Economic Incentives for Voluntary Reporting on Internal Risk Management and Control Systems

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SUMMARY: This paper investigates managers' economic incentives for voluntary reporting on risk management and internal control using a sample of publicly traded firms in The Netherlands in the late 1990s. In this particular setting, internal control reporting was voluntary and covered a wide business-based approach as defined in key internal control frameworks. We create an index to measure the extent of disclosure by identifying six reportable items related to internal control. Regarding managers' incentives to report, we hypothesize that voluntary disclosure increases with the extent of information and agency problems, as proxied by management and block holder ownership and financial leverage. Supporting our hypotheses, we find a negative relationship between the extent of internal control disclosure and management and block holder ownership, and positive relationship between the extent of disclosure and financial leverage. We interpret these findings as evidence for a conscious trade-off by managers, which is linked to the costs and benefits of making internal control disclosures. Additionally, we find some evidence that the extent of disclosure varies with firms' inherent risk exposure, as proxied by a number of firm operating characteristics. One implication of our findings is that regulators may wish to allow firms flexibility in their internal control reporting choice, as firms take a broad approach to internal control that goes beyond SOX-based regulations, and tailor their internal control reports to suit their specific environments.

Keywords: risk management; internal control; voluntary disclosure; agency conflicts.

INTRODUCTION

In the summer of 2002, the U.S. Congress passed the Sarbanes-Oxley Act (U.S. House of Representatives 2002) in response to numerous perceived failures in corporate governance and financial reporting. The Act established the Public Company Accounting Oversight Board (PCAOB) and imposed detailed governance and reporting requirements for companies with public listings in the U.S. A critical element of the new law was a

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requirement that companies issue audited reports on the quality of internal control over financial reporting as subsequently detailed in Auditing Standards No. 2 (PCAOB 2004). While this development would seem to have settled the debate over reporting on internal control, in some ways it has made the issue even more salient and controversial. First, the perspective on internal control adopted by the Sarbanes-Oxley Act (SOX) and Auditing Standards No. 2 is extremely narrow and focuses entirely on financial reporting. Previously existing frameworks for evaluating internal control, such as COSO (1992), COCO (1995), and the Turnbull Report (1999), considered internal control to encompass a much broader range of risks and controls that would be of interest to external stakeholders. Second, other than U.S. publicly listed companies, most other jurisdictions and markets continue to adopt a broader view of internal control when issuing guidance for best practices and reporting (IFAC 2006). IFAC (2006, 14) observes that “Section 404 is the product of the U.S. regulatory framework which, to some extent, is unique in that it is usually characterized as being rules-based. The approach in many other jurisdictions has tended to be principles-based and market-led. This alternative approach has recently been endorsed in the U.K., Europe, and Hong Kong.” Thus, an alternative and widely held view of internal control incorporates a broad perspective that includes managing strategic, operational, and compliance risk, in addition to financial reporting risk.

In this paper, we examine the conditions under which a firm is likely to voluntarily report on risk management and internal control. Bronson et al. (2006) report some evidence regarding the incentive effects of voluntary internal control reporting in the U.S. prior to SOX, but they restrict their analysis to internal controls consistent with SOX, i.e., controls “designed to only provide reasonable assurance as to the accuracy of financial statements” (27). In contrast, we examine a setting where voluntary reporting on internal control covers a much wider business-based approach as defined by COSO (1992) or Turnbull (1999). We specifically choose a period prior to SOX because the economic motivation for reporting is driven more by the natural economic incentives of management and boards than regulation. Furthermore, we focus on a low regulation environment (The Netherlands) since our goal is to examine managers’ economic incentives for voluntary reporting on internal control in the broadest sense. The Netherlands provides an excellent environment to test economic incentives because its market dynamics are very similar to the U.S. and U.K. The implications are also relevant to the wider business community and regulators since the current regulatory environment applies to only a small subset of controls (internal controls over financial reporting) in a single market segment (U.S. registrants).

More specifically, we address the following question: Do managers in a low-regulation environment voluntarily report on risk management and internal control to reduce the efficiency loss of information and agency problems? We argue that the extent of internal control disclosure increases with the extent of information risk and agency problems because it enables investors to better monitor management. Our analysis is based on a disclosure index that measures the extent of voluntary reporting on internal control for a sample of firms listed on the Amsterdam Stock Exchange during the period 1997–1999. While national and international best practice frameworks recommended internal control reporting in the 1990s (e.g., COSO 1992; Turnbull 1999), there was no legal obligation to report on internal control (or explain the lack of such reporting) at the time. Thus, any such reporting can be considered to be “at will” and reflective of economic and agency incentives. Furthermore, since SOX did not exist and the existing relevant control frameworks were broadly specified, we are able to look at control reporting at the business and entity-wide level, not just for financial reporting. Finally, because ownership structures and the incentives for shareholders to actively monitor managers vary widely in The Netherlands.
Economic Incentives for Voluntary Internal Control Reporting

(De Jong et al. 2001), we are able to study firms with diffuse ownership, which resemble typical U.S. firms, and firms with more concentrated ownership, which are common in many other parts of the world.

Our analysis reveals strong evidence that economic incentives for voluntary internal control reporting exist in a low regulation environment. More specifically, we provide evidence that managers voluntarily report more (less) on internal control if information problems and agency conflicts are higher (lower). We interpret this to reflect a conscious trade-off by managers which is linked to the costs and benefits of making these disclosures. As this issue is re-examined in the future, other countries or regulators may expand either the coverage of such reporting or the market segments to which they apply (FEE 2005), in which case it is important to understand the incentives for such reporting when regulatory intervention is relatively light. One implication of our findings is that regulators may wish to allow firms some flexibility in their internal control reporting choices as firms tailor these reports to suit their specific environments.

The remainder of the paper is organized as follows: The next section provides a brief background and discusses prior research. The third section outlines the theoretical framework and develops the hypotheses. The fourth and fifth sections present the research design and results, respectively. The final section summarizes the results, discusses certain limitations, and considers potential implications of the study.

BACKGROUND AND PRIOR RESEARCH

Policy Reports

Internal control has received a great deal of attention over the past decades. In the U.S., the attention took the form of improved guidance on developing and implementing internal control as evidenced by the COSO report (COSO 1992). In the U.K., the Cadbury report (1992a, 1992b) and the Hampel Committee (1998a, 1998b) also focused on internal control, including suggestions for public reporting to outside parties. In The Netherlands, the Peters Committee (1997), followed by the Tabaksblat Committee (2003), developed a number of recommendations regarding the role of the supervisory board in monitoring internal control. In a recent overview, IFAC (2006) summarizes the current work on internal controls across the globe. They specifically cite reports prepared in the U.K. (FRC 2005), the U.S. (COSO 2004), Europe (FEE 2005), Hong Kong (HKICPA 2005), South Africa (King Committee 2002), and The Netherlands (Tabaksblat Committee 2003). In general, IFAC observed that "the majority of [reports] on internal control have agreed upon a principles-based, risk-focused approach and there have been no recommendations of note for the introduction of prescriptive or legislative requirements as might have originally been anticipated in 2002" (IFAC 2006, 14). Indeed, they go on to comment that the "preference appears to be for an internal control system than sits within a risk management framework" (14). We interpret these remarks as supporting a continuing interest in reporting on internal control using a broad risk management, principles-based approach.

In The Netherlands, the Peters Committee (1997) suggested that the supervisory board of Dutch companies discuss the effectiveness of internal control. The fact that such a discussion has been held (but not necessarily the content of the discussion) should be mentioned in the supervisory board’s report in the firm’s annual report. The Peters Committee, whose guidance was in place during the period that this study is conducted, further recommended that management keep the supervisory board informed about mechanisms to

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1 Further guidance on internal control has been provided in the follow-up COSO report, Enterprise Risk Management (COSO 2004).
control financial risk. Compared to recommendations and regulations in the U.K.\(^2\) and the U.S.,\(^3\) the recommendations of the Peters Committee were less extensive and detailed. In 2003, four years subsequent to this study, the Tabaksblat Committee extended these recommendations by strongly encouraging the management board to declare in the annual report that internal risk management and control systems are “adequate and effective.” The approach to internal control adopted by the Tabaksblat Committee reflects international principles of good corporate governance and is quite broad, encompassing strategy, operations, and reporting.

The corporate governance code of the Tabaksblat Committee was eventually incorporated into Dutch law and is currently in effect. As a result, listed companies in The Netherlands are now required to comply with the best practice provisions of the code, or explain why they do not apply the provisions (i.e., the so-called “comply or explain” approach).\(^4\) Internal control disclosures in The Netherlands are not subject to audit and only marginally reviewed by the external auditor for inconsistencies with other parts of the financial statements. In summary, before the corporate governance code of the Tabaksblat Committee appeared in 2003, reporting on internal control was voluntary in The Netherlands, i.e., managers were free to choose whether they conformed with national and/or international best practice recommendations relating to reporting on internal risk management and control systems. This provides a rich environment in which to study the economic and market incentives for nonmandatory reporting on internal control.

Prior Research

The topic of reporting on internal control has long been of interest to accounting researchers (e.g., McMullen et al. 1996), but has gained new interest as a result of the disclosure requirements of SOX Sections 302 and 404. Prior to SOX, Hermanson (2000) observed that stakeholders generally believed that internal control would aid decision making, and that voluntary reporting would motivate management to improve internal control. However, reporting on internal control is costly due to the need to collect and evaluate information about systems and processes prior to preparing a report (Solomon and Cooper 1990), and these costs may be disproportionately higher for smaller firms (McMullen et al. 1996).\(^5\) Additionally, managers put their reputation at stake and risk incurring litigation costs when they make definitive statements about internal control that later turn out wrong (Raghunandan and Rama 1994; McMullen et al. 1996). Another potential cost of reporting on internal control is revealing proprietary information to competitors, for example when...

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\(^3\) See reports by the Cohen Commission (1978), Treadway Commission (1987), COSO (1992), Public Oversight Board (1993), and especially the Sarbanes-Oxley Act of 2002. Mills (1997) provides an overview of public policy recommendations on internal control reporting in the U.K. up to the Hampel Committee (1998a, 1998b). The final report of the Hampel Committee (1998a) and its Combined Code (Hampel Committee 1998b) recommended that directors review the effectiveness of the internal control system and report to the shareholders that they have done so. The auditor should report on internal control privately to the directors. A working party of the Committee (Turnbull Committee 1999) issued new guidance to implement the requirements on internal control and reporting on internal control.

