A STRESS TEST OF THE EFFECTS OF BANKRUPTCY RISK, ACCOUNTING QUALITY AND CORPORATE GOVERNANCE ON AUDIT FEES: EVIDENCE FROM HONG KONG DURING THE ASIAN FINANCIAL CRISIS

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Abstract

This paper studies how a client' s bankruptcy risk, together with its accounting quality and corporate governance, affect audit pricing. We use the unusual economic conditions of the 1998 Asian financial crisis as a stress test of the effect of these factors on audit pricing in Hong Kong. We find that audit fees are highly sensitive to a client firm' s financial condition, corporate governance, and accounting quality. Firms with high risk of failure paid significantly higher audit fees. Firm' s with lower quality earnings due to abnormal/discretionary accruals generally paid higher audit fees, although this effect is moderated by the firm' s financial condition. We also find that well-governed firms with above median financial condition paid significantly lower audit fees. Our results, and related prior research, are well explained through use of a more comprehensive risk model that incorporates accounting as well as auditing uncertainties.

INTRODUCTION

The purpose of this paper is to provide a better explanation of the behavior of audit fees under conditions of unusual economic uncertainty. We assume that such uncertainties affect not only the nature and extent of audit evidence gathering procedures (what we term audit uncertainties) but also negotiations with clients about how to best reflect economic uncertainties in the financial statements (what we term accounting uncertainties). In other words once the auditor has obtained sufficient evidence as specified by GAAS, the auditor must then consider whether this information is appropriately reflected in the financial statements. An example of an accounting uncertainty is failure to properly disclose a material contingent loss due to litigation. An example of a related audit uncertainty is failure to detect this misstatement after performing all evidence gathering procedures.

The way accounting uncertainties are dealt with via accruals will determine at least in part accounting quality. This paper provides evidence on how bankruptcy risk, accounting quality, and corporate governance all affect audit pricing.

Our evidence shows that audit fees are highly sensitive to a firm's financial condition, corporate governance and accounting quality. The effect of bankruptcy risk on audit fees can be so significant that it surpasses the significance of all conventional variables except firm size in explaining audit pricing. We also find evidence that firms with higher abnormal accruals (and thus lower earnings quality) pay higher fees. Our results on corporate governance, however, are mixed. Consistent with existing studies, our univariate results indicate that firms with better governance pay a higher fee. However, in multivariate analyses, we find that firms with good governance and above-median financial condition pay a significantly lower fee. Our result is consistent with the notion that auditors are willing to rely on a firm's corporate governance as a basis to reduce audit work only when the client's financial condition is sufficiently strong.

Our results suggest that relying on the traditional audit risk model may not be sufficient to explain the level of audit fees. In particular, using that model to try to explain why audit fees should go up with better corporate governance results in an anomaly–lower-risk firms get charged higher fees. To better explain our results, therefore, we make use of an expanded risk model that explicitly recognizes that there are different types of key uncertainties in auditing, and that the traditional audit risk model covers only those associated

with determining the sufficiency of audit evidence. Explicitly incorporating accounting uncertainties into the risk model thus helps better explain our (and other) research results.

The next section provides a brief overview of the audit fee studies and accruals literature. We then discuss a simple analytical risk model for describing the relationship among accounting and auditing uncertainties and its effect on assurance. Here we assume that audit assurance is related to the quality of the resulting audited financial statements. Our extended risk model allows us to provide a better explanation of the relationship of audit quality and audit fees. We then identify the hypotheses consistent with this model and describe the Hong Kong institutional setting, the context within which the audit fee and other data was generated. Subsequent sections describe the experimental design of the study, the empirical results and interpretation, and the resulting conclusions.

LITERATURE REVIEW

This paper studies how a client's bankruptcy risk, together with its accounting quality and corporate governance, affect audit pricing. Simunic and Stein (1996) provide a comprehensive survey of the audit pricing literature, which shows that there is little evidence on how a client's corporate governance and accounting quality affect audit pricing. The only paper we are aware of is one presented at the 2000 American Accounting Association Annual Conference by Carcello et al. (2000) which examined board characteristics and audit fees. Based on questionnaires collected from U.S. companies, the authors found that audit fees are generally higher for firms with better governance. However, there is already a quite abundant and consistent line of literature documenting the fact that corporate governance has effects on auditing and financial reporting. Firms with good governance have been reported to have fewer accounting manipulations (Dechow et al. 1996), more informative earnings (Vafeas 2000), fraud allegations (McMullen 1996), and fraud in fact (Beasley 1996). Commonly studied governance features include audit committees (Dechow et al. 1996; McMullen 1996), majority outside directorship (Beasley 1996), duality or separate CEO and board chairpersons (Beasley 1996; Dechow et al. 1996), and board size (Vafeas 2000). In an experimental study using 96 audit seniors, Cohen and Hanna (2000) showed that auditors are likely to reduce substantive testing in the presence of stronger corporate governance. In this paper, we extend this research by analyzing whether these effects influence the economics of the audit market via audit fees. We study both these issues using archival data from Hong Kong during the recent Asian Financial Crisis (1997–1998). This crisis represents an opportunity to test the effects on audit fees of increased risk of bankruptcy due to a downturn in the economy, as moderated by quality of corporate governance and quality of earnings.

