

**RULES RATHER THAN DISCRETION IN AUDIT STANDARDS:
GOING-CONCERN OPINIONS IN BELGIUM**

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ABSTRACT:

We study going-concern (GC) reporting in Belgium to examine the effects associated with a shift toward rules-based audit standards. Beginning in 2000, a major revision in Belgian GC audit standards took effect. Among its changes, auditors must ascertain whether their clients are in compliance with two “financial-juridical criteria” for board of directors’ GC disclosures. In a study of a sample of private Belgian companies, we report two major findings. First, there is a decrease in auditor Type II errors, particularly by non-Big 6/5 auditors for their clients that fail both criteria. Second, there is an increase in Type I errors, again particularly for companies that fail both criteria. We also conduct an *ex post* analysis of the decrease in Type II errors and the increase in Type I errors. Our findings suggest the standard engenders both favorable and unfavorable effects, the net of which depends on the priorities assigned to the affected parties (creditors, auditors, companies and employees).

Keywords: *Audit standards, auditing, going-concern opinions, Type I and Type II errors*

Data Availability: *Data are available upon request*

I. INTRODUCTION

Assuming standard setters endorse the premise that auditors modify their opinions due to uncertainty about a company's going-concern (GC) status, should professional guidance refer to pre-announced rules or should it be discretionary in nature, so as to allow auditors a latitude of choice to tailor their decisions to prevailing circumstances? While, at least since Friedman (1948), economists recommend that policymakers follow *rules rather than discretion*, audit standard setters usually promulgate a substantial degree of discretion regarding GC judgments.¹

We study the relation between the nature of GC audit standards, in terms of the extent to which they promulgate discretion or rules-based guidance, and auditor reporting for stressed companies. Our context is Belgium where, in 2000, an audit standard for clients experiencing stress became effective. In contrast to its predecessor, a non-binding "circular letter" allowing for considerable discretion, the standard is a major increase in responsibilities, prominent among which auditors must ensure that a company in financial distress complies with certain rules-based, legal requirements for board of director disclosures. Per a 1997 change to Belgian Company Law, if a company has negative retained earnings in the current year or negative net income for both the current and prior years, the board must justify the use of valuation rules that assume a company's GC status. The GC audit standard specifically references these legal requirements for board GC disclosures. If a client meets, or threatens to meet, either of these financial-juridical criteria, the auditor must remind the board of its responsibility to provide GC disclosures and then opine accordingly. As such, because these criteria influence the board's GC disclosure decision and, in turn, the auditor's GC opinion decision, the standard represents a shift

¹ For example, per U.S. audit standards on GC reporting, whereas "substantial doubt" regarding an entity's ability to continue as a going concern is the "trigger point" for report modification, SAS No. 59 intentionally does not provide a definition of either of these constructs (Carmichael and Pany 1993). As for Belgium, because prior to 2000 there was no standard on GC reporting whatsoever, the auditor's decision was arguably even more discretionary.

toward rules rather than discretion. Put another way, because the standard expressly requires auditors to remind the board of its rules-based GC disclosure responsibilities, there is now an implied minimum for auditors to look at to assess the GC status of their client. Therefore, while Belgian auditors still have discretion vis-à-vis their opinion decision, the audit standard reduces the extent of the discretion prevailing during the previous discretionary (circular letter) regime.²

Among the reasons the economics literature advocates rules rather than discretion is that rules, given a credible commitment to enforce them (Kydland and Prescott 1977), can restrain a tendency toward leniency stemming from a decision maker's concern for self-interest. Boot and Thakor (1993) formalize this insight in a model of a regulator's bank closure decision. The regulator seeks to maximize a weighted objective function of societal welfare and personal gain from attaining/protecting its reputation as high quality. Because of this latter component, the researchers show that the regulator's equilibrium closure policy is too lax and allows a bank to continue operations when it otherwise should not. Boot and Thakor (1993, 211) conclude that "[a] simple way to minimize closure-policy distortions is to reduce regulatory discretion by stipulating a minimum (positive) amount of bank book capital needed to avoid closure ... Indeed, we advocate rules rather than discretion."

While such reputation motives are likely present, auditors also have the incentive to be lenient simply because they "may be reluctant to disclose perceived [going-concern] problems,

² The rules-based nature of the standard is evident in both the standard itself and in the opinion of practitioners. Per the audit standard, "[t]he requirement for the Board of Directors to justify the application of valuation rules in the assumption of continuity ... should not be considered equal to a situation of discontinuity ... this financial-juridical criterion merely constitutes an incitement for reflection on the possibility of the company to continue its operations"; and "[t]here is no exception on the justification requirement once one of the two criteria is fulfilled. In this way, justification of continuity is required in case of continuous loss even when the balance sheet structure is perfectly healthy, because a lack of profitability can signal an evolution which could become dangerous for a company. Even when a company successfully executes a reorganization plan, but the loss remains on the balance sheet, it is required to justify the possibility of the company to continue its operations." And, in an article in a newsletter published by the Belgian Institute of Registered Auditors, a BDO partner acknowledges the importance of the criteria as "... the going concern opinion decision does not only relate to a juridical responsibility of the auditor but also to a social responsibility to timely signal significant continuity problems" Wilmots (2004).

fearing the loss of the client should the firm continue in operation” (Kida 1980, 507). And, following DeAngelo’s (1981) logic, if as the relative size of a client increases auditors find it harder to maintain independence, their fear of client loss is increasing in client size. Consistent with this reasoning, extant literature (including Belgian) consistently finds that the presence of a GC opinion for a distressed, soon-to-be-bankrupt company varies inversely with client size.

Constraining the influence of self-interest, there were two factors prior to the adoption of the GC standard that made the “costs of acquiescence” (Coffee 2004) for Belgian auditors arguably rather low. First, litigation risk in Belgium is such that auditors have little fear of a lawsuit following the bankruptcy of a client with a clean opinion. Also, as we mention above, because the only GC audit guidance was in the form of a non-binding circular letter from the Belgian Institute of Registered Auditors, for this time period there was literally no formal GC audit standard to which auditors could be held professionally accountable.³

However, following the adoption of the GC standard, the costs of auditor acquiescence should increase because the penalty for rendering an incorrect clean opinion now involves the oversight of the Belgian Institute of Registered Auditors.⁴ Given this development, we show that

³ Overall, in Belgium, the objective of an audit is to form an opinion about whether the financial statements give a ‘true and fair view’ of shareholders’ equity and financial position at the balance sheet date and whether the results accord with relevant legal and administrative requirements. As such, auditors play both reporting and compliance roles, the latter being especially relevant for the private companies that dominate the economy and, per the 4th EU Directive, many of which must undergo audit. Private companies that meet certain criteria must undergo an audit by a member of the Belgian Institute of Registered Auditors. At present, limited liability companies must be audited if they have 100 or more employees, or they satisfy two or more of the following criteria: (1) 50 or more employees; (2) annual turnover (i.e., sales) exclusive of VAT, is equal to or greater than 7.3 million Euros; (3) assets are equal to or greater than 3.65 million Euros. The Belgian Institute of Registered Auditors is a public institute under the authority of the Ministry of Economic Affairs and is assisted by the High Council for Auditing and Accountancy.

⁴ The Belgian Institute of Registered Auditors monitors auditor GC reporting, and extracts of their disciplinary decisions reference auditors’ failure to mention GC problems and sanctions that range from warnings to suspensions of one month up to one year. For example, per Case 0217/2003/F: “The Institute blames X [publicly-available source document omits auditor name] to have issued in its function of statutory auditor of Y [publicly-available source document omits company name] an unqualified opinion on the financial statements of 31/12/2000, while at this date, net assets of the company were negative as well as the net result of the year, and that the report of the Administrative Council of March 2001 does not provide the required information by ... Company Law justifying the valuation rules in case of an accumulated loss or 2 subsequent years of a bottom-line loss. In particular, the Institute

GC rates should increase, per the model in Matsumura et al. (1997). As such, both the frequency of Type I errors (incorrect GCs) should increase and the frequency of Type II errors (incorrect clean opinions) should decrease. In addition, following Boot and Thakor (1993), if Belgium's shift toward a rules-based standard restrains leniency stemming from auditor self-interest, the decrease in Type II errors should be especially acute for larger companies. Overall, the effects of the decision by Belgian standard setters to emphasize rules rather than discretion becomes an empirical issue that involves quantifying these likely changes in Type I and Type II errors.

We collect a sample of stressed, private companies filing bankruptcy in the two years prior to and the two years after the change in Belgian audit standards. We also collect a sample of comparably stressed, private companies in the same industries that did not file bankruptcy during these time periods. We study private companies for practical reasons, as they constitute more than 99 percent of Belgian companies subject to audit (Willekens and Gaeremynck 2005), and because the audit opinion for private companies is arguably more important than that for public companies, as private companies do not disseminate many (if any) voluntary disclosures and because some conclude their financial reporting is of lower quality (Chaney et al. 2004; Ball and Shivakumar 2005, 2008). As such, the audit opinion is likely a major piece of information for stakeholders (e.g., workers and suppliers negotiating labor and credit terms, respectively).

For both of these samples, we find that the change to a rules-based standard is associated with a significant increase in GC opinions. For bankrupt companies, the increase in GCs indicates a decrease in Type II errors; especially for non-Big 6/5 auditors that frequently render a GC opinion to a stressed client that is in violation of both financial-juridical criteria (25 of 29, or

blames to have certified without qualification or explanatory paragraph with respect to the application of the valuation rules concerning the going concern of the company. ... The Disciplinary Committee well understands the concern and hesitation of X to issue a more appropriate opinion for a company in difficulties as it is delicate to issue to company Y that is determined to continue its operations. However, the Disciplinary Committee cannot agree with the chosen solution of giving an unqualified opinion without a qualification or explanatory paragraph."

86 percent). For non-bankrupt companies, the increase in GCs indicates an increase in Type I errors; again, especially involving companies that violate both financial-juridical criteria. Overall, in terms of marginal effects, our findings suggest Belgium's standard manifests as a 33 percent decrease in Type II errors and a 13 percent increase in Type I errors.

We then focus on GC reporting for bankrupt and non-bankrupt companies by estimating separate regressions for the pre- and post-standard periods. In the post-standard period, the presence of a GC is no longer inversely related to company size. That is, after the standard is put in place, larger stressed companies are no longer less likely to have a GC opinion, *ceteris paribus*. This finding contrasts with essentially all extant literature, including Belgian research (Vanstraelen 2002), that documents a "size effect," consistent with the view that auditor self-interest influences GC decisions. Our findings suggest that a rules-based standard mitigates this self-interest, in that we find no evidence consistent with auditor leniency toward larger clients in the post-standard period.

We also conduct an *ex post* analysis of the decrease in Type II errors and the increase in Type I errors. Findings suggest that the standard engenders favorable effects, notably that creditors of soon-to-be-bankrupt companies receive better early warning; as well as unfavorable effects. For instance, for companies that receive a GC but do not file bankruptcy the next year there is some evidence of an increase in auditor switching and employee attrition. Whether benefits outweigh costs, however, depends on how one prioritizes the perspectives of creditors, companies, employees, and auditors (e.g., from a creditor perspective, the effects of the GC standard seem beneficial).

