Accounting Discretion, Corporate Governance, and Firm Performance*

ROBERT M. BOWEN, *University of Washington*

SHIVARAM RAJGOPAL, *University of Washington*

MOHAN VENKATACHALAM, *Duke University*

1. Introduction

The latitude allowed by generally accepted accounting principles (GAAP) enables managers to exercise judgement 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?

Although anecdotes such as Enron and WorldCom can suggest that managerial opportunism is commonplace, we investigate multiple types of accounting discretion in a large sample study. We adapt a methodology used by Core, Holthausen, and Larcker 1999 to examine whether the opportunism or efficiency motivations dominate managers' accounting judgements, on average. In particular, we investigate whether poor governance quality is associated with greater accounting discretion,

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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 if 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 — for example, greater short-run managerial compensation, balance of power tilted in favor of managers over shareholders, chief executive officer (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 encourage managerial opportunism (Becker, DeFond, Jiambalvo, and Subramanyam 1998; Gaver, Gaver, and Austin 1995; Chen and Lee 1995; Guidry, Leone, and Rock 1999; Frankel, Johnson, and Nelson 2002; Klein 2002; Menon and Williams 2004).[2] We argue that such an interpretation is premature unless 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 (a) managerial opportunism unexpected by the contracting parties — for example, as an outcome of unresolved agency problems; or (b) an indication that we have not adequately specified a model for the equilibrium level of accounting discretion — for example, 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 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. Thus, these second-stage results do not support the claim that managers, on average, 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 return on assets (ROA), consistent with shareholders benefiting from earnings management, on average. However, it is important to point out that in our tests (a) accounting discretion is estimated, not empirically observed, and (b) governance quality is proxied by observable attributes of the firm's governance structure. Thus, our inferences are subject to the standard caveats regarding inherent measurement error in our surrogates for accounting discretion and governance quality despite measures of accounting discretion and governance quality being (a) state-of-the-art and (b) used by prior research. Regardless, our second-stage results call into question the widely held view that accounting discretion is driven by opportunistic managers.

Our paper is among the first of the large-sample attempts at disentangling whether efficiency or managerial opportunism drives accounting discretion.[3] Moreover, our paper can be viewed as an attempt to integrate two streams of research in financial accounting. The first stream consists of several papers that identify specific contractual settings where management is particularly sensitive to reported numbers and hence uses discretion in the accounting system to achieve a desired reporting objective (see Fields, Lys, and Vincent 2001 for citations). The second stream consists of valuation-oriented papers that show that accruals predict future cash flows and earnings (e.g., Barth, Cram, and Nelson 2001). We document that the portion of accruals associated with poor governance quality is not negatively associated with future earnings and cash flows. If rent extraction were truly the typical state of the world, we would expect a negative association. Studies that focus on specific contractual settings often reject the null hypothesis of no association between accounting discretion and either managerial compensation or governance structures as evidence that managerial opportunism drives accounting discretion. We point out that an association between weak governance structures and accounting discretion per se need not necessarily imply managerial opportunism. Researchers would do well to document subsequent poor performance, by means of stock returns or operating performance, to convince readers that managerial opportunism drives accounting discretion.

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

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.

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

(The figure is continued on the next page.)

Figure 1 (Continued)

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 accounting discretion if the efficient contracting view is held.*	Hypothesis $1_0/_B$: If efficient contracting prevails, then the association between predicted accounting discretion due to governance and future performance would be non-negative. Hypothesis 1_B: A *positive* association is consistent with both model misspecification in stage 1 and 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, then either (i) *unexpected* managerial opportunism or (ii) omitted economic determinants from the empirical model is implied. If (i) $\rightarrow$ Hypothesis 1_A in stage 2; if (ii) $\rightarrow$ Hypothesis $1_0/_B$ in stage 2.	Hypothesis 1_A: If *unexpected* managerial opportunism prevails, then the association between predicted accounting discretion due to governance and future performance would be negative.

Note:

* Assumes that models are completely specified.

Organization and recontracting 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 recontracting, 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 because contracting parties are likely to rewrite 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 — that is, abnormal accruals, extent of earnings-smoothing using accruals, and reporting small positive earnings surprises.

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. 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., 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:

$$\textit{Accounting discretion} = \mathrm{f}(\textit{Economic determinants}, \textit{Governance variables}) \quad (1).$$

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 alternative hypothesis that weaker governance structures are conducive to rent extraction by managers through 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 or her 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 or her options, or safeguard his or her bonus (Matsunaga and Park 2001; Bartov and Mohanram 2004) 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 Core et al. 1999). That is, the accounting discretion

model in (1) may not be 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, could 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 an effective 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-offs 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 such asymmetry (Warfield, Wild, and Wild 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.

Empirical methodology: Stage 2

To disentangle managerial opportunism from efficient contracting, we use the simple insight that if accounting discretion attributable to poor governance characteristics is a manifestation of managerial rent-extraction (opportunism), there should be consequent loss in shareholder wealth as evidence of the abuse comes to light. Therefore, we conduct a second test where we (a) estimate the accounting discretion attributable to governance proxies from (1), which we label as "predicted excess accounting discretion", and (b) examine the association between such excess discretion and subsequent long-run economic performance (as depicted in Figure 1, $T = K + 1 + N$). We assume that in equilibrium unexpected managerial opportunism is subsequently detected (or revealed), and the resultant loss in shareholder wealth is 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 and French 1993 three-factor model. If the observed association between accounting discretion and poor governance quality in stage 1 ((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:

$$\textit{Future performance} = \text{f}(\textit{Predicted excess accounting discretion due to governance variables}, \textit{Control variables}) \quad (2),$$

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:

HYPOTHESIS 1_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.*

HYPOTHESIS 1_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.*

HYPOTHESIS 1_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.*

Measuring future performance

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

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 net present value (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 relatively mature firms.

ROA

Earnings-based performance metrics such as *ROA* (measured as income before extraordinary items scaled by lagged total assets) suffer less from the 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 intertemporal 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.

Stock returns

Finally, using stock returns as a measure of future performance may result in lower power in discriminating between efficient contracting and opportunism because such a test is a joint test of stock market efficiency and contracting efficiency. For example, even if opportunism were the true state of the world, on average, 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 (although Core, Guay, and Rusticus [2006] challenge this finding). 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 (if present) by observing negative future stock returns.

In sum, we employ three 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 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: (a) abnormal accruals use; (b) smoothing of earnings by means of accruals; and (c) avoiding earnings decreases by reporting small quarterly positive earnings surprises. We discuss each in turn.

