4)
FUTARET$_{5\text{-}1}$ (H1)	'–' → opportunism; non-negative → efficiency (with '+' → signaling)	-0.002 (-0.49)	0.003 (1.46)	0.001 (0.31)	0.002 (0.91)
MKTRET – rf	?	-0.002** (-2.42)	-0.002*** (-3.12)	-0.002 (-1.50)	-0.002*** (-3.28)
SMB	?	-0.003*** (-2.86)	0.001 (0.61)	-0.002 (-1.60)	0.000 (0.52)
HML	?	0.000 (0.15)	0.002** (1.98)	0.001 (0.57)	0.002* (1.88)
Momentum	?	0.003** (2.43)	0.004*** (4.53)	0.003* (1.89)	0.004*** (4.40)
Adj. R^2		16.89%	24.34%	7.87%	24.52%
F (p value)		8.27 (0.00)	12.50 (0.00)	4.05 (0.01)	12.61 (0.00)

Notes: 1) FUTRET$_{5\text{-}1}$ is the monthly return for a hedge portfolio formed by assuming long (short) positions in the fifth (first) quintile of predicted excess accounting discretion based on DISCIND. Portfolio monthly returns are obtained for three years after April 1 following the fiscal year in which predicted excess accounting discretion is estimated. The monthly returns from overlapping portfolios for each month are then averaged to determine portfolio monthly hedge return. Predicted excess accounting discretion is estimated as the predicted component of accounting discretion that is related to governance variables estimated in the first stage. FUTARET$_{5\text{-}1}$, the intercept in equation (8), refers to the abnormal hedge return to such a strategy. rf is the risk-free rate, MKTRET is the value-weighted market return, SMB is the return difference between a portfolio of small and a portfolio of large firms, HML is the return difference between a portfolio of high book-to-market and a portfolio of low book-to-market firms, and Momentum is the return difference between past winners and past losers where the past performance window begins seven months before month m and ends one month before month m.
2) t-statistics are presented below the coefficients in parenthesis. */**/*** represents statistical significance at p < 0.10, 0.05, 0.01, one tailed when coefficient sign is predicted, two-tailed otherwise.

Table 6
Association between Predicted Excess Accounting Discretion and Future Performance after Segregating Restatement Firms

Panel A: Future operating performance

$$FUTCFO = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1}$$
$$+ \gamma_2 \text{ Predicted excess accounting discretion}_{it-1}*RESTATE + \gamma_3 \text{ RESTATE}$$
$$+ \gamma_4 \sigma_{CFOt-1} + \gamma_5 \text{ LnSALES}_{it-1} + \gamma_6 \text{ CFO}_{it-1} + \gamma_7 \text{ IND}_{it-1} + \gamma_8 \text{ YEAR}_{it-1} + \varphi \qquad (9a)$$

$$FUTROA = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1}$$
$$+ \gamma_2 \text{ Predicted excess accounting discretion}_{it-1}*RESTATE + \gamma_3 \text{ RESTATE}$$
$$+ \gamma_4 \sigma_{ROAt-1} + \gamma_5 \text{ LnSALES}_{it-1} + \gamma_6 \text{ ROA}_{it-1} + \gamma_7 \text{ IND}_{it-1} + \gamma_8 \text{ YEAR}_{it-1} + \varphi \qquad (9b)$$

		(N=3154)	
Variable	Predicted Sign	FUTCFO	FUTROA
Predicted excess accounting discretion based on DISCIND	'−' $\rightarrow$ opportunism; non-negative $\rightarrow$ efficiency (with '+' $\rightarrow$ signaling)	0.091** (2.50)	0.129*** (3.65)
Predicted excess accounting discretion * RESTATE	−	-0.192* (-1.95)	-0.169* (-1.87)
RESTATE	−	-0.005* (-1.64)	-0.005** (-1.80)
σ_{CFO}	−	-0.046 (-1.28)	
σ_{ROA}	−		-0.274*** (-5.71)
LnSALES	?	0.004*** (6.32)	0.004*** (6.47)
CFO_{t-1}	+	0.545*** (56.79)	
ROA_{t-1}	+		0.586*** (56.48)
Adj. R^2		59.95%	61.57%
F (p value)		75.20 (0.00)	80.64 (0.00)

Table 6 (continued)
Association between Predicted Excess Accounting Discretion and Future Performance after Segregating Restatement Firms

Panel B: Future stock return performance of restating firms

$$\text{FUTRET}_{m,\,5\text{-}1} = \text{FUTARET}_{m,\,5\text{-}1} + \delta_1(\text{MKTRET}_m - \text{rf}_m) + \delta_2\,\text{SMB}_m + \delta_3\,\text{HML}_m + \delta_4\,\text{Momentum}_m + \eta \qquad (8)$$

		(N=144)
Variable	Predicted Sign	DISCIND (4)
$\text{FUTARET}_{5\text{-}1}$	–	-0.009** (-1.80)
MKTRET – rf	?	-0.001 (-0.62)
SMB	?	-0.003 (-1.92)
HML	?	0.007*** (2.69)
Momentum	?	0.007*** (3.13)
Adj. R^2		21.05%
F (p value)		10.53 (0.00)