Studies on the effect of changes in standards on auditor GC reporting behavior in the U.S. produce mixed results (Carcello et al. 1995, 1997; Holder-Webb and Wilkins 2000). However,

studies in China (DeFond et al 1999) and in Germany (Ashbaugh and Gassen 2007) report a significant increase in the presence of GC opinions following a change in audit standards. We also extend the literature on the effects of auditor incentives on GC reporting (e.g., McKeown et al. 1991), as we find that after Belgium's shift towards a rules-based standard, the inverse relation between company size and the presence of a GC opinion is no longer evident. In addition, we contribute to the audit literature on private companies (e.g., Chaney et al. 2004) by examining the effect of a change in audit standards on the determinants of GC opinions for a sample of private companies. Finally, because we study the effects of a change in GC audit standards in a low-litigation environment for a sample of small, private companies, our study may have implications for audit standard setters in comparable settings.

II. BACKGROUND AND MOTIVATION

GC Reporting and the Benefits and Costs of Auditor Acquiescence in Belgium

If an auditor renders a GC opinion and it proves *ex post* inappropriate (Type I error) the auditor risks exposure to client loss. Fearful of this consequence, and intent on retaining future economic benefits, auditors have incentive to acquiesce to management's position that there is no substantial doubt regarding GC status and to render a clean opinion. In Belgium, because of restrictions on auditor consulting, employment opportunities and career mobility (Maijoor et al. 1998), such benefits primarily relate to audit fees. Because larger companies pay larger audit fees, the benefits of auditors' acquiescence are increasing in client size. Consistent with this reasoning, Vanstraelen (2002), and many U.S. researchers (e.g., Mutchler 1985, 1986; Krishnan and Krishnan 1996; Mutchler et al. 1997; Louwers 1998), find that the presence of a GC opinion on the financial statements of a stressed Belgian company varies inversely with company size. Among the U.S. studies, McKeown et al. (1991, 11) find this relation persists after controlling

for a relation between company size and bankruptcy which “... raises the issue as to whether auditors’ independence is influenced by the size of the client.”⁵

If an auditor renders a clean opinion and it proves *ex post* inappropriate (Type II error), depending on the setting, the auditor risks exposure to litigation costs. For example, in the high-litigation U.S. context, literature supports a relation among GC reporting for stressed clients, company bankruptcy, and auditor litigation risk (St. Pierre and Anderson 1984; Palmrose 1987; Carcello and Palmrose 1994; Geiger and Raghunandan 2001; Francis and Krishnan 2002). In contrast, the risk of auditor litigation in Belgium is rather benign.⁶ Moreover, as is typical of a continental European country, Belgian law stems from (French) civil tradition based on statutes and codes, banks are major providers of capital (Mueller et al. 1994), investor rights are low (LaPorta et al. 1998) and, before the new GC standard, “... auditing guidelines on going concern assessment ... are rather subjective, general and ambiguous” (Vanstraelen 1999, 44). Collectively, these factors decrease an investor’s demand for auditing and provide auditors with substantial discretion regarding GC reporting.⁷ Overall, prior to the GC standard the costs of auditor acquiescence in Belgium are arguably rather low.

Belgium’s GC Audit Standard

In 2000, the Belgian Institute of Registered Auditors increased auditor GC reporting responsibilities by issuing a formal standard for audits of clients experiencing stress. In contrast

⁵ Prior papers also raise this issue (e.g., see Goldman and Barlev, 1974, 709 “... the potential loss of the audit fee may be a much greater cause for conflict between professional integrity and self-interest”; and DeAngelo 1981).

⁶ Aspects of Belgian law that lower litigation risk for auditors include: no absolute right to a jury trial (judges usually hear cases involving technical accounting evidence); an absence of contingent legal fees; a lack of class action lawsuits; and less liberal discovery rules. Per Gaeremynck and Willekens (2003), “[a]nother notable difference between the American and Belgian audit environment is the lack of auditor litigation in Belgium. Only eight cases against external auditors made it to court since the creation of the Belgian Kingdom in 1831 (Aerts 2002). In litigious environments the threat of litigation works as a deterrent against below-standard quality.”

⁷ Conversely, the demand for audited information by other stakeholders (e.g., creditors) in Belgium is likely high. For example, Ashbaugh and Warfield (2003) conclude that audits serve a corporate governance role in Germany, a country with many institutional characteristics that are similar to those in Belgium.

to its predecessor, the standard represents a major change in auditor responsibilities and a shift toward rules-based policymaking. That is, prior to its issuance, there was no audit standard relating to GC reporting whatsoever (the only guidance being a non-binding circular letter) and the standard references two financial-juridical criteria in Belgian law for board GC disclosures (whether retained earnings is negative and whether net income is negative for the last two years).

The GC standard derives from activities of the Belgian High Council for Auditing and Accountancy (High Council) and the Belgian Ministry of Justice. As per their 1994-1995 Annual Report, following widespread criticism of auditors, the High Council advised the Institute of Auditors to formulate a GC audit standard.⁸ In response, the Institute of Auditors held a forum in autumn of 1995, but, otherwise, did not move very quickly to propose a change in professional standards. Perhaps because of this inaction, the High Council put forth its own proposal in a written recommendation on June 20, 1996 and made certain suggestions to the Belgian Ministry of Justice, which was concurrently revising the laws on bankruptcy and creditor composition. Among the High Council's suggestions was that auditors should draw attention to statutory and regulatory provisions regarding companies in distress, and that if the auditor has substantial doubt regarding a company's continued existence, they should report this doubt to the board. Following the High Council's advice, on August 8, 1997, the Ministry of Justice revised Belgian bankruptcy law and the law on creditors' composition by promulgating, as Article 77 of Belgian Company Law, two financial juridical criteria for board of directors' GC disclosures:

If the balance sheet shows an accumulated loss [i.e., a deficit in retained earnings], or if the profit and loss account shows a bottom-line loss in two successive years, then the Directors are required to justify in the annual statements the application of the valuation rules in the assumption of continuity.

⁸ The Flemish Commission for Preventive Business Management, the Belgian Commission for Banking and Finance, and the financial press (e.g., "Auditing simply doesn't work ... in bankruptcies, the statutory auditor comes too late with the regularity of clockwork" (Wymeersch 1994)) all voiced criticism of the auditing profession.

In addition, consistent with the High Council's suggestion, the law on creditors' composition requires the auditor to inform the board of directors of going-concern problems.

Two years later, on June 29, 1999, the Institute of Auditors issued a draft audit standard, which became finalized on December 3, 1999 and effective on January 1, 2000.⁹ The standard codifies the auditor's responsibility to notify the board of GC problems and also promulgates a role for the auditor with respect to the board's legal responsibilities regarding GC disclosures:

The statutory auditor needs to ascertain whether a company with going-concern problems complies with all legal requirements. In particular, the auditor has to report going-concern problems encountered during his control activities to the Board of Directors ... When a company meets or threatens to meet one of the two hypotheses mentioned in Article 77 of Belgian Company Law, the auditor needs to assess whether it is desirable to remind the Board of Directors that this information should be included in the annual report or in the notes to the financial statements. (The Belgian GC audit standard, CA/3.12.1999)

The phrase "desirable to remind" refers to the case when a company threatens to meet the financial-juridical criteria. In the case when a company does meet the criteria and the board does not provide disclosures, the auditor must remind the board of its legal responsibility to provide adequate disclosures regarding the company's status as a GC. In addition, the auditor must assess whether the board's disclosures are adequate and appropriate. Even if the auditor deems the disclosures acceptable, they should still issue a GC opinion if they conclude there is a GC risk for the foreseeable future (i.e., at least 12 months from fiscal year end). If the auditor deems the board's disclosures to be unacceptable, they should issue a qualified opinion.¹⁰ Given these changes to their legal responsibilities and professional audit standards, Belgian auditors arguably occupy a unique role in ensuring appropriate disclosure of potential company bankruptcy.

⁹ As the Annual Report of the Belgian Institute of Auditors for 1999 mentions, another motivation for the GC audit standard was the concurrent development of International Statement on Auditing 570 (Going Concern) and the view that the Belgian Institute could not afford to 'lag behind' international standards.

¹⁰ We do not observe any audit opinions that are qualified for inadequate disclosure. In addition, as Table 4 shows, we note that the auditor's GC opinion decision is not mechanistic in nature (i.e., post-standard, seven of 53 bankrupt and nine of 34 non-bankrupt companies that violate both bright lines do not receive a GC opinion, whereas five of nine bankrupt and one of 25 non-bankrupt companies that violate neither bright line do receive a GC opinion).

Rules Rather than Discretion

The essence of the rules rather than discretion debate is whether economic policy should be set according to pre-set rules or left to the judgment of decision makers to adapt to current conditions. In a seminal paper, Kydland and Prescott (1977) demonstrate the critical role of credibility in policymaking. Credibility is important because absent a binding commitment to enforce rules, policymakers can resort to individual judgment. However, this option to exercise discretion is problematic because if economic agents anticipate it, then they may behave in ways that prevent policymakers from achieving their policy objectives (“time inconsistency” problem). Kydland and Prescott (1977) show that rules are preferable to discretion because rules can be made binding, and thereby avoid the time-inconsistency problem. Relevant to our context, Kydland and Prescott (1977) argue for a credible commitment to simple rules, and Belgium’s standard references simple rules (financial-juridical criteria) that the law credibly codifies.

Another reason that the economics literature advocates rules for auditors is to restrain a tendency towards leniency stemming from a decision maker’s self-interest. Boot and Thakor (1993) formalize this self-interest in a model of a regulator’s bank closure decision. The regulator seeks to maximize a weighted objective function of societal welfare and personal gain from attaining and/or protecting a reputation as a high-quality regulator. Because of the reputation protection component, Boot and Thakor show that the equilibrium closure policy is too lax and allows a bank to continue to operate when it should not.¹¹ While such reputation motives are present, auditors also have the obvious incentive to acquiesce because they receive

¹¹ Similarly, the literature suggests precise accounting standards decrease aggressive reporting because they bolster the auditor’s negotiating position and help them to stay independent. For example, Magee and Tseng (1990, 316) demonstrate conditions under which “cut-and-dried” standards, that “leave less room for disagreement among auditors,” allow for greater auditor independence; per the partners in Gibbins et al.’s (2001) survey, clear-cut standards strengthen auditor positions when negotiating to prevent aggressive accounting; per Nelson et al. (2002), auditors recall being less likely to allow aggressive earnings management when there is a precise standard and the client has not engaged in transaction structuring; and Ng and Tan (2003) find that when precise guidance is absent, audit managers are likely to permit aggressive accounting, especially when oversight is weak.

fees from their clients. Consistent with this reasoning, many studies find that the presence of a GC opinion for a stressed, soon-to-be-bankrupt company varies inversely with company size, suggestive of auditor leniency toward their larger clients.