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 — that is, 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 Standard Industrial Classification (SIC) code for each of the fiscal years 1993–98 as follows (see Dechow 1994; Kasznik 1999):[6]

$$\begin{aligned} \textit{Normal accruals}_t/\textit{Total assets}_{t-1} = {} & \alpha_1[(1/\textit{Total assets}_{t-1})] \\ & + \alpha_2[(\Delta \textit{Revenue}_t - \Delta \textit{Receivables}_t)/ \\ & \quad \textit{Total assets}_{t-1}] + \alpha_3[\textit{Property, plant,} \\ & \quad \textit{and equipment}_t/\textit{Total assets}_{t-1}] \\ & + \alpha_4[\Delta \textit{Cash from operations}_t/ \\ & \quad \textit{Total assets}_{t-1}] \qquad (3). \end{aligned}$$

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, 1993–95, 1994–96, 1995–97, and 1996–98.

Smoothing measure (SMOOTH)

We measure earnings smoothing as the standard deviation of operating cash flows divided by the standard deviation of earnings (Hunt, Moyer, and Shevlin 1997; Leuz et al. 2003; 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, 1993–95, 1994–96, 1995–97, and 1996–98.[7] Firms with fewer than six firm-quarters of earnings or

operating cash flow data are deleted from the sample to increase the reliability of the estimates.

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).[8] In essence, *FREQ* represents the fraction of the prior 12 quarterly earnings surprises that were small positives. Again, firms that have less than six quarters of data are eliminated from the sample. Graham, Harvey, and Rajgopal (2005) find that chief financial officers (CFOs) consider seasonally lagged quarterly earnings as an important benchmark to meet or beat. However, untabulated results are insensitive to using analyst consensus forecast as the benchmark although we lose 25 percent of the sample that does not have analyst coverage.

Index of accounting discretion (DISCIND)

Each of the three measures described above is a proxy for accounting discretion and, as a result, is likely measured with error.[9] 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.

Sample and descriptive statistics

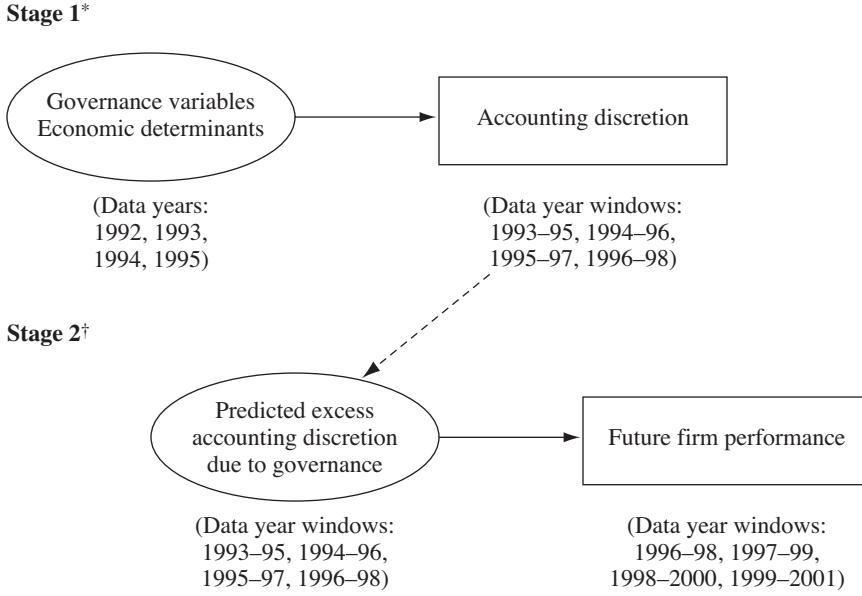
Due to the focus on governance measures, our sample is restricted to firms covered by the Execucomp database, which compiles data on approximately 1,500 firms that constitute the Standard & Poor's (S&P) 500, S&P 400 mid-cap, and S&P 600 small-cap indices from the year 1992. We concentrate on economic 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, 1994–96, 1995–97, and 1996–98), which are, in turn, related to three-year ahead cash flows and stock returns in the second-stage tests (1996–98, 1997–99, 1998–2000, and 1999–2001) (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.

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 percent 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 percent 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

Figure 2 Empirical relations and timing of variable measurement: Stage 1 versus stage 2



Notes:

* 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).

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. In particular, the *DISCIND* measure displays fairly high correlations with the three component measures (0.43 with $|ABACC|$, 0.66 with *SMOOTH*, and 0.58 with *FREQ*). Note that we present and interpret results related to *DISCIND* in the interests of parsimony. However, we acknowledge that the three component measures may be worthy of separate individual interpretation, which is why we have presented results on each of the three component measures in every table in the paper. Most important, our key inferences related to the absence of evidence supporting rent extraction hold for each of the component measures.

4. Economic determinants and governance proxies

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

TABLE 1
Descriptive statistics

Panel A: Sample selection

	Firm-years
Firm-years available on Execucomp 1992–95	6,752
Less	
Firm-years in the financial services industries	1,129
Firm-years not on COMPUSTAT	1,074
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 (1,009 firms)	3,154

Panel B: Accounting discretion variables* (n = 3,154)

	Variables	Mean	s.d.	Median	Q1	Q3
Discretionary accruals	$\|ABACC\|$	0.058	0.074	0.036	0.016	0.072
Smoothing earnings	*SMOOTH*	3.508	4.166	2.416	1.279	4.337
Earnings decrease avoidance	*FREQ*	0.147	0.170	0.083	0.000	0.250
Summary measure	*DISCIND*	0.501	0.162	0.496	0.388	0.615

(The table is continued on the next page.)

TABLE 1 (Continued)

Panel C: Descriptive data on firm characteristics, future performance, economic determinants and governance variables (n = 3,154)

Variables	Mean	s.d.	Median	Q1	Q3
General sample firm characteristics					
Equity market value ($ million)	2,797.05	6,997.65	706.85	298.42	2,111.95
Sales ($ million)	2,681.73	6,633.34	719.29	278.28	2,234.44
Total assets ($ million)	2,532.42	6,385.88	614.57	251.46	1,963.48
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
Ln*SALES*	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‡					
$D_{g\ \text{score}}$	0.709	0.454	1.000	0.000	1.000
$D_{g\ \text{score}}$*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	0.156	0.158	0.107	0.024	0.243
EXOPT	0.288	0.291	0.217	0.000	0.520
AUDEXP	0.483	0.499	0.483	0.000	1.000
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

(The table is continued on the next page.)

TABLE 1 (Continued)

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 (3) in the text). The "normal accruals" model as per (3) is estimated annually. $|ABACC|$ is estimated annually for each two-digit SIC code over the six years 1993–98 and then averaged across four three-year windows: 1993–95, 1994–96, 1995–97, and 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, and 1996–98. *FREQ* is the frequency of times the firm reports a small quarterly earnings surprise over the three-year windows, 1993–95, 1994–96, 1995–97, 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 that satisfy two filters: (a) a firm-year has all three accounting discretionary measures; and (b) nonmissing economic determinants and governance variables are available for each firm-year ($n = 3{,}154$).