Notes:

1) FUTCFO (FUTROA) represents the average CFO (ROA) for three subsequent years. CFO is cash flows from operations scaled by lagged total assets. ROA is income before extraordinary items scaled by lagged total assets. Predicted excess accounting discretion is estimated as the predicted component of accounting discretion that is related to governance variables estimated in the first stage. σ_{CFO} (σ_{ROA}) represents the standard deviation of CFO (ROA). LnSALES is the natural logarithm of sales. IND represents industry dummies. See also notes to Table 1 in the paper for variable definitions. RESTATE is a dummy variable that is set to 1 (0) if a firm announced a restatement of its financial statements during the three year period when FUTCFO is measured (otherwise).
2) t-statistics are presented below the coefficients in parenthesis. Coefficients on the intercept, industry and time dummies are suppressed for expositional convenience. */**/*** represents statistical significance at p < 0.10, 0.05, 0.01, one tailed when coefficient sign is predicted, two-tailed otherwise.
3) $\text{FUTRET}_{5\text{-}1}$ is the monthly return for a hedge portfolio formed by assuming long (short) positions in the fifth (first) quintile of predicted excess accounting discretion, DISCIND, for the subsample of restating firms. Portfolio monthly returns are obtained for three years after April 1 following the fiscal year in which predicted excess accounting discretion is estimated. The monthly returns from overlapping portfolios for each month are then averaged to determine portfolio monthly hedge return. Predicted excess accounting discretion is estimated as the predicted component of accounting discretion that is related to governance variables estimated in the first stage. $\text{FUTARET}_{5\text{-}1}$, the intercept in equation (8), refers to the abnormal hedge return to such a strategy. rf is the risk-free rate, MKTRET is the value-weighted market return, SMB is the return difference between a portfolio of small and a portfolio of large firms, HML is the return difference between a portfolio of high book-to-market and a portfolio of low book-to-market firms, and Momentum is the return difference between past winners and past losers where the past performance window begins seven months before month *m* and ends one month before month *m*.

Table 7: Sensitivity Analyses

Panel A: Association between predicted excess accounting discretion and future operating performance for clusters

$$\text{FUTCFO} = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1} + \gamma_2 \text{ } \sigma_{CFOt-1} + \gamma_3 \text{ LnSALES}_{it-1} + \gamma_4 \text{ CFO}_{it-1} + \gamma_5 \text{ IND}_{it-1} + \gamma_6 \text{ YEAR}_{it-1} + \varphi \quad (7a)$$

$$\text{FUTROA} = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1} + \gamma_2 \text{ } \sigma_{ROAt-1} + \gamma_3 \text{ LnSALES}_{it-1} + \gamma_4 \text{ ROA}_{it-1} + \gamma_5 \text{ IND}_{it-1} + \gamma_6 \text{ YEAR}_{it-1} + \varphi \quad (7b)$$

Variable	Predicted Sign	FUTCFO			FUTROA	
		Cluster I	Cluster II	Cluster III	Cluster I	Cluster II
Predicted excess accounting discretion based on DISCIND (H1)	'–' → opportunism; non-negative → efficiency (with '+' → signaling)	0.349 (0.79)	0.126*** (3.00)	0.244 (1.07)	1.089** (2.36)	0.222*** (4.95)
σ_{CFO}	–	0.105 (0.32)	0.038 (0.90)	-0.438* (-1.33)		
σ_{ROA}	–				0.101 (0.40)	0.120 (1.37)
LnSALES	?	0.019** (1.75)	0.004*** (4.30)	0.008* (1.63)	0.039*** (3.89)	0.004*** (4.09)
CFO_{t-1}	+	0.080 (0.85)	0.312*** (21.68)	0.038 (0.58)		
ROA_{t-1}	+				0.027 (0.31)	0.539*** (37.85)
N		98	2796	260	123	3031
Adj. R^2		35.52%	24.30%	14.02%	23.76%	38.57%
F (p value)		3.81 (0.00)	16.74 (0.00)	2.06 (0.00)	2.65 (0.00)	33.80 (0.00)

Notes: 1) FUTCFO (FUTROA) represents the average CFO (ROA) for three subsequent years. CFO is cash flows from operations scaled by lagged total assets. ROA is income before extraordinary items scaled by lagged total assets. Predicted excess accounting discretion is estimated as the predicted component of accounting discretion, DISCIND, that is related to governance variables estimated in the first stage. σ_{CFO} (σ_{ROA}) represents the standard deviation of CFO (ROA). LnSALES is the natural logarithm of sales. IND represents industry dummies. See also notes to Table 1 in the paper for variable definitions.

   2) t-statistics are presented below the coefficients in parenthesis. Coefficients on the intercept, industry and time dummies are suppressed for expositional convenience. */**/*** represents statistical significance at $p < 0.10, 0.05, 0.01$, one tailed when coefficient sign is predicted, two-tailed otherwise.