Likely Effects of the Belgian GC Audit Standard

We use Matsumura et al.'s (1997) model of the auditor's GC decision as a lens through which to consider the likely effects of Belgium's GC standard. They specify the auditor's expected utility from rendering a GC opinion as Maximize $(p + \delta) W_B + (1 - p - \delta)(W_S - P_G)$ and from rendering a clean opinion as Maximize $p(W_B - P_S) + (1 - p)W_S$, where:

- p is the unperturbed posterior probability the client will terminate and δ ($0 \leq \delta \leq 1 - p$) is a perturbation of this probability that the client will terminate due to the self-fulfilling prophecy effect of the auditor's decision to issue a GC opinion (see Vanstraelen 2003)
- W_B is the present value of future quasi rents to the auditor if the client terminates and W_S is the present value of future quasi rents to the auditor if the client continues ($W_S > W_B$)
- P_G is the auditor's penalty for rendering an incorrect GC opinion (the cost of Type I error) and P_S is the penalty for rendering an incorrect clean opinion (the cost of a Type II error)

Matsumura et al. show the Nash Equilibrium is the auditor will issue a GC when its expected payoff exceeds that of a clean opinion (i.e., $(p + \delta) W_B + (1 - p - \delta)(W_S - P_G) > p(W_B - P_S) + (1 - p)W_S$). As such, the optimal decision rule is for the auditor to issue a GC when the unperturbed posterior probability the client will terminate, p , exceeds a certain threshold, p^* . After solving for p^* , the incumbent auditor issues a GC opinion if $p > (P_G + \delta(W_S - W_B - P_G)) / P_G + P_S$.

Adapting Matsumura et al.'s (1997) framework to our context, following the issuance of the GC standard in Belgium, we argue that P_S should increase. This is because the auditor's penalty for rendering an incorrect clean opinion, particularly to clients that flunk the financial-judicial criteria, now involves the oversight of Belgium's Institute of Auditors and the specter of legal ramifications. Following Matsumura et al., an increase in P_S leads to a decrease in p^* , thereby making it more likely that p exceeds p^* . As such, Belgian auditors should be more likely

to issue GC opinions following the effective date of the audit standard and, because GC opinions are more likely, the frequency of Type I (Type II) errors should increase (decrease).

Moreover, following Boot and Thakor (1993), the financial-judicial criteria should restrain the extent to which auditor self-interest influences GC decisions. Since auditor incentives to be lenient are rationally increasing in client size (i.e., the auditor's benefits of acquiescence are larger for larger clients), the inverse association between the presence of a GC opinion and client size should attenuate following the issuance of Belgium's GC audit standard.

III. SAMPLE AND DESCRIPTIVE STATISTICS

Sample

We collect a sample of stressed, private bankrupt companies and a matched sample of stressed, private non-bankrupt companies. We screen on stress because the Belgian GC standard specifically pertains to the audits of companies experiencing stress, and the audit opinion literature emphasizes the importance of conditioning analysis of auditor GC reporting on the presence of financial stress.¹² We focus on private companies because they constitute the overwhelming majority of the Belgian economy, and because auditor reporting may be more important for private companies than for public companies, given the poorer information environment surrounding private companies. We use a matched-sample design because there are thousands of stressed, private Belgian companies, and we must purchase audit opinions and

¹² For example: per Louwers (1998, 145), "Hopwood et al. 1994 emphasize the importance of client financial distress for the auditor's going-concern decision because auditors issue going-concern disclosures only to clients experiencing difficulties and an apparent lack of financial stress may be due to management's manipulations. For these reasons, only financially 'stressed' companies were included in the final sample"; per Reynolds and Francis (2000, 390), "[f]or the going concern analysis, the initial sample ... is reduced to include only those companies that are potentially financially distressed. The reason for this additional screen is to evaluate auditor reporting decisions for a subset of companies for which the going concern report is a more salient decision"; per DeFond et al. (2002, p. 1255) "[a]s in prior research, we limit our analysis to a sample of financially distressed firms in evaluating the auditor's probability of issuing a first time going concern opinion ... This is because the going concern opinion decision is most salient among distressed firms."

board annual reports from the Belgian National Bank and hand collect auditor data.¹³ Because Carcello et al. (1997) demonstrate the peculiarity of GC reporting in the U.S. prior to SAS No. 59, we omit the period of transition to the Belgian GC standard. Since the transition begins in April 1997 (the laws on bankruptcy and creditors' composition) and ends in January 2000 (the effective date of the standard), we exclude companies that file bankruptcy from 1997 to 2000.¹⁴

Of the 499 companies subject to audit that file for bankruptcy during 1995-1996 and 2001-2002, we exclude 186 financial companies and non-financial companies for which pre-bankruptcy financial statements are unavailable.^{15,16} Of the remaining 313, we eliminate 42 that do not exhibit an obvious sign of stress, which we define as negative net income, negative working capital or negative stockholders' equity.¹⁷ Of the remaining 271, we exclude 14 because of missing prior-year net income necessary to calculate one of the financial-judicial criteria, 19 due to missing board disclosure information, 14 because of missing audit information, two because their securities trade publicly, and one because it uses liquidation-basis accounting. Our bankrupt sample is 221 companies, 132 (89) prior to (after) the standard.¹⁸

We then match each stressed, private bankrupt company with a stressed, private, non-bankrupt company on the basis of year, industry, and, in the spirit of propensity score matching, probability of bankruptcy. Propensity score matching is a statistical technique that controls for

¹³ For example, 11,147 non-bankrupt Belgian companies report negative net income for 2001, or negative working capital for either 2001 or 2000, or negative stockholders' equity for either 2001 or 2000 (see also footnote 29).

¹⁴ In Section IV, we examine the effects of excluding this period of transition to the Belgian GC audit standard.

¹⁵ Our source for bankrupt companies is the Belgian National Bank. In Belgium, the objective of bankruptcy is liquidation (akin to Chapter 7 in the U.S.); whereas judicial composition is a relatively infrequent, alternative procedure, the objective of which is to rehabilitate and reorganize (akin to Chapter 11 in the U.S.).

¹⁶ Following the bankruptcy prediction and going-concern literatures (e.g., Zmijewski 1984; Dopuch et al. 1987) we exclude financial companies (i.e., those with a NACE-BEL code starting with 65, 66 and 67), primarily because of industry-specific financial accounting and reporting practices.

¹⁷ We do not use a cash flow proxy because prevailing Belgian GAAP does not require a Statement of Cash Flows.

¹⁸ The decrease from 132 companies pre-standard to 89 post-standard mirrors the number of bankruptcies during these time periods, as the number of audited companies filing bankruptcy is 309 pre-standard and 190 post-standard (and our attrition rate is comparable at 57 percent pre-standard, or 177 of 309, and 53 percent post-standard, or 101 of 190).

firm-specific characteristics in the matching process (Rosenbaum and Rubin 1983; Dehejia and Wahba 2002) and, in our context, helps to reduce sample selection bias due to observable differences between stressed, bankrupt companies and stressed, non-bankrupt companies.¹⁹

We define a non-bankrupt company as one that does not file bankruptcy in the upcoming year. To increase our chances of a good match, we also consider companies with negative working capital or shareholders' equity in the prior year.²⁰ Because data collection is costly, for each stressed, bankrupt company we collect three stressed, non-bankrupt companies for the same year in the same industry. Of these, we choose the one with a probability of bankruptcy (Zmijewski 1984) closest to that of the stressed, bankrupt company. Our non-bankrupt sample consists of 221 companies, 132 (89) relating to the period prior to (after) the standard.

Descriptive Statistics

Table 1 presents descriptive statistics, partitioned by pre- and post-standard. *GCOpinion* equals one if the opinion expresses doubt regarding the client's ability to continue as a going concern and zero otherwise. *EMOpinion* equals one if the audit opinion references an emphasis of matter regarding the client's assumption of continuity (but without an expression of doubt), possible dissolution or applications of Belgian Company Law pertaining to the continuation of the entity and zero otherwise. The standard is associated with a significant increase in GC opinions. For the bankrupt sample, the mean of *GCOpinion* increases from 42.4 percent pre-standard to 71.9 percent post-standard (decrease in Type II errors from 57.6 percent to 28.1 percent). And, for the non-bankrupt sample, *GCOpinion* increases from 18.2 percent pre-standard to 33.7 percent post-standard (Type I errors).

¹⁹ Our primary concern is if the bankrupt sample is much more distressed than the non-bankrupt sample, the impact of the new standard on auditor reporting decisions for bankrupt companies (the extent of the likely decrease in Type II errors) may be overstated relative to non-bankrupt companies (the extent of the likely increase in Type I errors).

²⁰ We do not consider companies with negative net income in the prior year, because doing so would constitute the financial-juridical criteria for two successive years of negative net income.

Due to both research design and institutional details, the GC rates for the non-bankrupt sample are high in contrast to extant literature. In terms of research design, because we require our bankrupt sample to exhibit an obvious indicator of financial stress and then use a propensity-score matching technique to identify our non-bankrupt sample, the companies we study exhibit rather severe distress and thus are more likely to have GC opinions. For example, the overall sample of U.S. public companies in Louwers (1998), which reports GC rates of 43.6 percent for bankrupt companies and 7.3 percent for non-bankrupt companies, has a mean bankruptcy probability (Hopwood et al. 1988) of 0.282. In contrast, our overall pre-standard sample, for which we report GC rates of 42.4 percent for bankrupt companies and 18.2 percent for non-bankrupt companies, has a mean bankruptcy probability (Zmijewski 1984) of 0.545. While Louwers (1998) does not permit comparison, this difference in bankruptcy probabilities likely stems from our respective non-bankrupt samples. In contrast to extant literature, we limit the extent to which less-distressed companies enter the sample and, thereby, inflate the denominator in calculating the Type I error rate (which consequently lowers the Type I error rate).

In terms of institutional details, there are several reasons why GC rates are higher in Belgium. First, as we mention, private companies comprise the large majority of the Belgian economy and, when distressed, likely have fewer financing and survival options than distressed public companies. Second, as we also mention, because of restrictions on auditor consulting and limits on career mobility, the benefits of auditor acquiescence in Belgium relate to audit fees. However, Belgian companies retain their audit firm for three-year periods (making acquiescence to retain a client less likely), and most companies are small and pay small audit fees.²¹ Hence, an

²¹ In terms of company size, mean pre-standard *Sales* for our combined sample is 7.023 million Euros (\$6 million at prevailing exchange rates). As such, our sample is smaller, by orders of magnitude, than extant literature (e.g., mean sales for Reynolds and Francis' 2000 sample of 2,439 distressed U.S. companies from 1996, for which they report a GC rate of 9.2 percent, are approximately \$38 million). In terms of audit fees, though not publicly available,

incorrect GC is arguably less costly to auditors in Belgium. Third, all Belgian companies with more than 50 employees have a workers' council, to which the audit firm must report and to which companies have a legal obligation to provide financial information for the purpose of wage and labor conditions negotiations (Vanstraelen and Willekens 2008). Given the existence of a workers' council, a GC could conceivably help management wrest labor concessions (e.g., headcount reductions) to facilitate company survival. Therefore, a GC opinion to a company that does not soon file for bankruptcy may be *ex ante* remedial (instead of *ex post* incorrect).

Table 1 also shows a change in Belgium's audit market from pre- to post-standard, as the *Big6/5* market share goes from 15.2 percent (34.1 percent) pre-standard to 38.2 percent (58.4 percent) post-standard for the bankrupt (non-bankrupt) sample.²² As such, the increase in frequency of GC opinions in the post-standard period may be due to an influx of larger auditors with greater incentives to protect their investments in reputation capital (DeAngelo 1981). We examine the effect of changes in *Big6/5* market share in Section IV.