† *LEV* is the proportion of long-term debt (data item # 9) to total assets (#6); *BM* is the book-to-market ratio (#60/#24 × #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 research and development (R&D) expense (#46) scaled by total assets (#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 last-in, first-out 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 $t - 1$; Ln*SALES* is the natural logarithm of sales (#12); σ_{CFO} is the standard deviation of cash flows from operations over the three prior years; *ROA* is income before extraordinary items (#18) scaled by lagged total assets.

(The table is continued on the next page.)

TABLE 1 (Continued)

‡ $D_{g\ \text{score}}$ 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": — that is, the proportion of officers who are on the compensation committee or 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 percent 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.

$$\begin{aligned} \textit{Accounting discretion} = {} & \text{f[E}\textit{conomic determinants} \text{ (leverage, growth,} \\ & \text{stakeholder claims, access to capital markets, size,} \\ & \text{risk, performance, industry controls, year controls),} \\ & \textit{Governance variables} \text{ (}g\text{ score, board-related} \\ & \text{variables, managerial ownership, incentive} \\ & \text{compensation, Big 5 auditor)]} \end{aligned} \quad (4).$$

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 (2002) 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

TABLE 2
Correlation statistics*

Panel A: Spearman correlation of accounting discretion variables with economic determinants and governance variables (n = 3,154)

	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
Ln*SALES*	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				
g score	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

(The table is continued on the next page.)

TABLE 2 (Continued)

Panel B: Spearman correlation among economic determinants and governance variables (n = 3,154)

	LEV	*BM*	*STCLAIM*	$D_{CAPITAL}$	Ln*SALES*	σ_{CFO}	*ROA*	*g* score	*CEO-CHAIR*	*ONBOARD*	*INTERLOCK*	*MEETINGS*	*INST*	*MGR*	*BONUS*	*EXOPT*
Economic determinants																
LEV																
BM	0.19															
STCLAIM	0.37	0.33														
$D_{CAPITAL}$	0.08	0.02	0.15													
Ln*SALES*	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																
g score	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:

The variables are as defined in Table 1.

* All correlations greater than 0.04 are significant at $p < 0.05$ (two-tailed level).

or to maintain access to capital. Furthermore, growth firms have an incentive to smooth earnings by means of 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. (2005) 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: (a) D_{DUR} if a firm belongs to a durable goods industry; (b) R&D/sales, and (c) *LABOR* intensity (1 minus property, plant, and equipment/total assets). The factor analytic process identifies one factor, *STCLAIM*, with an eigenvalue greater than one. The factor retains 64 percent 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, b). Following Dechow, Sloan, and Sweeney 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 FCF is less than minus 0.50 and zero otherwise.[10] 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 (Ln*SALES*) to proxy for size and expect a positive association between accounting discretion and Ln*SALES*. Minton and Schrand (1999) find that firms with 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 (2005) argue that tests related to accounting discretion that do not control for performance are often misspecified. 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).

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, somewhat less levered, and far more profitable. Each of these differences is statistically significant at the 0.01 level.

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 et al. 2003. Using data on 24 corporate governance provisions compiled by the Investors Responsibility Research Center (IRRC) and state takeover law data for four 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.[11] Thus, higher *g* scores indicate less power for the shareholder (hence, a less well-governed firm); lower *g* scores imply greater power for the shareholder (hence, a more well-governed firm).[12] Because *g* scores are not available for all firms, we introduce (a) a dummy variable, $D_{g\ \text{score}}$, that captures the existence of a *g* score; and (b) an interactive term, $D_{g\ \text{score}}$*g score, that captures the cross-sectional 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 ($D_{g\ \text{score}}$), we expect a positive association between accounting discretion and the magnitude

of the g score ($D_{g\ \text{score}}$*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: (a) *CEO-CHAIR* is set to one if the chair of the board is the CEO and zero otherwise (Hermalin and Weisbach 1998); (b) *ONBOARD* identifies the proportion of the top five officers that serve on the board; (c) *MEETINGS*, the number of board meetings (Vafeas 1999; Adams 2003);[13] and (d) *INTERLOCK*, the proportion of the executive team subject to an interlocked relation (Peasnell, Pope, and Young 2005).[14] 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*, 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 through the abuse of accounting discretion (Porter 1992; Bushee 1998; Graham et al. 2005). 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, Solomon, and Smith 1982; 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, Larker, and Sloan 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 because cash-based incentive pay

tends to increase with earnings persistence (Baber, Kang, and Kumar 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, annual compensation, stock ownership (product of *MGR%* and market value of the firm's equity), and 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* 2002; Bartov and Mohanram 2004). 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 his or her 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 all the firms on COMPUSTAT data by their two-digit SIC codes. We define a dummy variable, *AUDEXP*, which is set to one (zero) if the audit firm for a particular company audits more than 15 percent (less than 15 percent) of firms in the two-digit SIC code (Dunn and Mayhew 2004). Thus, we expect a negative relation between accounting discretion and *AUDEXP*.

Descriptive statistics on governance variables

Descriptive statistics reported in panel C of Table 1 show that we have a *g* score for 70.9 percent of the sample. CEOs happen to be chair of the board in 76.4 percent of firm-years. Approximately 36.2 percent of the executive team comprising the top five officers is on the board while only 4.1 percent 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) percent while the mean (median) value of exercisable options as a percentage of their wealth is 19.5 (6.5) percent.

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 (a 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 is 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

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:

$$\begin{aligned} \textit{Accounting discretion}_{it} = {} & \beta_0 + \beta_1 LEV_{it-1} + \beta_2 BM_{it-1} + \beta_3 STCLAIM_{it-1} \\ & + \beta_4 D_{CAPITAL\ it-1} + \beta_5 \text{Ln}SALES_{it-1} \\ & + \beta_6 \sigma_{CFO\ it-1} + \beta_7 ROA_{it-1} + \beta_8 D_{g\ \text{score}\ it-1} \\ & + \beta_9 D_{g\ \text{score}} * g\ \text{score}_{it-1} + \beta_{10} CEO\text{-}CHAIR_{it-1} \\ & + \beta_{11} ONBOARD_{it-1} + \beta_{12} INTERLOCK_{it-1} \\ & + \beta_{13} MEETINGS_{it-1} + \beta_{14} INST_{it-1} \\ & + \beta_{15} BONUS_{it-1} + \beta_{16} EXOPT_{it-1} \\ & + \beta_{17} AUDEXP_{it-1} + \beta_{18} IND_{it-1} \\ & + \beta_{19} YEAR_{it-1} + \epsilon_{it} \qquad (5), \end{aligned}$$

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 (5) separately for each of the three accounting measures, $|ABACC|$, *SMOOTH*, and *FREQ*, as well as the aggregate measure, *DISCIND*.[15] Note that all the independent variables are measured one year prior to the time window for which accounting discretion is computed, to control for potential endogeneity or simultaneity bias. As documented in section 2, we assume that the economic determinants and governance structures were in place before accounting discretion was measured. Although this design choice may not completely solve the endogeneity issue, we believe it is a reasonable compromise considering the practical difficulties involved in endogeneizing the governance variables. Subscripts *i* and *t* represent firm and time subscripts. Figure 2 summarizes the empirical relations and the timing of variable measurement.