\(^4\) The Netherlands Authority for the Financial Markets supervises annual reporting by companies. However, it is still entirely up to the shareholders to accept explanations for nonapplication.

\(^5\) McMullen et al. (1996) also find that smaller firms are less likely to have financial reporting problems if management reports on internal control.
a firm discloses detailed information on its procedures to manage key risks. Taken together, these incentives may have limited management’s willingness to voluntarily report on internal control in the past, especially if they did not face a strong demand from stakeholders for such reports (in the absence of regulation on the issue).

The passage of SOX significantly altered the calculus of disclosure regarding internal control, requiring U.S. registrants to provide audited a report on the quality of internal control over financial reporting. While the benefits of such reports are still subject to debate, preliminary evidence indicates that the compliance costs for Section 404 are substantial, particularly for smaller firms (Eldridge and Kealey 2005; Foley & Lardner LLP 2005; FEI 2005; Gurchiek 2005; McCollum 2005; Shearman & Sterling LLP 2005). A large volume of research has examined the possible benefits of SOX rules from a variety of perspectives including the stock market reaction to disclosures of such weaknesses (e.g., De Franco et al. 2005; Hammersley et al. 2008), as well as the effect on accruals quality (e.g., Doyle et al. 2007a; Ashbaugh-Skaife et al. 2006a; Bédard 2006) and the cost of capital (e.g., Ogneva et al. 2006; Ashbaugh-Skaife et al. 2006b; Beneish et al. 2008). Yet other research has addressed the effect of material weaknesses on audit delay (e.g., Ettredge et al. 2006), audit fees (e.g., Elder 2006; Bedard et al. 2006; Hoitash et al. 2007; Ettredge et al. 2007), and the control risk factors leading to the presence of internal control problems such as organizational complexity, rapid organizational change, and a lack of resources to invest in internal control systems (Ge and McVay 2005; Doyle et al. 2007b; Ashbaugh-Skaife et al. 2007). Ashbaugh-Skaife et al. (2007) specifically examine factors associated with incentives to discover and report internal control weaknesses such as auditor size, recent restatements, and ownership concentration.

In commenting on prior research, Leone (2007) notes that the evidence on the incentives to report on internal control is not fully convincing given that most of the recent research has been conducted in an environment where such reporting is not really voluntary. One exception to this observation is Bronson et al. (2006, BCR henceforth), who study annual reports from 1998 of mid-sized U.S. firms, and compare the form and content of pre-SOX management reports on internal control with disclosures made in accordance with Section 404. While 36 percent of the firms in the sample of BCR voluntarily included a management report on internal control, only 15 percent reported that controls were effective. None of the firms reporting on internal controls disclosed any weaknesses, and no reports included an auditor attestation. Furthermore, BCR find that larger firms and firms with active audit committees were more likely to report on internal control prior to SOX, while firms with rapid growth were less likely. The size effect observed by BCR is consistent with prior research indicating that Fortune 100 companies tended to voluntarily include a management report on internal control (Raghunandan and Rama 1994; Willis and Lightle 2000), while smaller companies did not (McMullen et al. 1996). BCR also note that prior to SOX most internal control disclosures addressed financial reporting risk rather than a broader view of internal control as embodied in COSO. A possible explanation for this is that U.S. firms may have had less developed enterprise risk management (ERM) processes compared to non-U.S. firms (Beasley et al. 2005).

Thus, in spite of extensive research examining reporting on internal control, the incentives for reporting on risk management and a broad range of controls in a low regulation environment are still relatively unknown. A related question is what determines the extent of these disclosures. More specifically, the observed cross-sectional variation in internal control reporting remains largely unexplained, especially in settings where internal control reporting covers a wider business-based approach that is consistent with COSO. This study
addresses these questions by examining managers’ economic motives for making internal control disclosures. More specifically, we hypothesize that managers voluntarily report on internal control to reduce the efficiency loss of information and agency problems.

**THEORETICAL FRAMEWORK**

**Demand for Monitoring**

While the agency relationship between managers and investors is well understood, an important aspect of coping with agency conflicts is the need to control the behavior of managers through monitoring, including accounting and auditing mechanisms (Jensen and Meckling 1976; Watts and Zimmerman 1986). An important proposition of agency theory is that managers have incentives to expend resources on monitoring to reduce the efficiency loss of agency problems. In the absence of monitoring, investors will anticipate that managers’ interests diverge from theirs, and take this into account when pricing their claims on the firm. Several empirical studies have relied on Jensen and Meckling’s framework to explain the voluntary adoption of monitoring mechanisms. For example, Chow (1982) examines the association between voluntary external auditing and agency conflicts. In a similar vein, voluntary financial reporting can be considered a monitoring mechanism (Leftwich et al. 1981; Chow and Wong-Boren 1987; Craswell and Taylor 1992).

Others investigate the relationship between agency conflicts and quality differentiated external audits (Francis and Wilson 1988; DeFond 1992), timely financial reviews (Ettredge et al. 1994), and the voluntary formation of audit committees (Pincus et al. 1989; Bradbury 1990; Collier 1993; Menon and Williams 1994; and Collier and Gregory 1999). Internal control (including internal auditing) can also serve as a monitoring mechanism that reduces the efficiency loss of agency conflicts (Anderson et al. 1993; DeFond 1992) because the system provides management with more reliable information for financial reporting purposes (COSO 1992; Keasey and Wright 1993). Even though external control mechanisms (e.g., independent external auditing) have an advantage in detecting management fraud, internal control may be better in detecting unintentional errors and employee wrongdoing (Hay and Knechel 2005).

**Benefits of Internal Control Reporting**

Internal control is not directly observable by investors because it is, in essence, a set of activities within the organization. Besides this lack of transparency, dispersed investors have little or no incentive to actively gather information about internal control. Consequently, in the absence of disclosure of private information about internal control, investors are unlikely to be fully informed about the nature, extent, and quality of internal controls. This makes it difficult for them to observe managers’ efforts to manage risks or to provide reliable information by maintaining adequate internal controls. Managers possess superior knowledge about internal control. In order to reduce the efficiency loss of agency problems resulting from this information asymmetry, managers may have an incentive to make voluntary disclosures about internal control.

Although information asymmetry is implied in an agency framework, it can have further implications for a firm’s voluntary disclosure of risk management and internal control. For example, it creates an incentive for managers to provide voluntary disclosure to reduce the cost of capital (Healy and Palepu 2001) since reduced information asymmetry lowers the risk of investors in forecasting future payoffs from their investment (Barry and Brown 1985, 1986). While this argument applies to disclosure in general, voluntary internal control disclosure can also reduce estimation risk because internal controls mitigate the threat of
providing unreliable information to investors. To the extent that investors are reassured by disclosure that the internal control system provides them with reliable information, they will require a lower cost of capital. Since internal control can also relate to managing business risk and includes controls with an operational nature, investors’ may further perceive disclosing firms as being less risky in general, thereby reducing investor uncertainty about future corporate performance.

Relevance and Credibility of Internal Control Reporting

Internal control disclosure can reduce the efficiency loss of information and agency problems only if investors perceive that the information is relevant and credible. Hermanson (2000) reports that financial statement users perceive voluntary reporting on internal control as informative above and beyond the information content of the audit report. An external financial statement audit may not be an efficient way to communicate the effectiveness of internal control for at least two reasons (Hermanson 2000). First, auditing standards require that the external auditor obtain an understanding of the internal control system sufficient to plan the audit. However, the external auditor may or may not evaluate the strength of internal control when certifying financial statements. In particular, the auditor may decide that it is more economical to audit details of financial statements (e.g., transactions and balances) than the reporting process. Second, in cases where the auditor evaluates the strength of internal controls, the evaluation focuses primarily on internal controls over financial reporting, which are not necessarily the same internal controls that are relevant for the efficiency and effectiveness of business processes. Besides traditional controls over financial reporting, internal controls reported on can also encompass operational controls, which include risk assessment and risk management activities (Mills 1997; Short et al. 1999; COSO 2004). For investors, information about such activities is likely to be very relevant as it reveals whether management understands the risks in the business and is managing them actively.

Credibility of reporting on internal control may be a larger problem. Although the COSO framework for evaluating internal control has been available since 1992, and is recognized as one source of authoritative guidance by the PCAOB, its use has never been mandated. Consequently, measurement and reporting standards admit much room for judgment and flexibility. Fortunately, the credibility of voluntary disclosures can be augmented in a variety of ways. For example, the presence of independent outside directors, the existence of an audit committee, and the external auditor’s independent review of unaudited portions of the financial statements may help to ensure truthful reporting by management. Additionally, managers put their reputation at stake and risk incurring litigation costs when they make false internal control disclosures. This may give investors confidence in the credibility of internal control disclosures. Furthermore, in the Netherlands the source of the report may matter to investors, with supervisory directors, who are essentially independent, being deemed more trustworthy than executive directors.

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6 While internal control over financial reporting is now an integrated part of the audit in the U.S. under the rules of the PCAOB, similar rules do not yet apply outside of the U.S.
7 We do not expect, however, that the incentives for disclosure differ considerably between the management board and the supervisory board in a two-tier board. In the presence of high (low) agency problems, both boards could be more (less) inclined to mitigate the efficiency loss resulting from these problems by voluntary reporting on internal control. Furthermore, in many Dutch companies, the supervisory board would subsume many of the responsibilities of an audit committee in countries with one-tier boards.
Hypotheses

A manager’s decision to disclose information about internal control is presumably based on a cost-benefit analysis. As explained in the last section, we conjecture that an important benefit of voluntary reporting on internal control is a reduction of the efficiency loss of information and agency problems. Because we expect the benefits to vary with the degree of these problems, we hypothesize that in a low-regulation environment, managers are more (less) likely to report on internal control if information and agency problems are higher (lower). For our analysis, we use three proxies for information and agency problems.