GCDisclosures is the number of negative disclosures regarding the company's going-concern status appearing in the annual report of the board of directors. To operationalize the board disclosure requirements of Belgian law that the GC audit standard references, we specify *FJCriteria-RE* and *FJCriteria-NI*, variables that equal one if the company has negative retained earnings for the current year and negative net income for both the current and prior year, respectively, and zero otherwise. Of note, for the bankrupt sample (panel A of Table 1), average *GCDisclosures* increase from 1.621 pre-standard to 2.191 post-standard, despite no change in the frequency with which these companies violate the financial-juridical criteria.

Willekens and Gaeremynck (2005) report mean (median) Belgian audit fees for 2001 were just 10,000 (5,000) Euros.

²² This is consistent with the increase in Big 6/5 share in Belgium in the 1990s (Willekens and Achmadi 2003).

IV. EMPIRICAL ANALYSIS

We start by assessing the effect of the GC standard on Type I errors and Type II errors (Tables 2 and 3) and the change in the frequency of GC opinions, pre- to post-standard, by audit firm type and number of financial-juridical criteria a company violates (Table 4). We then study the characteristics associated with Type I and Type II errors (Tables 5, 6 and 7). Last, we conduct an *ex post* analysis of Type I and II errors, by pre-standard and post-standard (Table 8).

The Belgian GC Standard and the Frequency of GC Opinions

We include several covariates in our audit-opinion regressions (Tables 2, 3, 6 and 7). We specify Zmijewski's (1984) probability of bankruptcy ($Pr(Bankrupt)$) to control for incremental stress. We control for audit firm type (DeAngelo 1981), time period from financial statement date to audit opinion date (Raghunandan and Rama 1995), and audit firm tenure (Knechel and Vanstraelen 2007). Because there is no disclosure of audit fees in Belgium, we specify client revenues to proxy for the effect of auditor incentives on GC reporting. Because Vanstraelen (2002) reports that the presence of a GC opinion in Belgium is positively associated with board disclosures, we include *GCDisclosures*. Equation (1a) is our baseline ordered probit regression.²³ To examine the effects of the GC standard on Type II errors (i.e., failure to render a GC to a company that files bankruptcy the next year) and Type I errors (i.e., failure to render a clean opinion to a company that does not file bankruptcy the next year), we add *PostStandard* to equation (1a) to specify equation (1b), both of which we estimate separately using each sample.

²³ Because $Pr(Bankrupt)$ is from Zmijewski (1984), which specifies return on assets, liabilities to assets and the current ratio, and we specify $Ln(Sales)$, our covariates encompass four (i.e., profitability, leverage, liquidity and size) of the five factors that extant literature (e.g., Ohlson 1980) associates with bankruptcy and/or a GC. We cannot control for the fifth factor, the association between debt status and the presence of a GC and/or bankruptcy (Chen and Church 1992; Foster et al. 1998), because Belgian companies do not disclose this information. We do not control for economic trends that may affect the GC rate because macroeconomic growth in Belgium during the two sample time periods was quite comparable – see the sub-section “Temporal concerns.”

$$\left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\} \text{Bankrupt}_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} + \beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \epsilon \quad (1a)$$

$$\left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\} \text{Bankrupt}_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} + \beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \beta_7 PostStandard_{i,t} + \epsilon \quad (1b)$$

$$\left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\} \text{Non-bankrupt}_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} + \beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \epsilon \quad (1a)$$

$$\left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\} \text{Non-bankrupt}_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} + \beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \beta_7 PostStandard_{i,t} + \epsilon \quad (1b)$$

Where:

- GCOpinion* = One if opinion states doubt about ability to continue as a going concern and zero otherwise
- EMOpinion* = One if opinion states an emphasis of matter about continuity (but without a statement of doubt), possible dissolution, or applications of Belgian Company Law pertaining to the continuation of the entity and zero otherwise
- Pr(Bankrupt)* = Bankruptcy probability (Zmijewski 1984, Table 3B 40:800 choice-based sample)
- Big6/5* = One if a Big 6 or 5 audit firm and zero otherwise
- AuditLag* = Number of months between financial statement date and audit opinion date
- Tenure* = One if the length of the auditor / client relation exceeds 6 years (i.e., if it is more than two three-year, renewable mandates) and zero otherwise
- Ln(Sales)* = Ln(1,000 + annual sales, in millions of 1994 Euros)
- GCDisclosures* = Number of disclosures (ranging from zero to six) in the annual report of the board of directors of circumstances that can negatively influence the development of the company, important negative events occurring after the company's fiscal year end, applications of Belgian Company Law pertaining to continuation of the entity, or other negative events.²⁴
- PostStandard* = One if after the effective date of the Belgian audit standard and zero otherwise

²⁴ For example: "In order to bring the number of employees in balance with the expected turnover for next year, a procedure has been started to collectively dismiss 30 employees"; and "The current crisis in the telecommunications industry will inevitably influence the future activities of the company. Restructuring measures will be necessary to deal with the economic recession. We will have to make more use of outsourcing to respond in a more flexible way to fast changing market trends." Belgian Company Law requires that if net assets are less than 50 percent of subscribed capital, the Board must decide on reorganization plans and whether or not to continue the entity.

Column two of Table 2 shows the results of estimating equation (1b) with the bankrupt company sample (column one shows the results of estimating equation (1a)). The coefficient for *PostStandard* is positive 0.85, significant well beyond 1 percent (two-sided test), and its inclusion increases the pseudo R^2 from 12.7 percent to 17.3 percent. The marginal effect (i.e., the partial derivative of the conditional probability of a GC with respect to the variable of interest) of *PostStandard*'s coefficient is 0.33, implying a 33 percent increase in the probability of observing a GC opinion on the financial statements of a stressed, soon-to-be bankrupt company following the adoption of the GC standard. This result provides evidence of a decrease in Type II errors.²⁵

Column four of Table 2 presents the results of estimating equation (1b) with the non-bankrupt sample (column three shows the results of estimating equation (1a)). For this sample, *PostStandard*'s coefficient is positive 0.50, significant beyond five percent (two-sided test), and its inclusion increases the pseudo R^2 from 20.9 percent to 22.6 percent. *PostStandard*'s marginal effect is 0.13, implying a 13 percent increase in the probability of a GC on the financial statements of a company that does not file bankruptcy in the upcoming year during the period following the GC standard. This result provides evidence of an increase in Type I errors. While *PostStandard*'s coefficient is smaller than it is for the bankrupt sample (0.50 versus 0.85), the difference is not significant, with an asymptotic t-test of -1.17 (Ben-Akiva and Lerman 1985).

The Belgian GC Standard and the Frequency of GC Opinions by Audit Firm Type

Table 3 shows the results of running essentially the same sets of regressions, but using samples we restrict to clients of Big 6/5 or non-Big 6/5 auditors. As per column four (six) of Table 3, *PostStandard*'s coefficient for the bankrupt (non-bankrupt) company sample in Table 2

²⁵ Per Table 4, mean and median values of (*PrBankrupt*) for the 56 bankrupt companies with GCs in the pre-standard period are 0.738 and 0.831, respectively. In contrast, mean and median values of (*PrBankrupt*) for the 64 bankrupt companies with GCs in the post-standard period are 0.722 and 0.905, respectively. As such, there is no evidence that bankrupt companies with GCs manifest lower *ex ante* distress in the post-standard period. This does not support a 'self-fulfilling prophecy' effect underlying the decrease in Type II errors in the post-standard period.

largely stems from non-Big 6/5 (Big 6/5) audit firms. This suggests differentiation between auditor type and the presence of a GC around the time the audit standard was put into place. To examine this issue, Table 4 provides descriptive information on the change in GC rates by bankruptcy status, number of financial-judicial criteria violated, and auditor type. The totals of the first two columns of Table 4 agree with Table 1 (e.g., for bankrupt, the GC rate increases from 42.4 percent pre-standard to 71.9 percent post-standard; and for non-bankrupt, the GC rate increases from 18.2 percent to 33.7 percent).

Table 4 depicts three key findings. First, for both bankrupt and non-bankrupt companies during pre-standard and post-standard periods, the frequency of going-concern and emphasis-of-matter opinions increases with the number of financial-judicial criteria violated. Second, whether none, one, or both criteria are violated, these rates increase pre-standard to post-standard. Third, due to the increase in GCs by the non-Big 6/5 (from 40.2 percent pre-standard to 76.4 percent post-standard), the non-Big 6/5 are no longer less likely than the Big 6/5 to commit a Type II error following the standard. Of note, post-standard, the non-Big 6/5 often render a GC to an *ex post* bankrupt company that is in violation of both criteria (25 of 29, or 86.2 percent).

Bankrupt and Non-Bankrupt Companies – By Opinion Type by Time Period

In this section, we estimate separate GC opinion regressions for the pre- and post-standard periods. We do so to assess parameter stability across the regime change, particularly regarding our proxy for the effects of auditor incentives on their opinion decisions ($\ln(Sales)$).

For reference, Table 5 presents descriptive statistics by opinion type and time period. Of note, during the pre-standard period, *Sales* for bankrupt companies with GCs are less than *Sales* for companies with clean opinions (8.005 mean and 3.301 median million Euros versus 8.313 mean and 5.078 median million Euros, respectively); however, post-standard this is no longer the

case (36.288 mean and 4.286 median million Euros versus 15.146 mean and 3.928 median million Euros, respectively). This finding is consistent with the view that a rules-based standard mitigates the influence of auditor self-interest on GC decisions.

Because the GC standard references the two financial-juridical criteria for board GC disclosures, we start by examining the relation between these disclosures and whether a company violates these financial statement thresholds, before and after the GC audit standard. Because *GCDisclosures* is a non-negative integer, we estimate equation (2) via Poisson regression.²⁶

$$GCDisclosures_{i,t} | Bankrupt_{i,t+1} = \beta_0 + \beta_1 FJCriteria-RE_{i,t} + \beta_2 FJCriteria-NI_{i,t} + \epsilon \quad (2)$$

Where:

- FJCriteria-RE* = One if retained earnings are negative and zero otherwise
- FJCriteria-NI* = One if net income is negative for the last two years and zero otherwise

The results in columns one and five of Table 6 show that in both periods the extent of disclosures is positively associated with the negative retained earnings criteria. This finding suggests that the change to Belgian law had little direct effect on board disclosures for these bankrupt companies and that the increase in *GCDisclosures* (Table 1) relates to an across-the-board intercept shift. Columns two and six of Table 6 show the results of estimating equation (1a) for the bankrupt sample in the pre-standard and post-standard periods. Of note, *Ln(Sales)*'s coefficient is negative in the pre-standard period, confirming the size effect that extant literature documents, but is insignificant in the post-standard period. This finding suggests that a rules-based standard mitigates the extent to which self-interest influences an auditor's GC decisions.

As per columns two and six of Table 6 (and columns one and two of Table 2), the coefficients on *GCDisclosures* are positive. Vanstraelen (2002) suggests such disclosures reduce auditor-management conflict and increase the likelihood the auditor renders a GC, which implies

²⁶ For bankrupt and non-bankrupt samples, the mean and variance of *GCDisclosures* are quite close (for bankrupt, the mean is 1.851 and the variance is 1.882; and for non-bankrupt, the mean is 1.176 and the variance is 1.282), thereby satisfying the 'mean equals variance' (equidispersion) feature of the Poisson distribution (Winkelmann 1997).