Results of estimating (5) are presented in Table 3.[16] 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 (Ln*SALES*) appear to exercise more discretion in accounting numbers ($t = 5.25$ and 6.06, respectively). The coefficient on the 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.[17]

Several of the nine governance variables are significantly related to *DISCIND* at conventional levels. The significant coefficient on the interaction of $D_{g\ \text{score}}$ and *g* score indicates that managers with greater power vis-à-vis shareholders exercise more accounting discretion ($t = 3.75$).[18] 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 through 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

TABLE 3
Estimation of determinants of accounting discretion ($n = 3{,}154$): First-stage results

$$\begin{aligned}\text{Accounting discretion}_{it} = {} & \beta_0 + \beta_1 LEV_{it-1} + \beta_2 BM_{it-1} + \beta_3 STCLAIM_{it-1} \\ & + \beta_4 D_{CAPITAL\ it-1} + \beta_5 \text{Ln}SALES_{it-1} \\ & + \beta_6 \sigma_{CFO\ it-1} + \beta_7 ROA_{it-1} + \beta_8 \text{D}_{g\ \text{score}\ it-1} \\ & + \beta_9 D_{g\ \text{score}} * g\ \text{score}_{it-1} + \beta_{10} CEO\text{-}CHAIR_{it-1} \\ & + \beta_{11} ONBOARD_{it-1} + \beta_{12} INTERLOCK_{it-1} \\ & + \beta_{13} MEETINGS_{it-1} + \beta_{14} INST_{it-1} + \beta_{15} BONUS_{it-1} \\ & + \beta_{16} EXOPT_{it-1} + \beta_{17} AUDEXP_{it-1} + \beta_{18} IND_{it-1} \\ & + \beta_{19} YEAR_{it-1} + \epsilon_{it} \end{aligned} \quad (5)$$

Variable	Predicted sign	$\lvert ABACC \rvert$ (1)	*SMOOTH* (2)	*FREQ* (3)	*DISCIND* (4)
Economic determinants					
LEV	+	−0.016	−0.443	0.026*	−0.038
		(−3.48)	(−1.46)	(1.57)	(−1.97)
BM	−	−0.004†	0.147	0.050	0.035
		(−1.66)	(0.90)	(5.68)	(3.40)
STCLAIM	+	0.003‡	0.105†	0.001	0.006†
		(2.66)	(1.86)	(0.23)	(1.75)
$D_{CAPITAL}$	+	0.001	−0.272	−0.020	−0.024
		(0.45)	(−1.07)	(−1.45)	(−1.47)
Ln*SALES*	+	−0.002	0.084‡	0.017‡	0.013‡
		(−4.07)	(2.42)	(9.27)	(6.06)
σ_{CFO}	+	0.133‡	8.760‡	−0.276	0.443‡
		(6.39)	(6.54)	(−3.91)	(5.25)
ROA	+/−	−0.012†	0.690†	−0.046†	−0.003
		(−2.04)	(1.98)	(−2.48)	(−0.12)

(The table is continued on the next page.)

TABLE 3 (Continued)

Variable	Predicted sign	$\|ABACC\|$ (1)	*SMOOTH* (2)	*FREQ* (3)	*DISCIND* (4)
Governance variables (signs assume opportunism)					
$D_{g\ \text{score}}$	?	−0.004	−0.341*	−0.003	−0.031‡
		(−1.43)	(−1.84)	(−0.30)	(−2.60)
$D_{g\ \text{score}}$*g score	+	0.000	0.054‡	0.001*	0.004‡
		(0.51)	(3.06)	(1.34)	(3.75)
CEO-CHAIR	+	−0.003	0.140*	0.012‡	0.004
		(−1.85)	(1.44)	(2.47)	(0.62)
ONBOARD	+	−0.006	0.964‡	0.002	0.025†
		(−2.02)	(5.01)	(0.16)	(2.03)
INTERLOCK	+	0.017‡	−0.380	0.050‡	0.050†
		(2.93)	(−1.06)	(2.66)	(2.22)
MEETINGS	−	0.000	−0.095‡	−0.002†	−0.006‡
		(0.38)	(−6.51)	(−2.00)	(−6.48)
INST	+/−	−0.006†	0.987‡	0.006	0.032‡
		(−2.36)	(5.86)	(0.70)	(2.97)
MGR	−	0.004	−0.486	−0.022	−0.016
		(0.51)	(−0.86)	(−0.74)	(−0.45)
BONUS	+	−0.012	1.103‡	0.087‡	0.089‡
		(−2.79)	(3.85)	(5.63)	(4.92)
EXOPT	+	−0.006	−0.147	0.004	−0.003
		(−2.23)	(−0.92)	(0.44)	(−0.31)
AUDEXP	−	0.001	−0.044	0.003	−0.001
		(0.34)	(−0.51)	(0.61)	(−0.10)
Adj. R^2 overall		26.26%	21.90%	25.09%	18.24%
F-stat.		15.93	12.96	14.96	10.31
(p-value)		(0.00)	(0.00)	(0.00)	(0.00)
Adj. R^2, governance variables only		3.14%	6.73%	5.87%	4.85%
F-stat., governance variables		11.97	21.09	17.95	15.03
(p-value)		(0.00)	(0.00)	(0.00)	(0.00)

Notes:

The variables are as defined in Table 1.

t-statistics are presented below the coefficients in parenthesis. Coefficients on the intercept, industry, and time dummies are suppressed for expositional convenience.

* Significant at $p < 0.10$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

† Significant at $p < 0.05$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

‡ Significant at $p < 0.01$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

($t = 2.97$). 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 $R^2 = 18.24$ percent, $F = 10.31$).[19] The governance variables, by themselves, also add incremental explanatory power to the model (adjusted $R^2 = 4.85$ percent, $F = 15.03$). 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.