Our first hypothesis concerns the extent to which outside equity ownership is concentrated. More concentrated equity ownership by outsiders lowers information and agency problems because block holders are more willing and able to actively monitor the firm (Milgrom and Roberts 1992). In contrast, information and agency problems increase if outside ownership is more diffuse as it is relatively more expensive and difficult for dispersed investors with small shareholdings to actively monitor management’s activities (Jensen and Meckling 1976). While this argument implies that diffusion of ownership increases the need for alternative monitoring mechanisms, including accounting and auditing, Bronson et al. (2006) hypothesize that the presence of significant block holders will increase the propensity of firm’s to report on internal control because they would closely monitor the quality of a firm’s financial reporting. However, BCR did not find evidence in support of this expectation. BCR also examine institutional ownership, a specific type of potential block holder, and find a positive association with control reporting using the percentage of stock owned collectively by institutional shareholders as a measure of institutional ownership. However, the descriptive statistics in both Ashbaugh-Skaife et al. (2007) and Leone (2007) show that separate institutions on average do not individually own a sizeable block of a company’s stock. Also, although the percentage of stock in a specific firm that is held by an individual institutional shareholder may be large, such holdings may constitute a very small portion of the institution’s overall investments, thus making them less likely to actively monitor a specific company than other forms of concentrated ownership. This suggests that the findings of BCR on institutional ownership are consistent with increased levels of information and agency risks. For these reasons, our first hypothesis predicts that ownership concentration is negatively associated with the extent of voluntary internal control disclosure.

H1: Ceteris paribus, there is a negative association between the degree of outside ownership concentration and the extent to which company management reports on internal control.

Our second hypothesis addresses the degree of top managers’ equity ownership in the firm. Higher managerial ownership lowers agency conflicts because managers’ and shareholders’ interests become more aligned (Jensen and Meckling 1976). BCR hypothesize, but do not find, a negative association between inside ownership and reporting on internal control over financial reporting. In the broader context of risk management and related internal control activities, we expect that there will be a relationship. Consequently, our second hypothesis predicts that management ownership is negatively associated with the extent of voluntary internal control disclosure.

H2: Ceteris paribus, there is a negative association between the degree of managerial ownership and the extent to which company management reports on internal control.
Our final hypothesis deals with the degree of financial leverage. Whereas the first and second proxy are related to information and agency problems between management and shareholders, financial leverage is related to agency problems between shareholders and debt holders. One problem between shareholders and debt holders is that shareholders may have an incentive for excessive risk taking. Jensen and Meckling (1976) and others have suggested that higher leverage will increase agency conflicts because the potential for wealth transfers from debt holders to shareholders increases. Bronson et al. (2006) hypothesize, but do not find, a positive association between leverage and reporting on internal control over financial reporting. In the broader context of risk management and related internal control activities, we expect that there will be a relationship between reporting and financial leverage. Thus, our third hypothesis predicts that financial leverage is positively associated with the extent of voluntary internal control disclosure.

**H3:** Ceteris paribus, there is a positive association between the degree of financial leverage and the extent to which company management reports on internal control.

**RESEARCH DESIGN**

**Setting**

The data used in this study is obtained from publicly traded firms in The Netherlands during the period 1997–1999. In many ways, equity markets in The Netherlands are similar to the U.S. and U.K. The Netherlands is generally regarded as a country with a well-developed capital market system, with broad share ownership, although with more concentrated ownership than in the U.S. (Kabir et al. 1997). Dutch accounting and auditing traditions are closer to the Anglo-American than to the Continental-European tradition (Mueller et al. 1994; Nobes 1998; De Jong et al. 2001). Also, the Dutch stock exchange is highly active with a number of very large multinational corporations, e.g., Philips, Shell, and Unilever (Nobes 2004). On the other hand, the litigation environment in The Netherlands is less severe than in the U.S. (Wingate 1997).

While highly developed, the corporate governance structure of Dutch firms differs somewhat from the U.S. and the U.K. in that they have a two-tier board structure, with a management board consisting of inside directors and a supervisory board consisting of mostly independent outside directors. In accordance with Dutch law, the supervisory board is responsible for the supervision of management policy. Although the supervisory board does not specifically represent shareholders or any other group of stakeholders, it is required to act in the best interests of the corporation as a whole (Douma 1997; Maassen and Bosch 1999). Furthermore, the corporate governance system in The Netherlands reflects a large degree of networking across organizations, allowing for tight direct control over organizations by strategic partners (Moerland 1995).

We feel that The Netherlands offers a unique setting to study the issue of voluntary reporting on internal control for a number of reasons. First, we expect that reporting on risk management and internal control covers a wide business-based approach in this setting and time period. Second, while existing national and international frameworks for internal control recommended reporting to external parties, there was no legal obligation to do so (or to explain not doing so) in The Netherlands during the sample period for this study.

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8 For instance, LaPorta et al. (1998) show that in terms of shareholder and creditor rights; quality of law enforcement, quality of accounting standards, and ownership concentration; the Netherlands are closer to the common law countries than to the code law group with which they are typically grouped.
Also, because the available Dutch guidance is less specific than in the U.S. or the U.K., there may be a greater variability in the nature of the disclosures. Third, due to the relatively lower risk of litigation, management is likely to be more forthcoming with such information than in the U.S. As a result, we expect to observe a relatively wide range of disclosure practices. Fourth, ownership structure and the incentives for shareholders to actively monitor managers vary widely in The Netherlands (De Jong et al. 2001).

Sample and Data

The sample consists of all Dutch firms listed on the Amsterdam Stock Exchange during the period 1997–1999, excluding investment funds and financial institutions (e.g., banks and insurance companies). The sample contains 155, 168, and 167 observations for 1997, 1998, and 1999, respectively (i.e., 490 firm-year observations). Across years there are 192 unique firms in the sample. Data on the dependent variable was retrieved from firms’ annual reports. Most data on the independent variables was available in the public Dutch databases “REACH” and “Het Financieel Economisch Lexicon.” In addition, data was obtained from public databases of the Dutch exchange supervisor “Authority for the Financial Markets.”

Dependent Variable (ICD)

The extent of voluntary reporting on internal control is measured with an internal control disclosure index (ICD). ICD was obtained in three steps following a process similar to other disclosure studies (e.g., Chow and Wong-Boren 1987; Botosan 1997). The first step was to identify the disclosure items to include in the index. Based on a comprehensive review of public policy reports on corporate governance and internal control, we identified six separate reportable items. The appendix provides a discussion of the specific disclosure items and their potential information content and disclosure costs. The first item is unique to The Netherlands, Items 2 through 5 are derived from non-Dutch guidance, and Item 6 is specifically mentioned in Dutch public policy guidance. No other recommendations on internal control disclosure were available in Dutch public policy reports at the time, and the six items capture all internal control information generally available in annual reports of Dutch-listed firms in the study period.

The second step was to examine annual reports to identify the presence or absence of each disclosure item. Dutch annual reports consist of the primary financial statements plus “other information,” e.g., the report of the supervisory board and the report of the management board. Item 1 was found in the report of the supervisory board. Items 2, 3, 4, and 5 were found in the report of the management board. Item 6 was found in either the report of the management board or the footnotes to the financial statements. To control for subjectivity in interpreting the annual reports, two independent raters examined the annual reports. Inter-rater agreement ranged from 94 to 100 percent for different disclosure items. Perreault and Leigh’s (1989) interjudge reliability index ranged from .93 to 1.00, where .80 is considered an acceptable lower limit. After jointly re-examining the annual reports for which the initial examinations differed, the researchers agreed upon the classification of each item.

The third step was to calculate a score for each firm in the sample. We did this by summing all six disclosure items, placing equal weight on each item. The resulting index measures the extent to which management voluntarily reports on internal control from zero (no items disclosed) to six (all items disclosed), and is treated as an ordered variable in

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9 For 24, 38, and 130 firms; we have one, two, and three years of observations, respectively.
our analysis. We examine the sensitivity of our results to this specification of ICD in subsequent analysis.

**Test Variables**

We use three test variables in our main analysis, one for each hypothesis. Specifically, we use the following proxies for information and agency problems:

- **Ownership concentration (OC)** is measured by the proportion of a firm’s outstanding stock owned by outside block holders, which we define as shareholdings of non-managers greater than 5 percent.
- **Managerial ownership (MO)** is measured by adding up the percentage of shares held by members of the management board. In The Netherlands, owners of more than 5 percent of the shares of a firm are required to report their share of ownership to Dutch stock exchange supervisor “Authority for the Financial Markets.” Because this data is publicly available, the names of the shareholders were compared with the names of the members of the management board. Shareholdings smaller than 5 percent are not disclosed.
- **Financial leverage (LEV)** is measured by the ratio of the book value of debt to the sum of the market value of equity and the book value of debt.

**Control Variables**

We also consider a number of control variables that might provide some explanation of internal control disclosure beyond the information and agency problems on which our hypotheses focus. Our control variables are broadly classified into three categories: (1) inherent risk within an organization, (2) the potential cost of internal control disclosure, and (3) alternative control mechanisms. First, investors care more about internal control, and benefit more from monitoring internal control, when there is a high level of inherent risk within an organization. High inherent risk can give managers an incentive to report on internal control to meet investor demand. Factors that increase inherent risk include complexity and scope of operations, rapid growth, and accounting risks (Ashbaugh-Skaife et al. 2007). On the other hand, high inherent risk can increase the chance that weaknesses occur in internal control. Under such circumstances, managers may be less inclined to report on internal control. In particular, they may be more hesitant to acknowledge their responsibility for internal control, and are less likely to state that internal controls are effective if their firm has weak internal controls.10 Second, the cost of internal control reporting may vary across firms, whether in the form of creating and distributing the information, increasing reputation and litigation risk, or revealing proprietary information to competitors. Third, the strength of alternative governance mechanisms such as the independent external auditor, independent outside directors, and regulations related to cross-listings may influence internal control reporting. We use the following control variables in this study:11

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10 From an economic perspective, managers of firms with weak internal controls can avoid disclosure costs by not reporting, but investors will infer the worst from nonreporting if they expect, but do not receive, a report from management on internal control, i.e., believe there is weak internal control (Jorgensen and Kirschenheiter 2003).