GCOpinion and *GCDisclosures* are endogenous. To address potential endogeneity, we conduct Hausman's (1978) test. We first create an instrumental variable by regressing *GCDisclosures* on all exogenous variables in the system. We then add the fitted values, *GCDisclosures-IV*, to equation (1a) to specify equation (1e). If *GCDisclosures-IV*'s coefficient is significant in the equation (1e) estimation, we should then estimate equation (1f).

$$\begin{aligned}
 & \left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\} \left| \begin{array}{l} Bankrupt_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \\ \beta_4 Tenure_{i,t} + \beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \\ \beta_7 GCDisclosures-IV_{i,t} + \varepsilon \end{array} \right. \quad (1e) \\
 & \left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\} \left| \begin{array}{l} Bankrupt_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \\ \beta_4 Tenure_{i,t} + \beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures-IV_{i,t} + \varepsilon \end{array} \right. \quad (1f)
 \end{aligned}$$

Where:

GCDisclosures-IV = Fitted values from regressing *GCDisclosures* on all exogenous variables in the system (i.e., all right-hand-side variables in equations 1a and 2), via Poisson regression

Columns three and seven of Table 6 present the results of estimating equation (1e) for the bankrupt sample, depending on whether their bankruptcy filing is before or after the GC audit standard. The coefficient for *GCDisclosures-IV* is positive in the pre-standard period, and, thus, we reject the hypothesis that board disclosures and audit opinions are exogenous. However, in the post-standard period, during which the increase in *GCDisclosures* appears to manifest as an across-the-board intercept shift, we cannot reject this null. Importantly though, regardless of specification, *Ln(Sales)*'s coefficient is negative pre-standard, but insignificant post-standard.²⁷

²⁷ Among the bankrupt companies, Sabena Airlines is (by far) the largest, is quite stressed (*Pr(Bankrupt)* of 0.893), and received a GC from its Big 6/5 audit firm in the post-standard period. Our results do not change if we remove this observation and re-estimate the Table 2 and 6 regressions.

We also estimate equations (2), (1a), (1e) and (1f) using the non-bankrupt sample. As columns one and five of Table 7 show, for these companies, *GCDisclosures* is positively associated with whether a company has negative retained earnings, but is significant only in the post-standard period. Prior to the change in Belgian law, there is no discernible relation between the extent of board disclosures and the financial-juridical criteria. Subsequent to this change in law, an association between disclosures and whether a company has negative retained earnings emerges. Therefore, for non-bankrupt companies, the law appears to have led to a relation between board disclosures and the retained earnings criteria. However, because these companies did not file bankruptcy the next year, this relation did not provide an early warning of failure.

As columns two and six of Table 7 show, there is also some evidence of a size effect for the non-bankrupt companies in the pre-standard period but no such evidence post-standard. Again, these findings support the view that a shift towards a rules-based GC standard mitigates the extent to which auditor self-interest influences the GC opinion decision.²⁸ Also of note, there is evidence in the post-standard period that board GC disclosures and auditor GC opinions are endogenous. This result suggests that the increase in Type I errors following the effective date of the standard may perhaps stem from auditor over-reliance on (an increase in) board disclosures.

Temporal Concerns

As we state in Section III, we exclude companies if they file for bankruptcy during the period of transition to the GC standard. Our rationale for excluding these companies is that during the period of transition from SAS No. 34 to SAS No. 59 in the U.S., the rate of GCs for *ex post* bankrupt companies was peculiarly low (Carcello et al. 1997). However, the transition from discretionary circular letter to rules-based audit standard in Belgium extends considerably longer

²⁸ Among the non-bankrupt companies, Societe Nationale Des Chemins de Fer is (by far) the largest, is not very stressed (*Pr(Bankrupt)* of 0.053) and received a clean opinion from its non-Big 6/5 audit firm in the post-standard period. Our results do not change if we remove this observation and re-estimate the Table 2 and Table 7 regressions.

than the 21 months preceding SAS No. 59 in the U.S. In Belgium, the transition period to the standard begins in April 1997 with the introduction of a new bankruptcy law and ends with the effective date of the GC standard on January 1, 2000. Because the GC standard references criteria that Belgian Company Law and law on creditors' composition codify, it is important to assess GC reporting during Belgium's transition period because the increase in GCs may stem from changes in Belgian law, and not from the Belgian GC audit standard.

To examine this issue, we identify the 202 stressed, private Belgian companies filing for bankruptcy during the period January 1, 1997 to December 31, 2000 that do not use liquidation-basis accounting. Overall, 54.4 percent (110 of 202) of these companies have a GC opinion on their pre-bankruptcy financial statements. Consistent with an effect stemming from the changes to Belgian law, the GC rate increases somewhat throughout the transition period; from 49.2 percent to 58.1 percent to 56.0 percent to 56.9 percent for companies filing bankruptcy in 1997, 1998, 1999, and 2000, respectively. While the transition rate of 54.4 percent is higher than the pre-standard rate of 42.4 percent, it is lower than the post-standard rate of 71.9 percent (Table 1, panel A). A z-test of the change in proportions rejects a one-tailed null of no difference between the transition and pre-standard periods beyond 5 percent, and between the transition and post-standard periods beyond 0.1 percent. As such, the increase in GCs for bankrupt companies is considerably stronger during the post-standard period.

It is also possible that the increase in GC opinions, from pre-standard to post-standard, is (at least partly) due to the choice of these two time periods. Even if firm fundamentals do not change, auditors seem likely to render more GC opinions in a recession than in an expansion. However, from the standpoint of the Belgian economy, the two time periods are quite similar (e.g., average growth in per capita GDP for 1995-1996 and 2000-2001 was 2.65 percent and 2.45

percent, respectively). Moreover, as we document in footnote 18, Dewaelheyns and Van Hulle (2008) report a *decrease* in Belgian bankruptcy rates subsequent to the 1997 bankruptcy code reform; a finding that stands directly at odds with the increase in GC audit opinions we document.

Consequences of the Increase in Type I Errors and the Decrease in Type II Errors

Overall, our findings indicate that the GC standard results in an increase in Type I errors and a decrease in Type II errors. While we acknowledge that whether the costs of more Type I errors exceed the benefits of less Type II errors is a matter of debate,²⁹ Table 8 attempts an *ex post* analysis of these audit opinion errors, by pre-standard vs. post-standard periods.

For creditors, a GC can serve as an early, or a false, warning of impending bankruptcy. Whereas in the pre-standard period, the GC was an early warning for 42 percent (56 of 132) of sample bankruptcies, representing 34 percent ($311.920/(311.920+169.498+430.215)$) of liabilities; post-standard, it warns in 72 percent (64 of 89) of bankruptcies, representing 92 percent ($1,788.608/(1,788.608+13.175+144.880)$) of liabilities. Offsetting the benefits of this enhancement in early warning, however, is that the degree to which GC opinions falsely warn creditors also increases. Whereas in the pre-standard period, the opinion was a false warning for 18 percent (24 of 132) of our non-bankrupt sample, representing 12 percent ($51.216/(51.216+7.160+378.000)$) of total liabilities; post-standard, this false warning increases to 34 percent (30 of 89) and represents 34 percent ($212.850/(212.850+43.416+374.500)$) of total liabilities, respectively. Overall, from a creditor standpoint, the GC standard seems beneficial.

²⁹ Especially given that the ratio of stressed bankrupt to stressed non-bankrupt companies is probably less than the 33:13 ratio of marginal effects we discuss earlier in Section IV. For example, of the 95 Belgian companies that file bankruptcy in 2002, 84 meet our bankrupt-sample definition of stress; whereas there are 10,011 non-bankrupt companies, of the 11,147 we mention in footnote 13, that meet this same definition of stress.

For auditors, reputation effects aside, the primary cost of a Type I error is possible client loss. Whereas pre-standard 12.5 percent (three of 24) of companies that receive a GC but do not file bankruptcy the following year change their audit firm at the next opportunity, post-standard this rate of auditor change increases to 30 percent (nine of 30).³⁰ From an auditor standpoint, the standard is associated with an increase in auditor switching, likely stemming from an increase in the frequency of Type I errors.

For companies, the costs of an increase in the auditor's Type I error include a decrease in the availability, and/or an increase in the cost, of debt financing. For the pre-standard period, we are able to obtain financial statement information to compute changes in debt financing and the cost of debt for 12 of the 24 companies that get a GC but do not file bankruptcy the next year. Because of the potential for survivorship and measurement errors, we focus on sample medians.³¹ In the pre-standard period, while there is little change in their level of debt financing, the cost of debt for the median company decreases from 11.9 percent to 7.4 percent. In contrast, post-standard, for which we can obtain the necessary data for 20 of 30 Type I errors, the median company's cost of debt increases from 6.7 percent to 8.0 percent. Overall, from the standpoint of the recipient of a Type I error, the effect of the Belgian standard seems somewhat detrimental.

As for the effect of auditor Type I errors on employees, Table 8 provides information on total headcount in the same companies for which we examine debt levels and the cost of debt. In the pre-standard period, during which smaller stressed companies were more likely to receive a GC, there is little evidence of a decrease in overall headcount for companies that get a GC but do

³⁰ Because Belgian companies retain audit firms for renewable, three-year 'mandate' periods, we identify whether a company changes its audit firm when its existing mandate period expires (i.e., at its next opportunity).

³¹ Our concern with measurement error relates to calculating the cost of debt using financial statement information. Following Pittman and Fortin (2004), we compute annual interest expense divided by the average of short- and long-term debt. However, because this approach yields extremely large values for certain companies, we winsorize this measure of annual interest expense at the 5th and 95th percentiles of the opinion-year distribution.

not file bankruptcy the next year (i.e., from 199 to 200). In contrast, in the post-standard period, total headcount declines 12 percent (i.e., from 2,349 to 2,061) for companies that receive a GC but do not file bankruptcy the next year, 70 percent of which exhibit a decrease in the number of employees. While we concede that other factors likely contribute to employment changes and other interpretations apply (e.g., workers' councils agree to such reductions to facilitate company survival), from an employee standpoint, the effect of the Belgian standard seems detrimental.

On balance, our results suggest the Belgian GC standard favors creditors and disfavors auditors, and perhaps companies and employees. Whether the benefits outweigh the costs, however, depends on the priorities one assigns to the various parties.

V. SUMMARY AND IMPLICATIONS

In a highly influential study (e.g., the first paper referenced in their 2004 Nobel Prize), Kydland and Prescott (1977, 487) advance the argument for rules rather than discretion by demonstrating the critical importance of making a credible commitment to simple rules:

In a democratic society, it is probably preferable that selected rules be simple and easily understood, so it is obvious when a policymaker deviates from the policy. There could be institutional arrangements which make it a difficult and time-consuming process to change the policy rules in all but emergency situations.

Boot and Thakor (1993) further advance the case for rules over discretion by arguing that rules help restrain the extent to which self-interest influences a policymaker's decisions.