Disentangling efficiency and opportunism: Stage 2 results

The regressions reported under the heading "First-Stage Results" 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 above under the heading "Empirical Methodology: Stage 2", we focus on the second-stage results in order to disentangle efficiency versus opportunism as explanations for accounting discretion. We follow the approach in Core et al. 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 "predicted excess accounting discretion". As explained in "Empirical Methodology: Stage 2", above, if the opportunism explanation dominates, we expect to observe a negative association between predicted excess accounting discretion and future performance.[20] 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, on average, 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:

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

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.[21]

We measure future performance in three ways: (a) average cash flows from operations scaled by lagged total assets for the subsequent three years (*FUTCFO*); (b) average *ROA*, calculated as income before extraordinary items scaled by lagged total assets, for the subsequent three years (*FUTROA*); and (c) three-year-ahead abnormal stock returns using the Fama and French 1993 three-factor model (*FUTARET*).[22] The regression specification related to *FUTROA* is as follows:

$$\begin{aligned} FUTCFO = {} & \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} \\ & + \gamma_2 \sigma_{CFO\ it-1} + \gamma_2 CFO_{it-1} + \gamma_3 \mathrm{Ln}SALES_{it-1} \\ & + \gamma_4 IND_{it-1} + \gamma_5 YEAR_{it-1} + \varphi \end{aligned} \quad (7a),$$

$$\begin{aligned} FUTROA = {} & \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} \\ & + \gamma_2 \sigma_{ROA\ it-1} + \gamma_2 ROA_{it-1} + \gamma_3 \mathrm{Ln}SALES_{it-1} \\ & + \gamma_4 IND_{it-1} + \gamma_5 YEAR_{it-1} + \varphi \end{aligned} \quad (7b).$$

As before, *IND* and *YEAR* are two-digit industry codes and time dummies, respectively. We include the standard deviation of the performance measures (σ_{CFO} and σ_{ROA}) and the Ln*SALES* in (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 (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, Hypothesis 1_A (Hypothesis $1_0/_B$), we expect γ_1 to be negative (zero or positive).[23]

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

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

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 on the basis of the 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 regression (8), $FUTARET_{m,\,5-1}$, as the abnormal hedge return to such a strategy. If the data are consistent with managerial opportunism (efficient contracting), Hypothesis 1_A ($1_0/_B$), 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 above under the heading "Measuring Future Performance".

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 ((7a) and (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, Hypothesis 1_A (1_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 document 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)

TABLE 4
Association between predicted excess accounting discretion and future operating performance (n = 3,154): Second-stage results

Panel A: Future operating cash flows

$$FUTCFO = \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} + \gamma_2 \sigma_{CFO\ it-1} + \gamma_2 CFO_{it-1} + \gamma_3 \text{Ln}SALES_{it-1} + \gamma_4 IND_{it-1} + \gamma_5 YEAR_{it-1} + \varphi \quad (7a)$$

Variable	Predicted sign	$\lvert ABACC \rvert$ (1)	*SMOOTH* (2)	*FREQ* (3)	*DISCIND* (4)
Predicted excess accounting discretion (Hypothesis 1)	"−" → 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)
Ln*SALES*	?	0.007‡ (6.87)	0.007‡ (7.56)	0.007‡ (7.54)	0.00‡ (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-stat.		53.87	54.30	53.81	54.13
(p-value)		(0.00)	(0.00)	(0.00)	(0.00)

(The table is continued on the next page.)

TABLE 4 (Continued)

Panel B: Future ROA

$$FUTROA = \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} + \gamma_2 \sigma_{ROA\ it-1} + \gamma_2 ROA_{it-1} + \gamma_3 \mathrm{Ln}SALES_{it-1} + \gamma_4 IND_{it-1} + \gamma_5 YEAR_{it-1} + \varphi \quad (7b)$$

Variable	Predicted sign	$\lvert ABACC \rvert$ (1)	*SMOOTH* (2)	*FREQ* (3)	*DISCIND* (4)
Predicted excess accounting discretion (Hypothesis 1)	"−" → 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)
Ln*SALES*	?	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-stat.		51.16	51.91	51.10	51.63
(*p*-value)		(0.00)	(0.00)	(0.00)	(0.00)

(The table is continued on the next page.)

TABLE 4 (Continued)

Notes:

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*). Ln*SALES* is the natural logarithm of sales. *IND* represents industry dummies. All other variables are as defined in Table 1.

t-statistics are presented below the coefficients in parenthesis. Coefficients on the intercept, industry, and time dummies are suppressed for expositional convenience.

‡ Significant at $p < 0.01$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

find that firms that consistently meet or beat analyst consensus estimates earn positive future stock returns.[24]

Table 5 reports results on the relation between future stock returns and excess accounting discretion ((8)). Three out of the four coefficients are positive on *FUTARET* (i.e., the intercept) in columns 1 through 4, including the summary measure, *DISCIND*, but none is distinguishable from zero at conventional levels ($t = -0.49$, $t = 1.46$, $t = 0.31$, and $t = 0.91$, respectively). Thus, the overall evidence from tests of future stock performance is also inconsistent with managerial opportunism, Hypothesis 1_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.[25]

Sensitivity tests

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

Earnings restatements sample

One potential concern with inferences from the 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

TABLE 5
Association between predicted excess accounting discretion and future abnormal returns ($n = 144$): Second-stage results

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

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

(The table is continued on the next page.)

TABLE 5 (Continued)

Notes:

$FUTRET_{5-1}$ is the monthly return for a hedge portfolio formed by assuming long (short) positions in the fifth (first) quintile of predicted excess accounting discretion 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. $FUTARET_{5-1}$, the intercept in (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*.

t-statistics are presented below the coefficients in parenthesis. Coefficients on the intercept, industry, and time dummies are suppressed for expositional convenience.

* Significant at $p < 0.10$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

† Significant at $p < 0.05$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

‡ Significant at $p < 0.01$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

of our main tests and to differentiate the two effects, we ex post identify a subsample of firms where managerial opportunism is likely to be dominant. 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 will be systematically lower than that for nonrestating firms. To test this prediction, we modify the cash flow and *ROA* regressions in (7) by including an interaction term of the predicted excess accounting discretion and a *RESTATE* dummy that 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:

$$\begin{aligned} FUTCFO = {} & \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} \\ & + \gamma_2 Predicted\ excess\ accounting\ discretion_{it-1} * RESTATE \\ & + \gamma_3 RESTATE + \gamma_4 \sigma_{CFO\ it-1} + \gamma_5 CFO_{it-1} + \gamma_5 \text{Ln} SALES_{it-1} \\ & + \gamma_6 IND_{it-1} + \gamma_7 YEAR_{it-1} + \varphi \end{aligned} \quad (9a),$$

$$\begin{aligned} FUTROA = {} & \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} \\ & + \gamma_2 Predicted\ excess\ accounting\ discretion_{it-1} * RESTATE \\ & + \gamma_3 RESTATE + \gamma_4 \sigma_{ROA\ it-1} + \gamma_5 ROA_{it-1} + \gamma_5 \text{Ln} SALES_{it-1} \\ & + \gamma_6 IND_{it-1} + \gamma_7 YEAR_{it-1} + \varphi \end{aligned} \quad (9b).$$

In (9a) and (9b), both coefficients γ_2 and γ_3 are predicted to be negative, but we focus on γ_2 as our test of managerial opportunism. 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 — that is, $\gamma_2 < 0$. Note that this test asks a lot of the data. In particular, we expect the tests to identify, on an ex ante basis, firms that will file earnings restatements in the future.