11 Reported results are robust to adding several other potential control variables: stock price volatility (measured as the standard deviation of monthly stock returns), market beta (measured as the covariance of monthly stock returns with the market), earnings variability (measured as standard deviation of the earnings-to-price ratio), variability of return on assets (measured as standard deviation of net income to average book value of total assets), earnings-to-price ratio, book-to-market value of equity, labor intensity (measured as the ratio of personnel expenses to total expenses), whether the firm issued securities in the period after disclosure (indicator), and whether the firm has an audit committee (indicator).
• **Firm Size (SIZE):** Larger firms may be harder to control because of problems of moral hazard internal to the firm (Williamson 1967; Abdel-khalik 1993). Additionally, large firms tend to be more complex and have more varied operations. These attributes increase inherent risk and would make it more likely for managers to report on internal control. However, high inherent risk also makes it more likely that weaknesses in internal control occur, which can lower the likelihood that managers are willing to report. Nevertheless, although the risk exposure is higher, managers of larger firms may be more able to prevent weaknesses, because they have more resources available and may enjoy economies of scale in developing, implementing, and reporting on internal control. Finally, larger firms may have greater external agency problems (Chow 1982). We measure SIZE as the sum of market value of equity and book value of debt.

• **Foreign operations (FO):** The establishment of foreign operations creates political, economic, and cultural risks not found in domestic firms. In addition, the complexity of transactions often increases due to joint ventures, international tax issues, and foreign exchange transactions (Hermanson and Hermanson 1994). The wider scope of operations and greater complexity may give rise to higher inherent risk, making it more likely that managers will report on internal control. The likelihood of reporting however may also be lower because of a greater chance of weaknesses internal control. We measure FO as the ratio of foreign subsidiaries to total subsidiaries.

• **Profitability (PR):** Well performing firms may have more resources available to invest in internal control, making it more likely that they have effective internal controls in place. On the other hand, investors may be less interested in the internal controls of well performing firms because inherent risk is lower. We measure PR as the ratio of net income to average book value of total assets.

• **Sales Growth (SG):** A fast growing firm may outgrow its internal systems and may require time to make new investments in internal control. This leads to higher inherent risk, increasing the incentive for management to report on internal control. However, managers may be hesitant to report on internal controls that are weakened by rapid growth. We measure SG as the firm’s year-over-year sales growth.\(^\text{12}\)

• **Inventory (INV) and Receivables (REC):** Firms with higher levels of inventory and receivables may be subject to greater inherent risk as it may expose them to greater accounting risks (Kinney and McDaniel 1989). Again, this may either increase or decrease the likelihood of reporting. We measure INV as the ratio of book value of inventory to book value of total assets, and REC as the ratio of book value of receivables to book value of total assets.

• **Industry classification (MAN and TRADE):** In general, different industries display different patterns of disclosure (Botosan 1997). Watts and Zimmerman (1986) argue that firms in the same industry face similar incentive problems and use similar contracting structures and accounting procedures. Others suggest that industry membership is a surrogate proxy for variables that are associated with voluntary disclosure, like political costs (Bazley et al. 1985) and proprietary costs (Craswell and Taylor 1992; Harris 1998). Also, inherent risk and the quality of internal controls may relate

\(^{12}\) Reported results are robust to measuring SG as an indicator equal to one if the firm is in the highest quintile of sales growth for their industry, and zero otherwise.
to industry (Knechel and Willekens 2005). We use indicators that are equal to one if firms operate in the manufacturing (MAN) or trade sector (TRADE), and zero otherwise.  

- **Cross-listing of shares (UK and US):** Foreign stock exchanges have different requirements regarding reporting on internal control. Listing rules in the U.S. and U.K. may have been more encouraging about reporting on internal control due to the existence of COSO (U.S.) and Turnbull (U.K.). Because the Dutch stock exchange requires that firms provide the Dutch market with the same information as a foreign market, cross-listing of shares may influence the extent to which management reports on internal control. We measure US and UK as indicators that are one if the firm’s shares are cross-listed in the U.K. or the U.S., respectively, and zero otherwise.

- **Audit Quality (AQ):** High quality independent audits may be a complement or substitute for other monitoring mechanisms (Francis and Wilson 1988; DeFond 1992). On the one hand, the independent review of unaudited parts of the annual report by a high quality external auditor may increase investors’ perception of the credibility of voluntary reporting on internal control, increasing the value of such reports. On the other hand, investors may perceive that voluntary reporting on internal control is less necessary (relevant) if the financial statements are audited by a high quality auditor.  
  We measure AQ as an indicator that is equal to one if the firm has a Big 6 or Big 5 auditor, and zero otherwise.

- **Independent outside directors (OD):** The value of voluntary reporting on internal control may increase if monitoring by independent directors increases the credibility of internal control disclosures. Alternatively, the value may decrease if investors perceive that voluntary reporting on internal control is less relevant because managers’ actions are monitored by independent directors. We measure OD as the ratio of the number of independent outside directors (i.e., the number of supervisory directors excluding so-called “affiliated” directors) to total directors.

**RESULTS**

**Descriptive Statistics of ICD**

Panel A of Table 1 shows the frequencies of reporting on separate items of ICD. The firms in the sample report most frequently on Items 1 and 6. A possible explanation for this is that these are the items recommended by the Peters Committee (1997). McNemar tests are used to investigate the significance of the year-to-year differences in reporting on each item. When comparing the reporting of 146 firms that are included in the sample in both 1997 and 1998, this test shows that firms report significantly less on Item 2 in 1998 (p < .05). When comparing the reporting of 152 firms that are included in the sample in both 1998 and 1999, the test show that firms report significantly less on Item 1 in 1999 (p < .05). For the 192 unique firms in the sample, we also tabulate the frequency of reporting

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13 Reported results are robust to including a more elaborate set of indicators based on two- and three-digit codes of the North American Industry Classification System (NAICS).

14 From the perspective of the auditor, more complete disclosures about internal controls may benefit the reputation of the audit firm. Independent auditors that seek to maintain a reputation of higher quality or to increase fees may influence the extent of internal control reporting in their clients’ annual reports (Haring 1979; Watts and Zimmerman 1986; Meier et al. 1993).
### TABLE 1
Descriptive Statistics of Internal Control Disclosure Index (ICD)

**Panel A: Elements of ICD**

<table>
<thead>
<tr>
<th>Elements reported by the supervisory board:</th>
<th>Frequency of reporting in</th>
<th>1997 (n = 155)</th>
<th>1998 (n = 168)</th>
<th>1999 (n = 167)</th>
<th>1997–1999 (n = 192)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 1. The supervisory board discussed (elements of) the internal control systems in at least one meeting</td>
<td>Number</td>
<td>(%)</td>
<td>Number</td>
<td>(%)</td>
<td>Number</td>
</tr>
<tr>
<td></td>
<td>78</td>
<td>(50)</td>
<td>71</td>
<td>(42)</td>
<td>59</td>
</tr>
</tbody>
</table>

| Elements reported by the management board: | | | | | |
|-------------------------------------------| | | | | |
| Item 2. The purpose of the internal control system | | | | | |
| Item 3. Management’s responsibilities for internal control | | | | | |
| Item 4. A statement about the effectiveness of internal control | | | | | |
| Item 5. The role of the internal auditor | | | | | |
| Item 6. Activities to manage risk | | | | | |
| Number | (%) | Number | (%) | Number | (%) | Number | (%) |
| 78 | (50) | 71 | (42) | 59 | (35) | 81 | (42) |

(continued on next page)
### Panel B: Aggregate ICD<sup>b</sup>

**Number (%) of Firms Reporting**

<table>
<thead>
<tr>
<th>Year</th>
<th>n</th>
<th>0 Items</th>
<th>1 Item</th>
<th>2 Items</th>
<th>3 Items</th>
<th>4 Items</th>
<th>5 Items</th>
<th>6 Items</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
<th>W-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>155</td>
<td>41 (27)</td>
<td>47 (30)</td>
<td>46 (30)</td>
<td>9 (6)</td>
<td>7 (5)</td>
<td>2 (1)</td>
<td>3 (2)</td>
<td>1.43</td>
<td>1</td>
<td>1.31</td>
<td>0</td>
<td>6</td>
<td>.93***</td>
</tr>
<tr>
<td>1998</td>
<td>168</td>
<td>48 (29)</td>
<td>60 (36)</td>
<td>45 (27)</td>
<td>5 (3)</td>
<td>4 (2)</td>
<td>3 (2)</td>
<td>3 (2)</td>
<td>1.27</td>
<td>1</td>
<td>1.25</td>
<td>0</td>
<td>6</td>
<td>.90***</td>
</tr>
<tr>
<td>1999</td>
<td>167</td>
<td>48 (29)</td>
<td>66 (40)</td>
<td>33 (20)</td>
<td>9 (5)</td>
<td>6 (4)</td>
<td>3 (2)</td>
<td>2 (1)</td>
<td>1.26</td>
<td>1</td>
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<td>0</td>
<td>6</td>
<td>.91***</td>
</tr>
<tr>
<td>1997–1999</td>
<td>192</td>
<td>52 (27)</td>
<td>74 (39)</td>
<td>49 (26)</td>
<td>5 (3)</td>
<td>7 (4)</td>
<td>2 (1)</td>
<td>3 (2)</td>
<td>1.27</td>
<td>1</td>
<td>1.21</td>
<td>0</td>
<td>6</td>
<td>.91***</td>
</tr>
</tbody>
</table>

### Panel C: Spearman-Rank Correlations among ICD

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>ICD 1997</td>
<td>.78*** (n = 146)</td>
<td>.88*** (n = 155)</td>
</tr>
<tr>
<td>ICD 1998</td>
<td>.68*** (n = 130)</td>
<td>.93*** (n = 168)</td>
</tr>
<tr>
<td>ICD 1999</td>
<td>.84*** (n = 152)</td>
<td>.90*** (n = 167)</td>
</tr>
</tbody>
</table>

* *, **, *** indicate significance at p < .10, p < .05, and p < .01, respectively, based on two-tailed tests.