Drawing on these insights as motivation, we study the relation between the nature of GC audit standards -- in terms of whether they promulgate discretion (which, internationally, such standards overwhelming do) or impose rules-based guidance -- and auditor reporting on stressed companies. Our context is Belgium where, in 2000, standard setters increased GC reporting responsibilities by issuing a formal audit standard. In contrast to its predecessor (a non-binding "circular letter" allowing for considerable discretion), the GC standard references simple,

credible financial-juridical criteria in Belgian law for board of director GC disclosures. As such, the Belgian GC standard is rules-based, since these criteria influence the extent of the board's GC disclosures and, in turn, the auditor's decision to render a GC opinion.

Consistent with the view that the GC standard led to an increase in the costs of auditor acquiescence, for samples of stressed, private bankrupt companies and non-bankrupt companies we report a significant increase in the frequency of GC opinions after the effective date of the GC standard. For bankrupt companies, the increase in GCs provides evidence that, subsequent to the new standard, there is a decrease in the auditor's Type II error. For non-bankrupt companies, the increase in GCs provides evidence of a concomitant increase in the auditor's Type I error. In addition, we also find that the negative relation between company size and the presence of a GC opinion, found in virtually all extant studies, is no longer evident subsequent to the effective date of the Belgian GC standard. That the GC standard results in similar rates of GC opinions for large and small stressed companies suggests greater consistency in auditor reporting. This finding is germane given the International Auditing and Assurance Standards Board's (IAASB) revision of International Standard on Auditing 700, *Forming an Opinion and Reporting on Financial Statements*. One of the IAASB's objectives in revising ISA 700 is to promote consistency in the auditor's report (IAASB 2008). Our analysis of the consequences of the decrease (increase) in Type II (Type I) errors suggests that the Belgian standard tends to favor creditors and disfavor auditors, and perhaps also companies and employees. Evaluation of the net of these effects depends on the priorities one assigns to the parties, an evaluation that we respectfully leave to Belgian standard setters and regulators.

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TABLE 1
Descriptive Statistics – By Bankruptcy Status and Time Period

Variable		Total	PreStandard	PostStandard	Tests of Differences
<i>Panel A: Stressed bankrupt companies</i>					
Observations		221	132	89	
<i>GCOpinion</i>	mean	0.543	0.424	0.719	t = 4.57a
<i>EMOpinion</i>	mean	0.054	0.053	0.056	t = 0.01
<i>Pr(Bankrupt)</i>	mean	0.638	0.641	0.634	t = - 0.14
	median	0.692	0.669	0.716	z = 2.04b
<i>Big6/5</i>	mean	0.244	0.152	0.382	t = 3.81a
<i>AuditLag</i>	mean	5.615	5.788	5.360	t = - 1.75c
	median	6.000	6.000	5.000	z = - 1.41
<i>Tenure</i>	mean	0.118	0.061	0.202	t = 2.97a
<i>Sales</i>	mean	17.284	8.774	29.906	t = 0.99
	median	4.183	4.046	4.505	z = 0.44
<i>GCDisclosures</i>	mean	1.851	1.621	2.191	t = 3.05a
	median	2.000	2.000	2.000	z = 0.00
<i>FJCriteria-RE</i>	mean	0.873	0.886	0.854	t = - 0.69
<i>FJCriteria-NI</i>	mean	0.633	0.629	0.640	t = 0.18
<i>Panel B: Stressed non-bankrupt companies</i>					
Observations		221	132	89	
<i>GCOpinion</i>	mean	0.244	0.182	0.337	t = 2.56b
<i>EMOpinion</i>	mean	0.077	0.061	0.101	t = 1.06
<i>Pr(Bankrupt)</i>	mean	0.473	0.450	0.508	t = 1.27
	median	0.427	0.428	0.425	z = 1.36
<i>Big6/5</i>	mean	0.439	0.341	0.584	t = 3.64a
<i>AuditLag</i>	mean	4.917	4.851	5.016	t = 0.70
	median	4.933	4.900	4.933	z = 2.16b
<i>Tenure</i>	mean	0.181	0.136	0.247	t = 2.02b
<i>Sales</i>	mean	7.960	5.272	11.946	t = 1.90c
	median	2.812	2.513	4.374	z = 2.72a
<i>GCDisclosures</i>	mean	1.176	1.114	1.270	t = 0.96
	median	1.000	1.000	1.000	z = 0.00
<i>FJCriteria-RE</i>	mean	0.738	0.773	0.685	t = - 1.42
<i>FJCriteria-NI</i>	mean	0.480	0.523	0.416	t = - 1.57

Bankrupt observations are stressed, private Belgian companies filing bankruptcy during 1995-1996 (PreStandard) and 2001-2002 (PostStandard) with necessary financial statement, audit and board disclosure data. For these companies, we define stress as negative net income, negative working capital or negative stockholders' equity. Non-bankrupt observations are stressed, private Belgian companies matched with bankrupt companies on year, industry and *Pr(Bankrupt)* with necessary financial statement, audit and board disclosure data. For these companies, we define stress as negative net income in the current year, negative working capital in either the current or the prior year or negative stockholders' equity in either the current or the prior year. Test of differences in means is a two-sample *t*-test and test of differences in medians is a Mann-Whitney U-test.

a,b,c Significant beyond the 1%, 5% and 10% levels, respectively (two-sided tests).

Variables are as follows:

<i>GCOpinion</i>	=	One if opinion states doubt about ability to continue as a going concern and zero otherwise
<i>EMOpinion</i>	=	One if opinion states an emphasis of matter about continuity (but without a statement of doubt), possible dissolution, or applications of Belgian Company Law pertaining to the continuation of the entity and zero otherwise
<i>Pr(Bankrupt)</i>	=	Bankruptcy probability (Zmijewski 1984, Table 3B 40:800 choice-based sample)
<i>Big6/5</i>	=	One if a Big 6 or 5 audit firm and zero otherwise
<i>AuditLag</i>	=	Number of months between financial statement date and audit opinion date
<i>Tenure</i>	=	One if the length of the auditor / client relation exceeds 6 years (i.e., if it is more than two three-year, renewable mandates) and zero otherwise
<i>Sales</i>	=	Annual sales, in millions of 1994 Euros
<i>GCDisclosures</i>	=	Number of disclosures (ranging from zero to six) in the annual report of the Board of Directors of circumstances that can negatively influence the development of the company, important negative events occurring after the company's fiscal year end, applications of Belgian Company Law pertaining to continuation of the entity, or other negative events.
<i>FJCriteria-RE</i>	=	One if negative retained earnings and zero otherwise
<i>FJCriteria-NI</i>	=	One if negative net income for the last two years and zero otherwise

TABLE 2
Audit Opinions for Stressed Bankrupt and Non-Bankrupt Companies

$\left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\}$	$\left \begin{array}{l} Bankrupt_{i,t+1} \\ \\ \end{array} \right.$	$= \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} + \beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \epsilon$				(1a)
		$= \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} + \beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \beta_7 PostStandard_{i,t} + \epsilon$				(1b)
$\left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\}$	$\left \begin{array}{l} NonBankrupt_{i,t+1} \\ \\ \end{array} \right.$	$= \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} + \beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \epsilon$				(1a)
		$= \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} + \beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \beta_7 PostStandard_{i,t} + \epsilon$				(1b)

Variable	E[sign]	Bankrupt		Non-bankrupt	
		Eq 1a	Eq 1b	Eq 1a	Eq 1b
Constant		0.87 (0.97)	0.34 (0.36)	-1.43 (-1.87)c	-1.27 (-1.72)c
Pr(Bankrupt)	+	1.29 (4.85)a	1.43 (5.08)a	1.86 (5.67)a	1.84 (5.50)a
Big6/5	+/-	0.29 (1.24)	0.03 (0.12)	0.35 (1.75)c	0.24 (1.15)
AuditLag	+	-0.04 (-0.62)	-0.01 (-0.19)	0.02 (0.25)	0.00 (0.05)
Tenure	-	0.16 (0.58)	-0.15 (-0.51)	-0.12 (-0.45)	-0.24 (-0.80)
Ln(Sales)	-	-0.12 (-2.17)b	-0.11 (-1.96)b	-0.04 (-0.93)	-0.06 (-1.33)
GCDisclosures	+	0.26 (3.78)a	0.23 (3.08)a	0.25 (2.80)a	0.25 (2.73)a
PostStandard	+		0.85 (4.10)a		0.50 (2.38)b
Observations		221	221	221	221
Pseudo R ² d		12.7%	17.3%	20.9%	22.6%

PostStandard equals one if after effective date of the Belgian GC audit standard and zero otherwise. See Table 1 for sample information and other variable definitions. Estimation is ordered probit regression.

a,b,c Significant beyond the 1%, 5% and 10% levels, respectively (two-sided tests).

d $1 - (\ln L_{mle} / \ln L_{constant})$, where *Lmle* is the likelihood function at the maximum-likelihood estimates and *Lconstant* is the likelihood function when all coefficients (not the constant) are constrained to equal zero.

TABLE 3
Audit Opinions for Stressed Bankrupt and Non-Bankrupt Companies by Auditor Type

$$\begin{aligned}
 & \left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\} \left| \begin{array}{l} Bankrupt_{i,t+1} \\ \\ \end{array} \right. = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 AuditLag_{i,t} + \beta_3 Tenure_{i,t} + \beta_4 Ln(Sales)_{i,t} + \\
 & \hspace{15em} \beta_5 GCDisclosures_{i,t} + \epsilon \hspace{10em} (1c) \\
 & \left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\} \left| \begin{array}{l} Bankrupt_{i,t+1} \\ \\ \end{array} \right. = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 AuditLag_{i,t} + \beta_3 Tenure_{i,t} + \beta_4 Ln(Sales)_{i,t} + \\
 & \hspace{15em} \beta_5 GCDisclosures_{i,t} + \beta_6 PostStandard_{i,t} + \epsilon \hspace{10em} (1d) \\
 & \left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\} \left| \begin{array}{l} NonBankrupt_{i,t+1} \\ \\ \end{array} \right. = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 AuditLag_{i,t} + \beta_3 Tenure_{i,t} + \beta_4 Ln(Sales)_{i,t} + \\
 & \hspace{15em} \beta_5 GCDisclosures_{i,t} + \epsilon \hspace{10em} (1c) \\
 & \left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\} \left| \begin{array}{l} NonBankrupt_{i,t+1} \\ \\ \end{array} \right. = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 AuditLag_{i,t} + \beta_3 Tenure_{i,t} + \beta_4 Ln(Sales)_{i,t} + \\
 & \hspace{15em} \beta_5 GCDisclosures_{i,t} + \beta_6 PostStandard_{i,t} + \epsilon \hspace{10em} (1d)
 \end{aligned}$$