Note that *RESTATE* is set to one for 110 unique restatement firms corresponding to 374 firm-year observations. Results from estimating (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 the *CFO* ($t = -1.64$, $p = 0.051$, one-tailed) and *ROA* ($t = -1.80$, $p = 0.035$, one-tailed) tests. Moreover, we also tested whether the sum of predicted excess accounting discretion (*PEAD*) and *PEAD*RESTATE* is negative and significant. The *F*-statistics for the sum of the coefficients when *FUTCFO* is the dependent variable is 4.28 ($p = 0.04$) while that for *FUTROA* is 2.04 ($p = 0.15$). Considering the onerous demands placed on the data in this empirical specification, the results appear reasonably consistent with the ability of our test to detect opportunism.

In panel B, we 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 (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 percent ($t = -1.80$). The results reported in this section mitigate potential concerns about the power of our stage 2 tests to discriminate between efficiency and opportunism. Considering

the onerous demands placed by this test on the data, we are encouraged that our first-stage and second-stage models are reasonably well specified.

Cluster analysis

Larcker (2003) argues that one structural model might not be appropriate for the entire sample if the relation between predicted excess accounting discretion and

TABLE 6
Association between predicted excess accounting discretion and future performance after segregating restatement firms

Panel A: Future operating performance (n = 3,154)

$$FUTCFO = \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} + \gamma_2 Predicted\ excess\ accounting\ discretion_{it-1} * RESTATE + \gamma_3 RESTATE + \gamma_4 \sigma_{CFO\ it-1} + \gamma_5 \mathrm{Ln}SALES_{it-1} + \gamma_6 CFO_{it-1} + \gamma_7 IND_{it-1} + \gamma_8 YEAR_{it-1} + \varphi \quad (9a)$$

$$FUTROA = \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} + \gamma_2 Predicted\ excess\ accounting\ discretion_{it-1} * RESTATE + \gamma_3 RESTATE + \gamma_4 \sigma_{ROA\ it-1} + \gamma_5 \mathrm{Ln}SALES_{it-1} + \gamma_6 ROA_{it-1} + \gamma_7 IND_{it-1} + \gamma_8 YEAR_{it-1} + \varphi \quad (9b)$$

Variable	Predicted sign	*FUTCFO* (1)	*FUTROA* (2)
Predicted excess accounting discretion based on *DISCIND*	"−" → opportunism; non-negative → efficiency (with "+" 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)
Ln*SALES*	?	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-stat.		75.20	80.64
(p-value)		(0.00)	(0.00)

(The table is continued on the next page.)

performance is negative for a subset of firms, but that negative association is swamped by the average positive or zero association documented under the heading "Second-Stage Results", above. To assess whether that is indeed the case, we use cluster analysis techniques to identify a number of latent subsamples in the second-stage regressions. In particular, we use the Lo-Mendell-Rubin (LMR) 2001 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 because adding the fourth latent class does not significantly improve model fit as determined by the LMR statistic (LMR statistic = 656.013, $p = 0.22$). For the *FUTROA* variable, only two latent classes fit the data because including the third latent class does not statistically improve the fit (LMR statistic = 825.804, $p = 0.14$).[26] In panel A of Table 7, we present the results of estimating (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 (I and III) have very few observations relative to cluster II, indicating that our average result is most influenced by the cluster with the greatest number of observations (cluster II) 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

TABLE 6 (Continued)

Panel B: Future stock return performance of restating firms ($n = 144$)

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

Variable	Predicted sign	*DISCIND* (4)
$FUTARET_{m,5-1}$	−	−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-stat.		10.53
(*p*-value)		(0.00)

(The table is continued on the next page.)

TABLE 6 (Continued)

Notes:

t-statistics are presented below the coefficients in parenthesis. Coefficients on the intercept, industry, and time dummies are suppressed for expositional convenience.

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*). Ln*SALES* is the natural logarithm of sales. *IND* represents industry dummies. *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).

$FUTRET_{5-1}$ is the monthly return for a hedge portfolio formed by assuming long (short) positions in the fifth (first) quintile of predicted excess accounting discretion, *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. $FUTARET_{5-1}$, the intercept in (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*.

* Significant at $p < 0.10$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

† Significant at $p < 0.05$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

‡ Significant at $p < 0.01$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

have a significant cluster of firms where predicted excess accounting discretion is associated with poor future operating performance.

Serial correlation

The use of overlapping 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 a

TABLE 7
Sensitivity analyses

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

$$FUTCFO = \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} + \gamma_2 \sigma_{CFO\ it-1} + \gamma_3 \mathrm{Ln}SALES_{it-1} + \gamma_4 CFO_{it-1} + \gamma_5 IND_{it-1} + \gamma_6 YEAR_{it-1} + \varphi \quad (7a)$$

$$FUTROA = \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} + \gamma_2 \sigma_{ROA\ it-1} + \gamma_3 \mathrm{Ln}SALES_{it-1} + \gamma_4 ROA_{it-1} + \gamma_5 IND_{it-1} + \gamma_6 YEAR_{it-1} + \varphi \quad (7b)$$

		FUTCFO			*FUTROA*	
Variable	Predicted sign	Cluster I	Cluster II	Cluster III	Cluster I	Cluster II
Predicted excess accounting discretion based on *DISCIND* (Hypothesis 1)	"−" → 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)			
Ln*SALES*	?	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)

(The table is continued on the next page.)