<sup>a</sup> When calculating the frequency of reporting on each item across years for the 192 unique firms in the sample, each item is considered present if the firm reports it in at least half of the years that it is included in the sample.

<sup>b</sup> Aggregate ICD is calculated for each firm by summing all reported items.
on each item across years (ICD 1997–1999), considering each item present if it was reported in at least half of the years that a firm is included in the sample.\(^{15}\)

Panel B of Table 1 presents the descriptive statistics of aggregate ICD for each year and across years. Although ICD is ranked from 0 to 6, few firms reported three or more items. As a result, the average value of ICD is relatively low. The Shapiro-Wilk W tests show that the assumption about the normality of the distribution for ICD can be rejected (p < .01). Panel B further shows that for the full sample the mean value of ICD decreases from 1997 to 1998.\(^{16}\) However, Wilcoxon signed-rank tests indicate that the distribution of the aggregate ICD does not differ significantly between the years: ICD for 1997 was paired with 1998 (p > .47; n = 146) and 1999 (p > .84; n = 130), and ICD for 1998 was paired with 1999 (p > .94; n = 152). Panel C of Table 1 presents the Spearman-rank correlations among ICD in paired samples. These are quite high so we conclude that managers’ overall strategy for reporting on internal control did not significantly change over the three-year period.

Reliability of ICD

Several tests were carried out to further assess the statistical reliability of ICD. A standard measure of reliability is internal consistency, which applies to the consistency among the items in a summated score. Individual items of the score should all be measuring the same construct and should be highly inter-correlated with item-to-total correlations in excess of .50 and inter-item correlations in excess of .30 (Robinson et al. 1991). For the total sample of 1997, 1998, and 1999, the average item-to-total correlation is .57. All coefficients of the item-to-total correlations are statistically significant at the 1 percent level. In addition, the average inter-item correlation is .39 and most coefficients of the inter-item correlations are statistically significant at the 1 percent level. The high inter-item correlations show that some items comprising ICD tend not to be reported unless another item is also reported, e.g., Item 2 was not reported unless Item 6 was also disclosed. Another type of diagnostic measure is Cronbach’s alpha, which tests the consistency of the entire scale. Cronbach’s alpha for 1997, 1998, 1999, and 1997–1999 is .72, .74, .70, and .72, respectively. The generally agreed lower limit for Cronbach’s alpha is .70 (Robinson et al. 1991).

Descriptive Statistics of Test and Control Variables

Table 2 presents the descriptive statistics of the tests and control variables. Additional Shapiro-Wilk W tests show that the assumption about the normality of the distribution of most variables can be rejected at p < .01.

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\(^{15}\) For firms for which we have three years of observations, an item is considered present if disclosed in at least two years, and for firms for which we have one or two years of observations, an item is considered present if disclosed in at least one year. Reported results are robust to excluding firms for which we have only one or two years of observations from the analysis. Reported results are robust to considering each item present if it was reported in any year that a firm is included in the sample or in each year. In general, firms report the same items over time.

\(^{16}\) Mann-Whitney U tests show that for nine firms that are only included in 1997, the mean value of ICD is not significantly different from the other 146 firms in 1997 (p > .88; n = 155). In contrast, for the 22 firms that enter the sample in 1998, the mean value of ICD is significantly lower compared to the other 146 firms (p < .01; n = 168). A possible explanation for this is that the firms that enter the sample in 1998 have significantly different firm characteristics that are hypothesized to influence ICD: MO is 15 percent higher (p < .01; n = 168), and LEV is 22 percent lower (p < .01; n = 168) for these firms.
TABLE 2  
Descriptive Statistics of All Test and Control Variablesa

<table>
<thead>
<tr>
<th>Year</th>
<th>Ownership n</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>155</td>
<td>.37</td>
<td>.32</td>
<td>.26</td>
<td>.00</td>
<td>.98</td>
</tr>
<tr>
<td>1998</td>
<td>168</td>
<td>.37</td>
<td>.35</td>
<td>.26</td>
<td>.00</td>
<td>.98</td>
</tr>
<tr>
<td>1999</td>
<td>167</td>
<td>.39</td>
<td>.35</td>
<td>.27</td>
<td>.00</td>
<td>1.00</td>
</tr>
<tr>
<td>1997–1999</td>
<td>192</td>
<td>.39</td>
<td>.35</td>
<td>.26</td>
<td>.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Managerial Ownership 1997</td>
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<td>.18</td>
<td>.00</td>
<td>.96</td>
</tr>
<tr>
<td>1998</td>
<td>168</td>
<td>.09</td>
<td>.00</td>
<td>.20</td>
<td>.00</td>
<td>.96</td>
</tr>
<tr>
<td>1999</td>
<td>167</td>
<td>.10</td>
<td>.00</td>
<td>.21</td>
<td>.00</td>
<td>.96</td>
</tr>
<tr>
<td>1997–1999</td>
<td>192</td>
<td>.09</td>
<td>.00</td>
<td>.20</td>
<td>.00</td>
<td>.96</td>
</tr>
<tr>
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<td>155</td>
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<td>.37</td>
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<td>.92</td>
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<tr>
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<td>.36</td>
<td>.20</td>
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<td>.80</td>
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<tr>
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<td>2.33</td>
<td>5.51</td>
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<td>39.38</td>
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<td>.46</td>
<td>.30</td>
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</tr>
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<td>.06</td>
<td>.08</td>
<td>−.38</td>
<td>.31</td>
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<td>.07</td>
<td>.11</td>
<td>−.38</td>
<td>.33</td>
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<td>1999</td>
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<td>.06</td>
<td>.10</td>
<td>−.31</td>
<td>.35</td>
</tr>
<tr>
<td>1997–1999</td>
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<td>.06</td>
<td>.09</td>
<td>−.31</td>
<td>.32</td>
</tr>
<tr>
<td>Sales Growth (SG) 1997</td>
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<td>.13</td>
<td>.45</td>
<td>−.50</td>
<td>2.76</td>
</tr>
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<td>1999</td>
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<td>.12</td>
<td>.52</td>
<td>−.46</td>
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<td>1997–1999</td>
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<td>.49</td>
<td>−.21</td>
<td>2.76</td>
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<td>.18</td>
<td>.14</td>
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<td>.82</td>
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</tr>
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 Frequencies

<table>
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<tr>
<th>Year</th>
<th>Number (n = 155)</th>
<th>Number (n = 168)</th>
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<td>70 (42)</td>
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(continued on next page)
### TABLE 2 (continued)

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<tbody>
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<td>Cross-Listing in U.K. (UK)</td>
<td>Number (%)</td>
<td>Number (%)</td>
<td>Number (%)</td>
<td>Number (%)</td>
</tr>
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<td>Cross-Listing in U.S. (US)</td>
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<td>25 (15)</td>
<td>27 (14)</td>
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</table>

*For the period 1997–1999, means across years of all test and control variables are reported.*

**Variable Definitions:**
- \( OC \) = proportion of outstanding stock owned by outside block holders;
- \( MO \) = proportion of shares held by members of the management board;
- \( LEV \) = ratio of book value of total debt to sum of market value of equity and book value of debt;
- \( SIZE \) = sum of market value of equity and book value of debt in billion euros;
- \( FO \) = ratio of number of foreign subsidiaries to total subsidiaries;
- \( PR \) = ratio of net income to book value of total assets;
- \( SG \) = proportion of year-to-year sales growth;
- \( INV \) = ratio of book value of inventory to book value of total assets;
- \( REC \) = ratio of book value of receivables to book value of total assets;
- \( OD \) = ratio of independent outside directors to total directors;
- \( MAN \) = indicator equal to one if firm operates in the manufacturing sector, and zero otherwise;
- \( TRADE \) = indicator equal to one if firm operates in the trade sector, and zero otherwise;
- \( AQ \) = indicator equal to one if the firm’s external auditor is a Big 6 or Big 5 firm, and zero otherwise;
- \( UK \) = indicator equal to one if the firm’s shares are cross-listed in the U.K., and zero otherwise; and
- \( US \) = indicator equal to one if the firm’s shares are cross-listed in the U.S., and zero otherwise.

### Univariate Analysis

Table 3 presents pair-wise Spearman-rank correlations among the test and control variables and \( ICD \) over the period 1997–1999. The first column of Table 3 provides a univariate test for the relationship between \( ICD \) and each of the explanatory variables. Consistent with our expectations, \( OC \) and \( MO \) are significantly negatively correlated with \( ICD \) (p < .05 and p < .01, respectively), and \( LEV \) is significantly positively correlated with \( ICD \) (p < .01). This provides preliminary support for our hypothesis that managers are more (less) likely to report on internal control if information and agency problems are higher (lower). \( ICD \) is further positively correlated with the control variables \( SIZE, FO, US, UK, \) and \( AQ \) (p < .01).