Variable	E[sign]	Stressed Bankrupt				Stressed Non-bankrupt			
		Big 6/5		Non-Big 6/5		Big 6/5		Non-Big 6/5	
		Eq 1c	Eq 1d	Eq 1c	Eq 1d	Eq 1c	Eq 1d	Eq 1c	Eq 1d
Constant		1.23 (0.63)	1.34 (0.68)	0.70 (0.66)	-0.19 (-0.17)	-0.97 (-0.81)	-1.25 (-1.06)	-1.44 (-1.38)	-1.12 (-1.06)
Pr(Bankrupt)	+	1.85 (2.91)a	1.90 (2.86)a	1.22 (3.96)a	1.55 (4.53)a	1.61 (3.23)a	1.76 (3.17)a	2.23 (4.34)a	2.14 (4.11)a
Big6/5									
AuditLag	+	-0.11 (-1.17)	-0.11 (-1.20)	0.02 (0.27)	0.08 (1.01)	-0.02 (-0.19)	-0.05 (-0.46)	0.08 (0.79)	0.08 (0.75)
Tenure	-	0.26 (0.09)	0.32 (0.11)	0.15 (0.54)	-0.26 (-0.83)	0.23 (0.63)	0.15 (0.37)	-0.38 (-0.78)	-0.49 (-0.94)
Ln(Sales)	-	-0.15 (-1.33)	-0.15 (-1.36)	-0.12 (-1.83)c	-0.11 (-1.73)c	-0.04 (-0.59)	-0.04 (-0.57)	-0.06 (-0.95)	-0.09 (-1.27)
GCDisclosures	+	0.56 (3.00)a	0.58 (2.94)a	0.20 (2.61)b	0.15 (1.76)c	0.37 (2.80)a	0.35 (2.61)a	0.16 (1.21)	0.17 (1.21)
PostStandard	+		-0.15 (-0.34)		1.24 (4.83)a		0.60 (2.09)b		0.44 (1.31)
Observations		54	54	167	167	97	97	124	124
Pseudo R ² d		25.7%	25.9%	10.0%	18.9%	17.3%	20.0%	21.7%	22.8%

PostStandard equals one if after effective date of the Belgian GC audit standard and zero otherwise. See Table 1 for sample information and other variable definitions. Estimation is ordered probit regression.

a,b,c Significant beyond the 1%, 5% and 10% levels, respectively (two-sided tests).

d $1 - (\ln L_{mle} / \ln L_{constant})$, where L_{mle} is the likelihood function at the maximum-likelihood estimates and $L_{constant}$ is the likelihood function when all coefficients (not the constant) are constrained to equal zero.

TABLE 4

Audit Opinion Rates by Bankruptcy Status, Auditor Type, Time Period and Number of Financial-Juridical Criteria Violated

Panel A: Stressed bankrupt companies

	<u>Total</u>				<u>Violate neither FJ Criteria</u>				<u>Violate one FJ Criteria</u>				<u>Violate both FJ Criteria</u>			
	<u>PreStandard</u>		<u>PostStandard</u>		<u>PreStandard</u>		<u>PostStandard</u>		<u>PreStandard</u>		<u>PostStandard</u>		<u>PreStandard</u>		<u>PostStandard</u>	
Big 6/5																
<i>GCOpinion</i>	55.0%	(11/20)	64.7%	(22/34)	0.0%	(0/3)	n/a	(0/0)	57.1%	(4/7)	50.0%	(5/10)	70.0%	(7/10)	70.8%	(17/24)
<i>EMOpinion</i>	5.0%	(1/20)	8.8%	(3/34)	0.0%	(0/3)	n/a	(0/0)	0.0%	(0/7)	10.0%	(1/10)	10.0%	(1/10)	8.3%	(2/24)
Non-Big 6/5																
<i>GCOpinion</i>	40.2%	(45/112)	76.4%	(42/55)	10.0%	(1/10)	55.6%	(5/9)	29.0%	(9/31)	70.6%	(12/17)	49.3%	(35/71)	86.2%	(25/29)
<i>EMOpinion</i>	5.4%	(6/112)	3.6%	(2/55)	0.0%	(0/10)	0.0%	(0/9)	6.5%	(2/31)	0.0%	(0/17)	5.6%	(4/71)	6.9%	(2/29)
Total																
<i>GCOpinion</i>	42.4%	(56/132)	71.9%	(64/89)	7.7%	(1/13)	55.6%	(5/9)	34.2%	(13/38)	63.0%	(17/27)	51.9%	(42/81)	79.2%	(42/53)
<i>EMOpinion</i>	5.3%	(7/132)	5.6%	(5/89)	0.0%	(0/13)	0.0%	(0/9)	5.3%	(2/38)	5.9%	(1/27)	6.2%	(5/81)	7.5%	(4/53)

Panel B: Stressed non-bankrupt companies

	<u>Total</u>				<u>Violate neither FJ Criteria</u>				<u>Violate one FJ Criteria</u>				<u>Violate both FJ Criteria</u>			
	<u>PreStandard</u>		<u>PostStandard</u>		<u>PreStandard</u>		<u>PostStandard</u>		<u>PreStandard</u>		<u>PostStandard</u>		<u>PreStandard</u>		<u>PostStandard</u>	
Big 6/5																
<i>GCOpinion</i>	26.7%	(12/45)	42.3%	(22/52)	0.0%	(0/6)	0.0%	(0/11)	42.9%	(6/14)	41.2%	(7/17)	24.0%	(6/25)	62.5%	(15/24)
<i>EMOpinion</i>	6.7%	(3/45)	11.5%	(6/52)	0.0%	(0/6)	9.1%	(1/11)	7.1%	(1/14)	5.9%	(1/17)	8.0%	(2/25)	16.7%	(4/24)
Non-Big 6/5																
<i>GCOpinion</i>	13.8%	(12/87)	21.6%	(8/37)	0.0%	(0/17)	0.0%	(0/14)	15.2%	(5/33)	23.1%	(3/13)	18.9%	(7/37)	50.0%	(5/10)
<i>EMOpinion</i>	5.7%	(5/87)	8.1%	(3/37)	0.0%	(0/17)	0.0%	(0/14)	6.1%	(2/33)	15.4%	(2/13)	8.1%	(3/37)	10.0%	(1/10)
Total																
<i>GCOpinion</i>	18.2%	(24/132)	33.7%	(30/89)	0.0%	(0/23)	0.0%	(0/25)	23.4%	(11/47)	33.3%	(10/30)	21.0%	(13/62)	58.8%	(20/34)
<i>EMOpinion</i>	6.1%	(8/132)	10.1%	(9/89)	0.0%	(0/23)	4.0%	(1/25)	6.4%	(3/47)	10.0%	(3/30)	8.1%	(5/62)	14.7%	(5/34)

FJ Criteria pertains to the financial juridical criteria that Belgian Company Law specifies and Belgian audit standard references (i.e., whether retained earnings are negative for the current year and whether net income is negative for the current and prior years). See Table 1 for sample information and variable definitions.

TABLE 5
Characteristics of Type I and II Audit Opinion Errors by Time Period

			PreStandard		PostStandard	
			Bankrupt _{t+1}		Bankrupt _{t+1}	
			No	Yes	No	Yes
CleanOpinion	Observations		100	69 (Type II)	50	20 (Type II)
	Pr(Bankrupt) _t	mean	0.359	0.529	0.346	0.367
		median	0.322	0.555	0.305	0.284
	Big6/5 _t	mean	0.300	0.116	0.480	0.450
	AuditLag _t	mean	4.808	5.696	4.872	5.700
		median	4.900	6.000	4.700	5.000
	Tenure _t	mean	0.150	0.087	0.280	0.250
	Sales _t	mean	6.193	8.313	13.137	15.146
		median	3.127	5.078	6.580	3.929
	GCDisclosures _t	mean	1.000	1.420	0.840	1.400
		median	1.000	1.000	1.000	1.000
FJCriteria-RE _t	mean	0.710	0.797	0.460	0.700	
FJCriteria-NI _t	mean	0.500	0.522	0.240	0.450	
EMOpinion	Observations		8	7	9	5
	Pr(Bankrupt) _t	mean	0.732	0.968	0.713	0.578
		median	0.996	0.994	0.670	0.671
	Big6/5 _t	mean	0.375	0.143	0.667	0.600
	AuditLag _t	mean	4.113	5.571	5.944	5.200
		median	4.500	6.000	5.000	5.000
	Tenure _t	mean	0.250	0.000	0.222	0.000
	Sales _t	mean	0.369	19.463	2.942	7.252
		median	0.083	2.315	2.656	8.589
	GCDisclosures _t	mean	1.250	1.429	1.889	1.800
		median	1.000	1.000	1.000	2.000
FJCriteria-RE _t	mean	1.000	1.000	0.889	0.800	
FJCriteria-NI _t	mean	0.625	0.714	0.556	1.000	
GCOpinion	Observations		24 (Type I)	56	30 (Type I)	64
	Pr(Bankrupt) _t	mean	0.733	0.738	0.716	0.722
		median	0.740	0.831	0.841	0.905
	Big6/5 _t	mean	0.500	0.196	0.733	0.344
	AuditLag _t	mean	5.272	5.929	4.978	5.266
		median	5.000	6.000	5.000	5.000
	Tenure _t	mean	0.042	0.036	0.200	0.203
	Sales _t	mean	3.068	8.005	12.662	36.288
		median	1.112	3.301	2.406	4.286
	GCDisclosures _t	mean	1.542	1.893	1.800	2.469
		median	1.500	2.000	1.000	2.000
FJCriteria-RE _t	mean	0.958	0.982	1.000	0.906	
FJCriteria-NI _t	mean	0.583	0.750	0.667	0.672	

See Table 1 for sample information and variable definitions.

TABLE 6
Board Disclosures and Audit Opinions for Stressed Bankrupt Companies by Time Period

$GCDisclosures_{i,t}$	$Bankrupt_{i,t+1} = \beta_0 + \beta_1 FJCriteria-RE_{i,t} + \beta_2 FJCriteria-NI_{i,t} + \varepsilon$	(2)
$\left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\}$	$Bankrupt_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} +$	
	$\beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \varepsilon$	(1a)
$\left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\}$	$Bankrupt_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} +$	
	$\beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \beta_7 GCDisclosures-IV_{i,t} + \varepsilon$	(1e)
$\left. \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\}$	$Bankrupt_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} +$	
	$\beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures-IV_{i,t} + \varepsilon$	(1f)
<hr/>		
Variable	E[sign]	<div><div>PreStandard</div><div>Eq 2 Eq 1a Eq 1e Eq 1f</div></div> <div><div>PostStandard</div><div>Eq 2 Eq 1a Eq 1e Eq 1f</div></div>
Constant		<div><div>-0.53 (-1.60)</div><div>0.64 (0.54)</div><div>0.60 (0.50)</div><div>0.47 (0.39)</div><div>0.12 (0.46)</div><div>0.60 (0.40)</div><div>0.45 (0.28)</div><div>0.48 (0.32)</div></div>
FJCriteria-RE	+	<div><div>0.98 (2.79)a</div><div></div><div></div><div></div><div>0.69 (2.51)b</div><div></div><div></div><div></div></div>
FJCriteria-NI	+	<div><div>0.16 (1.03)</div><div></div><div></div><div></div><div>0.07 (0.45)</div><div></div><div></div><div></div></div>
Pr(Bankrupt)	+	<div><div></div><div>1.52 (4.12)a</div><div>1.44 (3.84)a</div><div>1.41 (3.72)a</div><div></div><div>1.54 (2.80)a</div><div>1.26 (1.74)c</div><div>1.21 (1.75)c</div></div>
Big6/5	+	<div><div></div><div>0.54 (1.71)c</div><div>0.37 (0.98)</div><div>0.31 (0.87)</div><div></div><div>-0.49 (-1.26)</div><div>-0.53 (-1.26)</div><div>-0.47 (-1.23)</div></div>
AuditLag	+	<div><div></div><div>0.04 (0.49)</div><div>-0.00 (-0.01)</div><div>0.00 (0.05)</div><div></div><div>-0.04 (-0.40)</div><div>0.00 (0.01)</div><div>-0.00 (-0.00)</div></div>
Tenure	-	<div><div></div><div>-0.39 (-0.78)</div><div>-0.40 (-0.78)</div><div>-0.39 (-0.79)</div><div></div><div>-0.11 (-0.28)</div><div>-0.07 (-0.19)</div><div>-0.09 (-0.21)</div></div>
Ln(Sales)	-	<div><div></div><div>-0.15 (-2.19)b</div><div>-0.20 (-2.90)a</div><div>-0.19 (-2.71)a</div><div></div><div>-0.05 (-0.60)</div><div>-0.08 (-0.82)</div><div>-0.08 (-0.86)</div></div>
GCDisclosures	+	<div><div></div><div>0.20 (2.10)b</div><div>0.14 (1.44)</div><div></div><div></div><div>0.30 (2.17)b</div><div>0.27 (1.68)c</div><div></div></div>
GCDisclosures-IV	+	<div><div></div><div></div><div>0.70 (2.16)b</div><div>0.83 (2.63)a</div><div></div><div></div><div>0.27 (0.54)</div><div>0.50 (1.26)</div></div>
Observations		<div><div>132</div><div>132</div><div>132</div><div>132</div><div>89</div><div>89</div><div>89</div><div>89</div></div>
Pseudo R ² d		<div><div>n/a</div><div>12.4%</div><div>14.3%</div><div>13.3%</div><div>n/a</div><div>18.8%</div><div>19.2%</div><div>16.1%</div></div>