TABLE 7 (Continued)

Variable	Predicted sign	*FUTCFO*			*FUTROA*	
		Cluster I	Cluster II	Cluster III	Cluster I	Cluster II
n		98	2,796	260	123	3,031
Adj. R^2		35.52%	24.30%	14.02%	23.76%	38.57%
F-stat.		3.81	16.74	2.06	2.65	33.80
(*p*-value)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

(The table is continued on the next page.)

single observation per firm. By construction, we eliminate the time dummies when conducting the regressions. Our results, presented in panels B and C of Table 7, indicate that, although 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 2 indicate that the coefficient on predicted excess accounting discretion is positive for both *CFO* ($t = 2.65$) and *ROA* ($t = 2.40$) tests.[27]

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

TABLE 7 (Continued)

Panel B: Sensitivity analysis after averaging all firm-year observations by firm: Estimation of determinants of accounting discretion — Stage 1 ($n = 1{,}009$)

$$\begin{aligned} \textit{Accounting discretion}_{it} = {} & \beta_0 + \beta_1 LEV_{it-1} + \beta_2 BM_{it-1} + \beta_3 STCLAIM_{it-1} \\ & + \beta_4 D_{CAPITAL\ it-1} + \beta_5 \mathrm{Ln}SALES_{it-1} \\ & + \beta_6 \sigma_{CFO\ it-1} + \beta_7 ROA_{it-1} + \beta_8 \mathrm{D}_{g\ \mathrm{score}\ it-1} \\ & + \beta_9 D_{g\ \mathrm{score}} * g\ \mathrm{score}_{it-1} + \beta_{10} CEO\text{-}CHAIR_{it-1} \\ & + \beta_{11} ONBOARD_{it-1} + \beta_{12} INTERLOCK_{it-1} \\ & + \beta_{13} MEETINGS_{it-1} + \beta_{14} INST_{it-1} + \beta_{15} BONUS_{it-1} \\ & + \beta_{16} EXOPT_{it-1} + \beta_{17} AUDEXP_{it-1} + \beta_{18} IND_{it-1} \\ & + \beta_{19} YEAR_{it-1} + \epsilon_{it} \end{aligned} \quad (5)$$

Variable	Predicted sign	*DISCIND* (4)
Economic determinants		
LEV	+	−0.008
		(−0.26)
BM	−	0.002
		(0.13)
STCLAIM	+	0.002†
		(1.86)
$D_{CAPITAL}$	+	−0.009
		(−0.34)
Ln*SALES*	+	0.014‡
		(3.68)
σ_{CFO}	+	0.306‡
		(2.45)
ROA	+/−	−0.033
		(−1.06)

(The table is continued on the next page.)

that uses factor analytic techniques to synthesize the three accounting discretionary measures used in the study. Factor analytic techniques are particularly valuable here because they implicitly assign lower weights to component measures with higher variances and hence address criticism that the *DISCIND* measure based on summation or ranks just aggregates noise across the three component measures (|*ABACC*|, *SMOOTH*, and *FREQ*). 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, 1994–96, 1995–97, 1996–98: (a) standard deviation of accruals scaled by the standard deviation of operating cash flows; (b) absolute value of accruals scaled by absolute value of operating cash flows;

TABLE 7 (Continued)

Variable	Predicted sign	*DISCIND* (4)
Governance variables (signs assume opportunism)		
$D_{g\ \text{score}}$	?	−0.041†
		(−1.87)
$D_{g\ \text{score}}$*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-stat.		4.52
(*p*-value)		(0.00)

(The table is continued on the next page.)

(c) covariance between change in accruals and change in operating cash flows; and (d) 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 ($p < 0.01$). 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.

Discretionary accrual-based smoothing

We redefine *SMOOTH* in terms of the variance of presmoothed to smoothed earnings. In particular, we compute the variance of nondiscretionary quarterly earnings scaled by the variance of quarterly earnings. Nondiscretionary earnings are defined as operating cash flows adjusted for nondiscretionary accruals as per the modified Jones 1991 model in (3). Again, our inferences are unchanged.

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 1 ($n = 1{,}009$)

$$FUTCFO = \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} + \gamma_2 \sigma_{CFO\ it-1} + \gamma_3 \mathrm{Ln}SALES_{it-1} + \gamma_4 CFO_{it-1} + \gamma_5 IND_{it-1} + \gamma_6 YEAR_{it-1} + \varphi \quad (7a)$$

$$FUTROA = \gamma_0 + \gamma_1 Predicted\ excess\ accounting\ discretion_{it-1} + \gamma_2 \sigma_{ROA\ it-1} + \gamma_3 \mathrm{Ln}SALES_{it-1} + \gamma_4 ROA_{it-1} + \gamma_5 IND_{it-1} + \gamma_6 YEAR_{it-1} + \varphi \quad (7b)$$

Variable	Predicted sign	*FUTCFO*	*FUTROA*
Predicted excess accounting discretion based on *DISCIND* (Hypothesis 1)	"−" → 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)
Ln*SALES*	?	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-stat.		17.41	15.86
(*p*-value)		(0.00)	(0.00)

(The table is continued on the next page.)

TABLE 7 (Continued)

Notes:

t-statistics are presented below the coefficients in parenthesis. Coefficients on the intercept, industry, and time dummies are suppressed for expositional convenience.

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*). Ln*SALES* 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. All other variables are as defined in Table 1.

* Significant at $p < 0.10$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

† Significant at $p < 0.05$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

‡ Significant at $p < 0.01$ (one-tailed when coefficient sign is predicted; two-tailed otherwise).

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 data item #18) and tax loss carryforwards (data item #52) and zero otherwise. Our inferences are robust to the inclusion of this tax variable.

Measurement of predicted excess accounting discretion

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

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 — that is, we repeat the tests for all available individual accounting discretion measures, and find that our inferences are unaltered.

6. Conclusions

A central debate in the accounting literature is 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 through 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 five caveats. First, an important limitation of our study and most of the prior literature is that both the dependent variable (managers' accounting discretion) and the independent variables (governance quality and the economic determinants of discretion) are difficult to measure and hence, our results are subject to measurement error problems. Second, 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 determinants of 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. Third, 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 with the average COMPUSTAT firm. Accounting opportunism may be more prevalent in the average COMPUSTAT firm than in the average firm in our sample. Fourth, beginning in 1998, the IRRC started compiling machine-readable data sets on the finer aspects of governance

such as the number of independent blockholders, the presence and the composition of the audit committee, and whether the board has a financial expert. Studies that rely on hand-gathered data have found that these variables explain cross-sectional variation in accounting failures such as SEC enforecement actions, frauds, and earnings restatements (e.g., Beasley 1996; Dechow et al. 1996; McMullen 1996; Abbot, Park, and Parker 2000; Agrawal and Chadha 2005). Future work can incorporate these governance variables and reexamine our results. Fifth, 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.

Endnotes

1. Information asymmetry and 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 Securities and Exchange Commission (SEC) enforcement actions (e.g., Beasley 1996; Dechow, Sloan, and Sweeney 1996; Beneish 1999; Farber 2005). 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.
3. Christie and Zimmerman (1994) (CZ) 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 picked accounting methods to maximize firm value. Because CZ's 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's by providing large-sample evidence to test their conjecture. Moreover, we extend CZ in three ways. First, we examine the performance (cash flow, return on assets [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 — that is, 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.
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 Vuolteenaho (2002) finds that firm-level stock returns are indeed driven primarily by cash flow news and not by discount rate shocks.