### Multivariate Analysis

We use ordered probit analysis to estimate a multivariate model with all specified test and control variables included simultaneously (Aitchison and Silvey 1957; Greene 2000). The ordered probit model takes into account the ordinal nature of \( ICD \). Table 4 shows the results of the ordered probit analysis for separate years and across years. For the analysis across years, the aggregate \( ICD \) from 1997–1999 (as presented in Table 1, Panel B) is regressed on three-year means of all test and control variables for all unique firms in the

---

17 Kendall’s tau yields identical results for both direction and significance of all reported correlation coefficients.
18 Although the outcome of \( ICD \) is discrete, multinomial logit analysis would fail to account for the ordinal nature of this variable.
### TABLE 3

Spearman-Rank Correlations among ICD, Test and Control Variables in the Period 1997–1999 (n = 192)<sup>a,b,c</sup>

<table>
<thead>
<tr>
<th></th>
<th>ICD</th>
<th>OC</th>
<th>MO</th>
<th>LEV</th>
<th>SIZE</th>
<th>FO</th>
<th>PR</th>
<th>SG</th>
<th>INV</th>
<th>REC</th>
<th>MAN</th>
<th>TRADE</th>
<th>US</th>
<th>UK</th>
<th>AQ</th>
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<tbody>
<tr>
<td>OC</td>
<td>-1.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>MO</td>
<td>-0.26</td>
<td>-0.30</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEV</td>
<td>0.20</td>
<td>0.15</td>
<td>0.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>0.53</td>
<td>-0.20</td>
<td>-0.25</td>
<td>-0.04</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FO</td>
<td>0.34</td>
<td>-0.22</td>
<td>-0.08</td>
<td>0.14</td>
<td>0.40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PR</td>
<td>-0.03</td>
<td>-0.15</td>
<td>0.24</td>
<td>-0.57</td>
<td>0.09</td>
<td>-0.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SG</td>
<td>-0.07</td>
<td>-0.19</td>
<td>0.39</td>
<td>-0.41</td>
<td>0.14</td>
<td>-0.01</td>
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</tr>
<tr>
<td>INV</td>
<td>-0.03</td>
<td>0.08</td>
<td>0.05</td>
<td>0.36</td>
<td>-0.23</td>
<td>0.01</td>
<td>-0.15</td>
<td>-0.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REC</td>
<td>-0.07</td>
<td>-0.09</td>
<td>0.27</td>
<td>0.00</td>
<td>0.17</td>
<td>-0.10</td>
<td>0.18</td>
<td>0.15</td>
<td>0.11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAN</td>
<td>-0.01</td>
<td>0.01</td>
<td>0.06</td>
<td>0.11</td>
<td>-0.13</td>
<td>0.18</td>
<td>-0.08</td>
<td>-0.27</td>
<td>0.43</td>
<td>0.23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRADE</td>
<td>0.05</td>
<td>0.16</td>
<td>0.00</td>
<td>0.17</td>
<td>-0.01</td>
<td>-0.15</td>
<td>-0.05</td>
<td>-0.02</td>
<td>0.37</td>
<td>-0.03</td>
<td>-0.38</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>0.29</td>
<td>-0.13</td>
<td>-0.20</td>
<td>-0.10</td>
<td>0.51</td>
<td>0.27</td>
<td>-0.01</td>
<td>-0.02</td>
<td>-0.12</td>
<td>-0.23</td>
<td>0.04</td>
<td>-0.08</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>0.31</td>
<td>-0.18</td>
<td>-0.10</td>
<td>-0.06</td>
<td>0.37</td>
<td>0.21</td>
<td>0.10</td>
<td>-0.04</td>
<td>-0.04</td>
<td>-0.16</td>
<td>0.04</td>
<td>-0.02</td>
<td>0.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AQ</td>
<td>0.19</td>
<td>0.00</td>
<td>-0.20</td>
<td>0.16</td>
<td>0.22</td>
<td>0.16</td>
<td>-0.19</td>
<td>-0.10</td>
<td>0.12</td>
<td>-0.07</td>
<td>0.00</td>
<td>0.08</td>
<td>0.11</td>
<td>0.07</td>
<td></td>
</tr>
<tr>
<td>OD</td>
<td>0.08</td>
<td>0.19</td>
<td>-0.27</td>
<td>0.13</td>
<td>-0.09</td>
<td>-0.01</td>
<td>-0.24</td>
<td>-0.19</td>
<td>0.16</td>
<td>-0.18</td>
<td>0.11</td>
<td>0.03</td>
<td>0.03</td>
<td>-0.04</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<sup>a</sup> Bold indicates significance at p < .05, based on two-tailed tests. Absolute values of correlation coefficients > 0.18 are significant at p < .01, based on two-tailed tests.

<sup>b</sup> See Table 2 for variable definitions.

<sup>c</sup> Aggregate ICD across years (as presented in Table 1, Panel B) and means across years of all test and control variables (as presented in Table 2) are used to calculate the reported correlation coefficients. Correlations coefficients for separate years are similar and not reported due to space limitations.
### TABLE 4
**Ordered Probit Regressions of ICD and ALT.ICDa,b**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Test Variables:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OC</strong></td>
<td>–</td>
<td>−1.08***</td>
<td>−.94***</td>
<td>−1.06***</td>
<td>−1.26***</td>
</tr>
<tr>
<td><strong>MO</strong></td>
<td>–</td>
<td>−2.13***</td>
<td>−1.49***</td>
<td>−1.01**</td>
<td>−1.47***</td>
</tr>
<tr>
<td><strong>LEV</strong></td>
<td>+</td>
<td>.43</td>
<td>1.54***</td>
<td>1.53***</td>
<td>1.50***</td>
</tr>
</tbody>
</table>

| **Control Variables:** | | | | | |
| **SIZE** | .02 | .04** | .01 | .04** | .05** |
| **FO** | 1.09*** | .86*** | .55* | .86*** | 1.02*** |
| **PR** | 3.11** | 1.84*** | .95 | 2.29*** | 1.56 |
| **SG** | −.22 | −.06 | .11 | .12 | .35* |
| **INV** | .17 | −1.40 | −2.09*** | −1.22 | −1.56 |
| **REC** | .09 | .01 | −.13 | .29 | .53 |
| **MAN** | −.04 | .12 | .11 | .14 | .18 |
| **TRADE** | .24 | .43 | .62** | .58** | .91*** |
| **US** | −.15 | −.03 | .11 | .14 | .18 |
| **UK** | .75* | .68 | 1.17** | .76* | .93** |
| **AQ** | .40 | .41 | .24 | .33 | .42 |
| **OD** | 1.46 | 1.32 | 1.02 | 1.59* | 1.95** |

| Log likelihood | −204.62 | −198.78 | −208.70 | −224.83 | −130.60 |
| Wald χ² | 82.24*** | 102.89*** | 77.13*** | 105.52*** | 105.64*** |
| Pseudo R² | 13% | 16% | 14% | 16% | 25% |
| Sample size | 155 | 168 | 167 | 192 | 192 |

---

*a, **, *** indicate significance at p < .10, p < .05, and p < .01, respectively, based on one-tailed tests for the test variables and two-tailed tests for the control variables.*

b For the regression analysis across 1997–1999, aggregate ICD across years (as presented in Table 1, Panel B) and ALT.ICD across years is regressed on means across years of all test and control variables (as presented in Table 2).

---

Additional tests gave no indication of multicollinearity problems in the regressions. Pseudo R² is 13, 16, 14, and 16 percent for the analysis of 1997, 1998, 1999, and 1997–1999, respectively, and the models’ fit is significant at p < .01 in all cases.

The results of the ordered probit regression across years shows that the three test variables are significantly associated with ICD at the 1 percent level in the direction predicted. Furthermore, OC is significant and negative at p < .01 in all three years. MO is

---

19 Simply pooling the observations and including a set of year dummies (time fixed effects) would underestimate the true standard errors because it ignores serial correlation (Wooldridge 2006, 448–498). Our results are robust to estimating a random effects model using feasible generalized least squares.

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*Deumes and Knechel*  
*Auditing: A Journal of Practice & Theory, May 2008*
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significant and negative in two years at $p < .01$ and one year at $p < .05$. Finally, $LEV$ is significant and positive in two years ($p < .01$) but insignificant in 1997. We interpret these results as providing strong support for all three hypotheses. Overall, finding that $ICD$ varies systematically with our proxies for information and agency problems suggests that there are economic reasons why managers voluntarily report more (or less) on internal control. It also confirms the view that managers weigh the costs and benefits, and report only if benefits in the form of reduced efficiency loss of information and agency problems outweigh the costs.

Several control variables proxy for inherent risk, which can increase the likelihood of reporting because there is greater investor demand for information, or decrease the likelihood if it results in weaker internal controls on which management would report. $SIZE$ is significantly positively associated with $ICD$ in 1998 and across years. $FO$ is significant positive in all separate years and across years, indicating that managers are more likely to report if complexity and scope of operations is higher. $PR$ is significantly associated with $ICD$ in 1997 and 1998 as well across years. This suggests that more resources available to invest in internal control leads to stronger internal controls for managers to report on.20 We find no significant association for $SG$, $INV$, and $REC$ except for one negative association between $INV$ and $ICD$ in 1999. $TRADE$ shows that firms operating in the trade sector are significantly more transparent about internal controls in 1999 and across years. A cross-listing of shares in the UK is associated with more internal control reporting in 1997, 1999 and across years (but $US$ is not). This is presumably due to stricter requirements regarding internal control reporting in the UK. Finally, $AQ$ is not associated with $ICD$, while the coefficient of $OD$ is marginally significant and positive across years. The latter provides some evidence that independent supervisory board members improve investors’ perception of the credibility of internal control disclosures.

Supplemental Analysis

Recognizing that our primary test variables may contain measurement error, we re-estimated our results using a large number of alternative measures. First, results for $OC$ (not reported) are robust to (1) defining outside block holders as shareholdings of nonmanagers greater than 10 percent, (2) measuring $OC$ as an indicator that is equal to one if at least 5 or 10 percent of shares are held by outside block holders, and (3) transforming $OC$ to a decile ranking. Second, results for $MO$ are robust to (1) measuring $MO$ as an indicator that is equal to one if at least 5 percent of shares are held by members of the management board and (2) transforming $MO$ to a decile ranking. As can be seen from Table 2, while more than half of the firms do not have substantial management shareholdings, the maximum reaches 96 percent. Finally, results for $LEV$ are robust to transforming $LEV$ in a decile ranking.

An important assumption in the construction of $ICD$ is that managers’ choice to report on items comprising the disclosure index is not mandatory. One can question, however, to what extent this assumption is entirely valid for Item 1 and Item 6, as reporting on these items was recommended by a high profile national committee (Peters Committee 1997). Although managers had unconditional freedom to decide whether or not to apply these recommendations at the time of the study, they are likely to have faced more external pressure to report on these items. In essence, the term voluntary implies freedom of choice.

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20 The results for $PR$ should be interpreted carefully. The results for $PR$ are robust to dropping observations with extremely high financial leverage ($LEV$ in the highest decile); they are not robust to dropping observations with losses ($PR$ smaller than zero). Results for $LEV$ are robust in either case.
without external compulsion. Consequently, disclosure of Item 1 and Item 6 can be considered less voluntary in nature relative to disclosure of Items 2 through 5. In line with this reasoning, reporting on Items 1 and 6 is relatively high (see Panel A of Table 1).