GCDisclosures-IV are the fitted values from regressing *GCDisclosures* on all exogenous variables in the system (i.e., all right-hand-side variables in equations 1a and 2). See Table 1 for sample information and other variable definitions. Estimation is Poisson regression for equation (2) and ordered probit regression for equations (1a), (1e) and (1f).

a,b,c Significant beyond the 1%, 5% and 10% levels, respectively (two-sided tests).

d $1 - (\ln Lmle / \ln Lconstant)$, where *Lmle* is the likelihood function at the maximum-likelihood estimates and *Lconstant* is the likelihood function when all coefficients (not the constant) are constrained to equal zero.

TABLE 7
Board Disclosures and Audit Opinions for Stressed Non-Bankrupt Companies by Time Period

$GCDisclosures_{i,t}$	$\left\{ \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\}$	$NonBankrupt_{i,t+1} = \beta_0 + \beta_1 FJCriteria-RE_{i,t} + \beta_2 FJCriteria-NI_{i,t} + \epsilon$								(2)
		$NonBankrupt_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} +$								
		$\beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \epsilon$								(1a)
	$\left\{ \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\}$	$NonBankrupt_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} +$								
		$\beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures_{i,t} + \beta_7 GCDisclosures-IV_{i,t} + \epsilon$								(1e)
		$NonBankrupt_{i,t+1} = \beta_0 + \beta_1 Pr(Bankrupt)_{i,t} + \beta_2 Big6/5_{i,t} + \beta_3 AuditLag_{i,t} + \beta_4 Tenure_{i,t} +$								
	$\left\{ \begin{array}{l} 2 \text{ if } GCOpinion_{i,t} \\ 1 \text{ if } EMOpinion_{i,t} \\ 0 \text{ Otherwise} \end{array} \right\}$	$\beta_5 Ln(Sales)_{i,t} + \beta_6 GCDisclosures-IV_{i,t} + \epsilon$								(1f)
Variable	E[sign]	Eq 2	Eq 1a	Eq 1e	Eq 1f	Eq 2	Eq 1a	Eq 1e	Eq 1f	
Constant		-0.28 (-1.34)	-0.68 (-0.65)	-0.69 (-0.65)	-0.61 (-0.60)	-0.76 (-2.74)a	-2.42 (-1.77)c	-3.28 (-2.03)b	-3.36 (-2.05)b	
FJCriteria-RE	+	0.32 (1.38)				1.28 (4.17)a				
FJCriteria-NI	+	0.23 (1.32)				-0.04 (-0.22)				
Pr(Bankrupt)	+		1.96 (3.69)a	2.84 (2.27)b	2.91 (2.40)b		2.29 (3.85)a	1.90 (2.86)a	1.96 (2.89)a	
Big6/5	-		0.16 (0.51)	0.12 (0.39)	0.12 (0.38)		0.56 (1.76)c	0.28 (0.79)	0.30 (0.83)	
AuditLag	+		0.15 (1.82)c	0.08 (0.57)	0.07 (0.54)		-0.09 (-0.79)	-0.12 (-1.10)	-0.12 (-1.15)	
Tenure	-		-0.80 (-1.21)	-0.83 (-1.22)	-0.81 (-1.23)		0.11 (0.31)	-0.46 (-0.77)	-0.46 (-0.78)	
Ln(Sales)	-		-0.15 (-2.00)b	-0.08 (-0.58)	-0.07 (-0.58)		0.05 (0.73)	0.03 (0.43)	0.04 (0.48)	
GCDisclosures	+		0.21 (1.29)	0.21 (1.33)			0.29 (2.38)b	0.14 (1.03)		
GCDisclosures-IV	+			-0.89 (-0.76)	-0.79 (-0.70)			1.40 (2.28)b	1.53 (2.61)a	
Observations		132	132	132	132	89	89	89	89	
Pseudo R ² d		n/a	24.3%	24.8%	23.7%	n/a	23.6%	31.2%	30.5%	

GCDisclosures-IV are the fitted values from regressing *GCDisclosures* on all exogenous variables in the system (i.e., all right-hand-side variables in equations 1a and 2). See Table 1 for sample information and other variable definitions. Estimation is Poisson regression for equation (2) and ordered probit regression for equations (1a), (1e) and (1f).

a,b,c Significant beyond the 1%, 5% and 10% levels, respectively (two-sided tests).

d $1 - (\ln L_{mle} / \ln L_{constant})$, where L_{mle} is the likelihood function at the maximum-likelihood estimates and $L_{constant}$ is the likelihood function when all coefficients (not the constant) are constrained to equal zero.

TABLE 8
Ex Post Analysis of Type I and II Audit Opinion Errors – By Time Period

			<u>PreStandard</u>		<u>PostStandard</u>	
			<u>Bankrupt_{t+1}</u>		<u>Bankrupt_{t+1}</u>	
			No	Yes	No	Yes
CleanOpinion	Observations		100	69 (Type II)	50	20 (Type II)
	<i>Liabilities_t</i>	mean	3.780	6.235	7.490	7.244
		median	2.016	4.647	3.395	4.402
		total	378.000	430.215	374.500	144.880
	Observations		67 (of 100)	61 (of 69)	43 (of 50)	13 (of 20)
	$\Delta Debt/Assets_t$	mean	0.051	n/a	0.800	n/a
		median	- 0.006	n/a	- 0.006	n/a
	<i>CostofDebt_t</i>	mean	0.108	0.122	0.062	0.091
		median	0.093	0.113	0.059	0.068
	<i>CostofDebt_{t+1}</i>	mean	0.092	n/a	0.091	n/a
		median	0.089	n/a	0.057	n/a
	<i>Employees_{t-1,t}</i>	total	4,207 to 4,097	3,889 to 3,635	2,001 to 2,223	1,114 to 1,212
		% neg.	52% (35/67)	61% (38/61)	26% (11/43)	36% (4/13)
	<i>Employees_{t,t+1}</i>	total	4,097 to 3,937	n/a	2,223 to 2,368	n/a
		% neg.	57% (38/67)	n/a	37% (16/43)	n/a
EMOpinion	Observations		8	7	9	5
	<i>Liabilities_t</i>	mean	0.895	24.214	4.824	2.635
		median	0.148	10.323	1.990	3.393
		total	7.160	169.498	43.416	13.175
	<i>Auditor$\Delta_{t,t+\tau}$</i>	percent	13%	n/a	11%	n/a
	Observations		3 (of 8)	4 (of 7)	6 (of 9)	3 (of 5)
	$\Delta Debt/Assets_t$	mean	- 0.057	n/a	0.173	n/a
		median	0.000	n/a	0.072	n/a
	<i>CostofDebt_t</i>	mean	0.103	0.196	0.049	0.064
		median	0.101	0.225	0.051	0.066
	<i>CostofDebt_{t+1}</i>	mean	0.077	n/a	0.042	n/a
		median	0.065	n/a	0.037	n/a
	<i>Employees_{t-1,t}</i>	total	49 to 42	347 to 331	135 to 183	147 to 124
		% neg.	67% (2/3)	75% (3/4)	33% (2/6)	100% (3/3)
	<i>Employees_{t,t+1}</i>	total	42 to 56	n/a	183 to 173	n/a
		% neg.	33% (1/3)	n/a	50% (3/6)	n/a
GCOpinion	Observations		24 (Type I)	56	30 (Type I)	64
	<i>Liabilities_t</i>	mean	2.134	5.570	7.095	27.947
		median	1.120	3.048	2.902	3.446
		total	51.216	311.920	212.850	1,788.608
	<i>Auditor$\Delta_{t,t+\tau}$</i>	percent	13%	n/a	30%	n/a
	Observations		12 (of 24)	47 (of 56)	20 (of 30)	53 (of 64)
	$\Delta Debt/Assets_t$	mean	0.174	n/a	0.010	n/a
		median	- 0.013	n/a	- 0.011	n/a
	<i>CostofDebt_t</i>	mean	0.173	0.115	0.072	0.096
		median	0.119	0.114	0.067	0.071
	<i>CostofDebt_{t+1}</i>	mean	0.128	n/a	0.083	n/a
		median	0.074	n/a	0.080	n/a
	<i>Employees_{t-1,t}</i>	total	233 to 199	3,106 to 2,643	2,332 to 2,349	11,583 to 10,856
		% neg.	27% (4/15)	60% (28/47)	40% (8/20)	51% (27/53)
	<i>Employees_{t,t+1}</i>	total	199 to 200	n/a	2,349 to 2,061	n/a
		% neg.	27% (4/15)	n/a	70% (14/20)	n/a

Of the 221 stressed, private Belgian companies filing bankruptcy during 1995-1996 and 2001-2002 (see Table 1 for more information), 32 do not have financial statement data to compute *CostofDebt* and another eight do not have employee data for years t-1 and t (employee data for year t+1 is rarely available for these bankrupt observations). Of the 221 matched non-bankrupt Belgian companies (see Table 1 for more information), 33 do not have financial statement data to compute *CostofDebt* and another 37 do not have employee data for years t-1, t and t+1.

Variables are as follows:

<i>Liabilities</i>	=	Total liabilities in millions of 1994 Euros
<i>AuditorΔ</i>	=	Companies that, at the end of their 3-year mandate period, change their audit firm
<i>ΔDebt/Assets</i>	=	Change in interest-bearing liabilities divided by (prior year) total assets
<i>CostofDebt</i>	=	Interest expense divided by interest-bearing liabilities (following Pittman and Fortin 2004, this variable is winsorized at +5% and -5%)
<i>Employees</i>	=	Total number of employees