Table 7: Sensitivity Analyses (cont'd)

Panel B: Sensitivity analysis after averaging all firm-year observations by firm - Estimation of determinants of accounting discretion – stage 1

Variable	Predicted sign	DISCIND (4) (N=1009)
Economic determinants		
LEV	+	-0.008 (-0.26)
BM	−	0.002 (0.13)
STCLAIM	+	0.002** (1.86)
D$_{CAPITAL}$	+	-0.009 (-0.34)
LnSALES	+	0.014*** (3.68)
σ$_{CFO}$	+	0.306*** (2.45)
ROA	+/−	-0.033 (-1.06)
Gov. variables (signs assume opportunism)		
Dg score	?	-0.041** (-1.87)
Dg score * g score	+	0.004** (1.96)
CEO-CHAIR	+	0.008 (0.80)
ONBOARD	+	0.046** (2.32)
INTERLOCK	+	0.113*** (2.76)
MEETINGS	−	-0.005*** (-2.99)
INST	+/−	0.058*** (3.16)
MGR	−	-0.061 (-1.02)
BONUS	+	0.099*** (3.50)
EXOPT	+	0.007 (0.35)
AUDEXP	−	-0.019 (-1.94)**
Adj. R^2 overall		20.70%
F-statistic (p value)		4.52 (0.00)

Table 7 (continued)

Panel C: Sensitivity analysis after averaging all firm-year observations by firm- Association between predicted excess accounting discretion and future operating performance – stage 2

$$FUTCFO = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1} + \gamma_2 \, \sigma_{CFOt-1} + \gamma_3 \text{ LnSALES}_{it-1} +$$
$$\gamma_4 \text{ CFO}_{it-1} + \gamma_5 \text{ IND}_{it-1} + \varphi \qquad (7a)$$

$$FUTROA = \gamma_0 + \gamma_1 \text{ Predicted excess accounting discretion}_{it-1} + \gamma_2 \, \sigma_{ROAt-1} + \gamma_3 \text{ LnSALES}_{it-1} +$$
$$\gamma_4 \text{ ROA}_{it-1} + \gamma_5 \text{ IND}_{it-1} + \varphi \qquad (7b)$$

(N=1009)

Variable	Predicted Sign	FUTCFO	FUTROA
Predicted excess accounting discretion based on DISCIND (H1)	'–' → opportunism; non-negative → efficiency (with '+' → signaling)	0.188*** (2.65)	0.174** (2.40)
σ_{CFO}	–	-0.250*** (-3.02)	
σ_{ROA}	–		-0.425*** (-4.20)
LnSALES	?	0.007*** (3.85)	0.009*** (5.48)
CFO_{t-1}	+	0.545*** (25.52)	
ROA_{t-1}	+		0.507*** (21.59)
Adj. R^2		48.57%	46.09%
F (p value)		17.41 (0.00)	15.86 (0.00)

Notes: 1) Estimation Equation for Panel A:

$$\text{Accounting discretion}_{it} = \beta_0 + \beta_1 \text{ LEV}_{it-1} + \beta_2 \text{ BM}_{it-1} + \beta_3 \text{ STCLAIM}_{it-1} + \beta_4 \text{ D}_{\text{CAPITAL } it-1} + \beta_5 \text{ LnSALES}_{it-1}$$
$$+ \beta_6 \, \sigma_{CFO \, it-1} + \beta_7 \text{ ROA}_{it-1} + \beta_8 \text{ D}_{g \text{ score } it-1} + \beta_9 \text{ D}_{g \text{ score}} \text{*g score}_{it-1} + \beta_{10} \text{ CEO-CHAIR}_{it-1}$$
$$+ \beta_{11} \text{ ONBOARD}_{it-1} + \beta_{12} \text{ INTERLOCK}_{it-1} + \beta_{13} \text{ MEETINGS}_{it-1} + \beta_{14} \text{ INST}_{it-1}$$
$$+ \beta_{15} \text{ BONUS}_{it-1} + \beta_{16} \text{ EXOPT}_{it-1} + \beta_{17} \text{ AUDEXP}_{it-1} + \beta_{18} \text{ IND}_{it-1} + e_{it} \qquad (5)$$

1) FUTCFO (FUTROA) represents the average CFO (ROA) for three subsequent years. CFO is cash flows from operations scaled by lagged total assets. ROA is income before extraordinary items scaled by lagged total assets. Predicted excess accounting discretion is estimated as the predicted component of accounting discretion, DISCIND, that is related to governance variables estimated in the first stage. σ_{CFO} (σ_{ROA}) represents the standard deviation of CFO (ROA). LnSALES is the natural logarithm of sales. IND represents industry dummies. In this sensitivity analysis we have only one observation per firm, which is obtained by averaging each of the variables across time by firm. See also notes to Table 1 for variable definitions.

3) t-statistics are presented below the coefficients in parenthesis. Coefficients on the intercept, industry dummies are suppressed for expositional convenience. */**/*** represents statistical significance at p < 0.10, 0.05, 0.01, one tailed when coefficient sign is predicted, two-tailed otherwise.