To address this issue, we alternatively specify ALT_ICD 1997–1999 as a three-level ordered variable measuring the degree to which firms voluntary comply with national or international best practice recommendations across years. ALT_ICD 1997–1999 equals zero if a firm does not comply with any national or international best practice recommendation (i.e., no disclosure of any item in at least half of the years that a firm is included in the sample), one if a firm complies with any national best practice recommendation (i.e., voluntary disclosure of Item 1 and/or 6 in at least half of the years that a firm is included in the sample), and two if a firm complies with any international best practice recommendation over and above any national best practice recommendations (i.e., voluntary disclosure of Item 2, 3, 4, and/or 5 in addition to disclosure of Item 1 and/or 6 in at least half of the years that a firm is included in the sample). For the 192 unique firms in the sample, ALT_ICD equals zero for 52 firms (27 percent), equals one for 117 firms (61 percent), and equals two for 23 firms (12 percent). Notably, all firms that comply with any international best practice recommendation also comply with any national best practice recommendation (i.e., there are no firms that comply with any international but not with any national best practice).

Table 4 shows the results of the ordered probit regressions of ALT_ICD on three-year means of all test and control variables for all unique firms in the sample. Pseudo R² is 25 percent and the models’ fit is significant at p < .01. The results show that the three test variables are significantly associated with ALT_ICD at the 1 percent level in the direction predicted. We interpret this results as providing additional support for all three hypotheses. With respect to the control variables, the results also corroborate our findings, except for PR, which is not significantly associated with ALT_ICD. The positive association for TRADE, UK, and OD, however, is more significant, and the coefficient for SG is now also marginally significant. The latter provides some evidence that higher inherent risk due to faster sales growth increases managers’ incentives for voluntary disclosure on internal control.

The measurement of ICD and ALT_ICD involves potential measurement error. First, the disclosed items may not be equally informative to investors. If an item does not have any information content, the disclosure index may be overstated and could not be explained by variables derived from agency theory. Second, the various items may be more or less costly to disclose. Consequently, our results may be sensitive to inclusion/exclusions of some items and to the equal weighting scheme used. To test the sensitivity of our results to the specification of ICD and ALT_ICD, we recomputed the results if one or more items are excluded from these indexes. Additionally, we tried various weighting schemes for ICD that put substantially more or less weight on each item. The results of these tests (not reported) lead us to conclude that Items 1, 3, 4, 5, and 6 are substantive disclosures, but Item 2 may have been a form of “boilerplate” disclosure with little meaning, and can be excluded from the index without affecting the analysis.

Next, we tested each item separately using probit analysis. Consistent with our other sensitivity results, Table 5 shows that disclosure of all items is significantly associated with at least one proxy with the exception of Item 2. More specifically, Item 1 is significantly associated with OC (p < .10), MO (p < .05), and LEV (p < .10); Item 3 is significantly associated with MO (p < .01), and LEV (p < .01); Item 4 is significantly associated with MO (p < .01); Item 5 is significantly associated with OC (p < .01), and MO (p < .10);
### TABLE 5
Probit Regressions of Elements of ICD in the Period 1997–1999

<table>
<thead>
<tr>
<th>Predicted Sign</th>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
<th>Item 4</th>
<th>Item 5</th>
<th>Item 6</th>
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<tbody>
<tr>
<td>Intercept</td>
<td>-1.22*</td>
<td>-4.02***</td>
<td>-7.64***</td>
<td>-2.45*</td>
<td>-3.20*</td>
<td>-2.42**</td>
</tr>
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<tr>
<td>OC</td>
<td>-</td>
<td>- .60*</td>
<td>- .94</td>
<td>-1.05</td>
<td>- .74</td>
<td>-2.03***</td>
</tr>
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<td>-</td>
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<td>- .28</td>
<td>-11.85***</td>
<td>-12.39***</td>
<td>-10.93*</td>
</tr>
<tr>
<td>LEV</td>
<td>+</td>
<td>.90*</td>
<td>.54</td>
<td>5.20***</td>
<td>- .55</td>
<td>.44</td>
</tr>
<tr>
<td>Control Variables:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIZE</td>
<td>.03</td>
<td>.03</td>
<td>.05**</td>
<td>.00</td>
<td>.02</td>
<td>.65***</td>
</tr>
<tr>
<td>FO</td>
<td>.42</td>
<td>1.46**</td>
<td>3.31***</td>
<td>2.57**</td>
<td>.83</td>
<td>.60</td>
</tr>
<tr>
<td>PR</td>
<td>3.77***</td>
<td>4.31*</td>
<td>5.50</td>
<td>8.40***</td>
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<td>- .61</td>
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<tr>
<td>SG</td>
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<td>- .41</td>
<td>- .23</td>
<td>- .14</td>
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<td>.21</td>
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<td>INV</td>
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<td>- .11</td>
<td>- .95</td>
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<tr>
<td>REC</td>
<td>- .23</td>
<td>- .29</td>
<td>4.64**</td>
<td>1.96</td>
<td>-28</td>
<td>.67</td>
</tr>
<tr>
<td>MAN</td>
<td>.01</td>
<td>.07</td>
<td>.17</td>
<td>- .08</td>
<td>- .21</td>
<td>.70**</td>
</tr>
<tr>
<td>TRADE</td>
<td>.26</td>
<td>1.12***</td>
<td>2.04***</td>
<td>- .05</td>
<td>.46</td>
<td>.70*</td>
</tr>
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<td>-.98*</td>
<td>-1.48**</td>
<td>- .63</td>
<td>- .11</td>
<td>NA</td>
</tr>
<tr>
<td>UK</td>
<td>.26</td>
<td>1.63***</td>
<td>3.62***</td>
<td>.98**</td>
<td>1.29**</td>
<td>NA</td>
</tr>
<tr>
<td>AQ</td>
<td>.12</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>.20</td>
</tr>
<tr>
<td>OD</td>
<td>1.13</td>
<td>1.57</td>
<td>3.83*</td>
<td>-2.96</td>
<td>2.58</td>
<td>1.44</td>
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<tr>
<td>Log likelihood</td>
<td>-116.51</td>
<td>-28.02</td>
<td>-16.57</td>
<td>-20.43</td>
<td>-35.67</td>
<td>-78.54</td>
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<tr>
<td>Wald $\chi^2$</td>
<td>27.00**</td>
<td>45.48***</td>
<td>53.45***</td>
<td>25.43**</td>
<td>71.23***</td>
<td>48.16***</td>
</tr>
<tr>
<td>Pseudo R$^2$</td>
<td>11%</td>
<td>33%</td>
<td>63%</td>
<td>32%</td>
<td>35%</td>
<td>30%</td>
</tr>
<tr>
<td>Sample size</td>
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<td>192</td>
<td>192</td>
<td>192</td>
<td>192</td>
<td>163</td>
</tr>
</tbody>
</table>

*, **, *** indicate significance at $p < .10$, $p < .05$, and $p < .01$, respectively, based on one-tailed tests for the test variables and two-tailed tests for the control variables.

a See Table 2 for definitions of the test and control variables. Reporting of each item across years is regressed on means across years of all test and control variables. Each item is considered reported across years if a firm mentioned it in at least half of the years that it is included in the sample. Reported results for the test variables are generally robust to considering each item present if it was reported in any year that a firm is included in the sample or in each year.

**Definitions of Dependent Variables:**

*Item 1* = indicator equal to one if supervisory board reported that they discussed the internal control system, and zero otherwise;

*Item 2* = indicator equal to one if the management board reported on the purpose of the internal control system, and zero otherwise;

*Item 3* = indicator equal to one if the management board reported in the majority of years their responsibility for internal control, and zero otherwise;

*Item 4* = indicator equal to one if the management board reported in the majority of years on the effectiveness of internal controls, and zero otherwise;

*Item 5* = indicator equal to one if the management board reported in the majority of years about the role of the internal auditor with respect to internal control, and zero otherwise; and

*Item 6* = indicator equal to one if the management board disclosed specific activities to manage risk, and zero otherwise.
Item 6 is significantly associated with \( OC \) (\( p < .01 \)), and \( LEV \) (\( p < .01 \)). Although the drivers for disclosing each item seem to differ, it is difficult to really separately predict and interpret each item, as the level of voluntary disclosure on internal control is presumably a “portfolio” decision by the firm.

Lennox (2005) points out that managerial ownership can affect agency costs in two ways. While the literature indicates that the alignment-of-interests effect that we hypothesize may dominate within low and high regions of managerial ownership, there is also a possibility that an opposing entrenchment effect occurs within an intermediate region of managerial ownership (Morck et al. 1988). When managerial ownership falls into this intermediate range, they can often insulate themselves from external pressure and their incentives are likely to differ when compared to a smaller (or larger) share of the ownership structure. There is no empirical evidence available in The Netherlands to indicate what this intermediate range of managerial ownership would be (or if it exists). However, to test for the possibility of managerial entrenchment, we re-estimated our results after dropping observations within an intermediate region of \( MO \). We tested three possible ranges of entrenchment: (1) 5% to 25%, (2) 10% to 40%, and (3) 15% to 50%. The results (not reported) are qualitatively identical to our primary results in Table 4.

**SUMMARY, LIMITATIONS, AND IMPLICATIONS**

We examine the relationship between the extent of voluntary reporting on risk management and internal control and information and agency problems using a sample of publicly traded firms in The Netherlands during the period 1997–1999. A disclosure index consisting of six reportable items measures the extent of voluntary internal control reporting. Management shareholdings, block holder ownership, and financial leverage proxy for information and agency problems. Overall, we find that the extent of voluntary internal control reporting is positively associated with indications of information and agency problems. This is consistent with the explanation that in a low-regulation environment, managers will voluntarily report on internal control to reduce the efficiency loss of these problems. Sensitivity tests show that all but one of the reported items contribute to the results. Additionally, we find some evidence that the extent of internal control reporting varies with firms’ inherent risk, as proxied by a number of operating characteristics. Based on the results for the test variables, we conclude that managers make a conscious trade-off of the costs and benefits when making internal control disclosures.