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, Gul, and Tsui 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. Furthermore, income-decreasing accruals could also constitute attempts to manage earnings (cookie jar reserves). Hence, it is unclear what relation to expect between signed abnormal accruals and governance proxies. We believe that the absolute abnormal accruals, rather than signed measures, are more appropriate for our analyses.
6. If a two-digit year combination does not yield at least 10 observations, we estimate normal accruals as per (3) for such a firm at the one-digit SIC code level. We also control for ROA in (3), as per Kothari, Leone, and Wasley 2005, and find the resultant inferences to be the same as those reported in the text.
7. Our empirical measure of short-run accounting discretion for all the three measures, $|ABACC|$, *SMOOTH*, and *FREQ*, covers three years. In untabulated analyses, we investigated a two-year version of these measures and found no changes in inferences.
8. Burgstahler and Dichev (1997) use a 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.
9. For example, the model of nondiscretionary accruals based on 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.
10. 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.
11. 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.
12. The computation of *g* score assumes that all components of governance are equally important. But, recent research by Bebchuk and Cohen 2005 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 reestimate both first- and second-stage regressions but find that our inferences are unchanged.

13. 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 alternative explanation under the head "Disentangling Efficiency and Opportunism: Stage 2 Results", below, where we examine the relation between the predicted component of accounting discretion attributable to governance and subsequent performance.
14. 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 or her company. Execucomp captures this information for each officer of the firm as an indicator variable, *PINTRLOC*.
15. The use of overlapping 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 generalized least squares (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.
16. To control for potential outliers, we delete observations with *R*-student greater than the absolute value of 2 when estimating the coefficient parameters.
17. 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 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 specific aspect of accounting discretion being studied, but the current state of theory on accounting discretion precludes us from making more nuanced predictions. Finally, the accounting discretion measures that we use are likely to have measurement error. To address this limitation, we consider alternative measures of discretion described under the heading "Serial Correlation", below.
18. The coefficient on $D_{g\ \text{score}}$ 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 $D_{g\ \text{score}}$ in the paper because restricting the sample to firm-years with nonzero *g* scores results in a loss of almost one-third of the sample (from 3,154 observations to 2,236 observations).

19. To benchmark R^2s of our first-stage model, we searched through the papers we cite, concentrating especially on those that rely on $|DACC|$ as the dependent variable, because we believe $|DACC|$ is the most commonly used of our three proxies for accounting discretion in the literature. Of the six papers we found, Klein (2002, Table 6) and Leuz et al. (2003) do not report R^2s. The maximum R^2 reported by Menon and Williams 2004 (Table 7) and Warfield et al. 1995 (Table 6) is 12 percent. Frankel et al. (2002, Table 6) report an R^2 of 47 percent but the dependent variable in their regression is absolute accruals (not discretionary accruals), and an important independent variable they employ is cash flow from operations (CFO). Note that we have already factored out the effect of CFO from accruals in our first-stage model, even before calculating discretionary accruals. Finally, Larcker and Richardson (2004) report an R^2 of 68 percent but they rely on data-driven latent class models designed to maximize explanatory power of their regressions while we rely on prior literature to generate our independent variables. In sum, the R^2s in our regressions appear to be greater than or equal to those in prior works that use a similar model.
20. Note that this prediction is different from Sloan's 1996 and Xie's 2001 finding that signed abnormal accruals are negatively associated with future earnings and future stock returns. In particular, (a) we rely on absolute abnormal accruals, not signed accruals, unlike Sloan 1996 and Xie 2001; (b) our tests parse out abnormal accruals into the portion attributable to economic determinants and governance quality whereas Sloan and Xie do not; and (c) we discuss other measures of accounting discretion beyond abnormal accruals (i.e., earnings smoothness, earnings decrease avoidance). Sloan's and Xie's work does not cover these measures. In fact, we are not aware of robust evidence that other measures of accounting discretion such as earnings smoothness and earnings decrease avoidance are systematically associated with future stock returns.
21. An alternative to this empirical design is to regress subsequent firm performance on individual governance variables. However, Core et al. (1999) point out advantages of regressing predicted excess accounting discretion on future 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 or she would have to interpret each of the coefficients on the governance variable for evidence of opportunism, which likely would lead to mixed empirical results.

22. Potential survivorship bias created by the three-year data requirement for future returns might affect our inferences. To address this issue, we reestimate (7a), (7b), and (8), shown below, with one- and two-year windows and find qualitatively similar inferences to those reported in the text.
23. In theory, if all firms in the sample optimize their accounting discretion with respect to their economic environment (Figure 1), we ought to find no association between future performance and accounting discretion related to these underlying economic determinants. However, we face at least four practical challenges in implementing this idea. First, we are unlikely to have a completely specified set of the economic determinants in the empirical specification. Second, proxies for these economic determinants are almost certainly measured with error. Third, it is possible that the omitted and included economic determinants (or the measurement error in them) are correlated. Last, estimating a regression that includes accounting discretion due to economic determinants could potentially result in uninterpretable inferences. For example, if we were to regress future operating performance on the market-to-book ratio (one of our economic determinants of accounting discretion), we are likely to observe a positive association because market-to-book is also a proxy for expected future operating performance. Similarly, we know that firms with volatile cash flows or ROA are associated with lower future cash flows and ROA. Hence, regressing future operating performance on volatile operating performance, an economic determinant of accounting discretion, would likely yield a negative coefficient. Thus, we can expect a positive or negative relation (or no relation) between future operating performance and economic determinants depending on which specific economic determinant dominates in such a regression. For completeness, in untabulated tests, we parse out accounting discretion in three parts (due to economic determinants, governance, and the residual discretion) and estimate the relation between these three parts and future operating performance and stock return performance. The associations between future operating performance and accounting discretion due to economic determinants are mixed. Nevertheless, the results related to the predicted excess accounting discretion due to governance, under this modified specification, are similar to those reported in our paper.
24. 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 note 21, supra). 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 for the extent of accounting discretion explained by governance in (7a) and (7b), we find that the coefficient on the governance factor score is not statistically significant.
25. The discussant suggested that we separate the executive compensation component of predicted excess accounting discretion from the other component related to other governance variables. Untabulated analyses that implement this suggestion reveal that

the results reported in Table 4 are driven by the component of predicted excess accounting relating to governance variables other than executive compensation.

26. The 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 the clusters that rely on these alternative information criteria.
27. We do not conduct return-based second-stage tests because the 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.

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