Our findings may be relevant to the public policy debate on internal control reporting. While the Public Company Accounting Oversight Board (PCAOB) now requires U.S. registrants to report on internal control over financial reporting, nonpublic companies in the U.S. and businesses in most other countries are not required to produce such reports, or are given an option to “disclose or explain.” The Sarbanes-Oxley Act (SOX) demands a very specific and detailed documentation of financial reporting controls while broader frameworks favor principles-based approaches that consider risk management in the broadest business sense. Recent developments in The Netherlands have increased the regulation

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21 The control variable \( AQ \) had to be dropped in the probit analyses of Items 2 through 5 because no firms with low external audit quality reported on these items. The 13 observations with low external audit quality are nonetheless used in the analyses because univariate Chi-square tests suggest that low external audit quality is not associated with reporting on Items 2 through 5. Reported results are robust however to not using observations with low external audit quality. The control variables \( US \) and \( UK \) had to be dropped in the probit analysis of Item 6 because all 29 firms with a cross-listing reported on Item 6. Because univariate Chi-square tests indicate that firms with a cross-listing are actually more likely to report on Item 6 (\( p < .01 \) for both \( US \) and \( UK \)), 29 observations with a cross-listing in the \( US \) and/or the \( UK \) are not used in the analysis, which reduces the sample size to 163. Reported results are robust to including the 29 observations with a cross-listing.
of reporting on internal control. Such reports are no longer “voluntary” in the sense that Dutch firms are now required to (1) comment on the existence of operating and strategic controls consistent with COSO and the Turnbull Committee and (2) report on the effectiveness of internal control over financial reporting. However, Dutch firms do have the option to either comply with these best practice provisions or explain why they are not complying (Monitoring Committee Corporate Governance Code 2005). Thus, current rules adopt a combination of a broad business view of internal control and the more narrow SOX-based perspective.

More generally, the European Corporate Governance Forum (2006) advised the European Commission that “a careful examination of ... experience should be carried out before considering any further legislation or other measure at the EU level.” In the U.S., thoughtful commentators have begun to question the application of Section 404 with the Committee on Capital Markets Regulation (2006) calling for a “risk-based” regulation process that focuses on the costs and benefits of internal control reporting. Even the PCAOB has considered adjustments to the reporting on internal control as evidenced by the recently proposed Auditing Standard No. 5 which would require a risk-based, process-oriented approach to internal control evaluation and would remove the auditor’s report on management’s assessment of internal control (PCAOB 2006). Thus, the question of internal control reporting is not yet settled as regulators grapple with the breadth (financial reporting versus COSO-based controls) and depth (rules versus principles based approaches) of internal control reporting.

Our findings provide support for subsequent governance reforms in The Netherlands (and other jurisdictions) that favor a principles-based, nonprescriptive approach to internal control reporting. A principles-based approach to business-based controls better recognizes the need of firms to tailor internal control systems and reports to suit their specific environments. The broad scope is considered useful by both management and investors since the broader range of risks that are considered reflect the major determinants of a company’s soundness (Monitoring Committee Corporate Governance Code 2005). Our results suggest that requiring managers to make internal control disclosures that they would not make voluntarily, may force them to incur additional costs that can decrease firm value. This may particularly apply to a mandated statement on the (in)effectiveness of internal controls since our analysis shows that managers generally prefer to report on the existence of internal controls, as opposed to their effectiveness. A particular concern of regulators may be that the overall level of voluntary internal control disclosure is “not sufficient.” In a voluntary setting, as opposed to a mandatory setting, managers can (and do) choose to not disclose “unfavorable” information about internal control (e.g., weaknesses). However, this may be economically efficient because investors, who expect full disclosure, can infer the worst from nondisclosure and require a higher risk premium. Consequently, if managers choose not to disclose, the benefits of lowering the risk premium may not outweigh the cost of making the disclosure.

Our paper is subject to possible limitations. First, as discussed in detail, there may be various measurement issues related to ICD and other variables. Furthermore, our measure of financial leverage proxies for agency problems between shareholders and debt holders. However, we cannot distinguish private debt (bank loans) from public debt (corporate bonds). This distinction may be relevant because Dutch banks play an active role in monitoring management (De Haan and Hinloopen 2003; Krishnaswami et al. 1999). Consequently, the demand for internal control disclosure from private debt holders may be lower.
than the demand from public debt holders. Third, our proxy for ownership concentration reflects agency problems between managers and shareholders. While block holder monitoring decreases information asymmetry and agency problems between managers and shareholders (as we argue), conflicts between block holders and small shareholders may increase at the same time, possibly affecting management’s incentive to disclose. Finally, the possibility arises that at least some firms simply included “boiler plate” terminology in their reports to create the appearance that they were following best practices of the time. Future research might address these limitations in detail and address related issues such as balancing a focus on financial reporting and the business necessity of controlling a broader set of risks, the appropriate balance between rules and principles based regulation, and the role of the auditor in evaluating internal control disclosures. Such research could explicitly examine the effects of the changing institutions and regulatory regimes of the past few years.

APPENDIX

ELEMENTS OF INTERNAL CONTROL DISCLOSURE INDEX (ICD)

- **Item 1**: The Peters Committee (1997) recommended that at least once a year the supervisory board should discuss the results of the executive directors’ assessment of internal control. The fact that such a discussion has been held (but not necessarily the content of the discussion) should be mentioned in the supervisory board’s report included in the firm’s annual report.

  Item 1 takes a value of one if the report discloses that the supervisory committee discussed internal control.

Examples of disclosures for Item 1 include: “in our meetings attention was paid to the internal control system” or “in the presence of the external auditor, the internal control system was discussed.” In The Netherlands, the supervisory board is a vital corporate governance mechanism that monitors management. By reporting on this item, the supervisory board can inform investors that it also has an eye for management’s activities with respect to internal control. It was one of the few recommendations made on internal control reporting by the Dutch corporate governance committee. Reporting this item truthfully is not cost-free as it requires the supervisory board to acquire the information necessary to assess internal controls, and discuss this information in their meetings. Managers, in turn, will likely make more investments in internal control so as to not look bad to the supervisory board.

- **Item 2**: COSO (1992) recommended that management report whether a system has been established to achieve the objectives of internal control.

  Item 2 takes a value of one if the management board states the objectives of their firm’s internal control system in the annual report.

Reported objectives of internal control include managing risk associated with business activities, controlling the effectiveness and efficiency of business activities, safeguarding assets, complying with laws and regulation, and providing reliable reports. It is unclear beforehand whether this information is relevant for financial statement users, i.e., helps them monitor management. General objectives of internal control may be evident for example to anyone familiar with the COSO report. It is also unclear why this item is costly for firms to disclose.

- **Item 3**: COSO (1992), the Cadbury Committee (1992a), the Hampel Committee (1998a), and the Turnbull Committee (1999) have all emphasized management’s
responsibilities for internal control and recommended that management report on those responsibilities.

Item 3 takes a value of one if management acknowledges its responsibility for internal control in the annual report.

Most firms reporting on this item stated that “management is responsible for the functioning of the internal control system.” Again, one can question how much information this statement conveys to users of financial statements. After all, management is responsible for internal control by default. Nevertheless, being responsible and taking responsibility may differ notably in this context. Investors may perceive for example that management puts its reputation at stake by taking blame beforehand for potential mistakes and fraudulent behavior of subordinates that could have been prevented by adequate internal controls.

- **Item 4:** COSO (1992), the Cadbury Committee (1992a) and the Hampel Committee (1998a) recommended that directors report on the effectiveness of the firm’s system of internal control.

  Item 4 takes a value of one if directors give an opinion on the effectiveness of internal control.

Generally, firms reporting on Item 4 stated that “the management board considers the internal control system to be adequate” or “the system provides reasonable assurance,” without addressing the criteria for those assessments.²² Despite inherent limitations of internal control and uncertainty about the criteria used for the evaluation of internal controls, this item is likely informative for financial statement users. The Tabaksblat Committee (2003) nowadays strongly encourages reporting on this item. Disclosure is costly due to the need to collect and evaluate information necessary to assess internal controls. Additionally, managers put their reputation at stake and risk incurring litigation costs when internal controls fail afterwards in detecting errors or employee fraud.

- **Item 5:** The Turnbull Committee (1999) and COSO (1992) recommended reporting about internal auditing to indicate how management monitors internal control.

  Item 5 has a value of one if the annual report describes the role of internal auditing in the firm.

Typically, firms make statements similar to: “the internal auditors monitor the internal control system and report their findings to the management board.” Part of the function of the internal auditor is to monitor internal controls. Nevertheless, this item is likely informative to financial statement users because internal auditing departments are not common in Dutch firms and it is difficult for them to find out which firms have an internal auditing department and which firms don’t. Because of

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²² None of the firms that at least once report on Item 4 explicitly state that internal controls are ineffective. Two firms though explicitly point out weaknesses, while at the same time considering internal controls on the whole to be adequate. One firm reported that it started to perform internal audits during 1997 and that these audits pointed to significant improvements in internal controls in 1997 and 1998. In 1999 this firm reported that no major weaknesses in the internal control systems were found. While none of the firms reporting on Item 4 state a best practice framework used to evaluate internal controls (e.g., COSO), most specify the purpose and nature of internal controls. Virtually all firms associate internal control with risk management and about half of firms state that their internal control system is designed to monitor the effectiveness and efficiency of operations, safeguard assets, or ensure compliance with rules and regulations.
the wide range of internal auditing practices, reporting this item may reassure investors that management adequately invests in internal auditing.

- Item 6: COSO (1992) identifies risk assessment as an important component of internal control and the Turnbull Committee (1999) mentions that internal control should include an on-going process for identifying, evaluating, and managing risk. The Peters Committee (1997) recommended that the main mechanisms to control risk should be a permanent part of the annual report.

Item 6 has a value of one if a firm discloses specific risk management activities.

Typically, firms mentioned activities to transfer risk (e.g., through derivatives or insurance), activities to share risk (e.g., via alliances or pricing), policies and procedures to mitigate risk (e.g., credit checks or centralized approvals), and activities to avoid risk (e.g., avoiding interest rate risk by borrowing in local currencies). Together with Item 1, it was the only recommendation made on internal control reporting by the Dutch corporate governance committee. A potential cost of reporting this item is the cost of revealing proprietary information to competitors, who may exploit information on specific risk management activities to the detriment of the disclosing firm.

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