Several audit fee studies have employed proxy variables for auditees' financial condition, such as LOSS (whether a firm had reported losses for the prior years) or DEBT (a firm's debt ratio). Simunic and Stein (1996) provide an excellent review. However, the overall results are mixed. Most of these studies have found that the "bankruptcy" variables were insignificant (e.g., Francis 1984; Palmrose 1986; Francis and Stokes 1986; Chung and Lindsay 1988). On the other hand, there are also studies pointing to the significance of some of the "bankruptcy risk" variables. For instance, Simunic (1980) and Turpen (1990) reported that auditees that had incurred recent prior losses paid a higher fee. Two papers specifically examine audit fees and the client's business risk level. Beatty (1993) studied 1,191 firms going public in the U.S.A. from 1982 through 1984. Beatty used a proxy variable for the audit fee which is defined as "all expenses in connection with the issuance and distribution of the securities to be registered, other than underwriting discounts and commissions." Beatty used the following *ex post* measures of litigation exposure:

. a dummy variable (DELIST) indicating that the security was subsequently delisted from the CRSP file because of financial distress;

. a dummy variable (BANKRUPT) indicating that the company filed for bankruptcy prior to December 31, 1987;

. a dummy variable (LAWSUIT) indicating the existence of subsequent litigation under the *Securities Act of 1933*.

All these benchmarks of bankruptcy risks are *ex post* measures of exposure, which, if correctly anticipated, should have increased auditors' fees at the time of the initial public offering. Both BANKRUPT and LAWSUIT are significant within the 10% level, indicating that auditors have some foresight in predicting litigation exposure and adjusting their price to compensate for it, *ex ante.*

O' Keefe et al. (1994) collected information on audit billings, audit hours and client attributes from a regional office of a Big 5 auditor in the U.S.A. They found that, in addition to size and complexity, the following risk factors are priced in the audit fee: i) the auditee's book leverage ratio, and ii) the engagement audit partners' assessment of inherent risk (INRISK).

The quality of earnings literature focuses on income smoothing and earnings management, currently one of the most active areas of financial accounting research. Earnings management has been defined as "a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to, say, merely facilitating the neutral operation of the process)" (Schipper 1989, 92). Various accruals

models have been used to test whether accruals improve the value relevance of earnings by smoothing or signaling private information about future profitability. On the other hand, discretionary accruals can distort earnings through opportunistic earnings management, as Schipper's definition indicates. The empirical results are mixed. For example, Subramanyam (1996) supports the value relevance hypothesis whereas Francis et al. (1996) find evidence for the distorting effects of discretionary accruals.

Perhaps a better description of discretionary and nondiscretionary accruals is unexpected and expected accruals, respectively, because of their dependence on the accrual expectation models used (Healy 1996, 113–114). Healy argues that current accrual expectation models may not be very reliable in predicting earnings management, as defined above, because they do not adequately incorporate changes in business fundamentals. Thus, a potential problem with the accruals literature is that it may rely excessively on the mechanics of accruals in practice. The problem with this approach is that it results in an accrual concept which is "a concept determined by procedures rather than a procedure determined by concepts" (Skinner 1987, 48). Our way of getting around this problem is to study the effect of audits on the credibility of the accruals. By providing greater assurance on the accruals reported, auditors reduce the risk that accruals will be used opportunistically by management (Francis et al. 1999, 19). Our paper is an extension of this line of research that looks at the broader context of accruals in terms of not only audits but also corporate governance and the general business environment. The next section describes an analytical model that is useful in interpreting our own and other researchers' empirical results.

ANALYTICAL MODEL OF RISKS AFFECTING AUDIT FEES

In this section we introduce a more general risk model that will help us interpret our data analysis. The model is based on the assumption that the more uncertainties associated with an accrual, the more questionable it becomes. The audit's role is to provide credibility for accruals and related reported earnings by reducing uncertainty concerning their economic relevance (Francis et al. 1999, 19). From our perspective a large part of GAAP is devoted to (more or less) coherently disclosing such uncertainties via appropriate measurements and/or footnote disclosures.

Perhaps the most widely used definition of auditors' economic role is that expressed by DeAngelo (1981, 115) as "the auditor's perceived ability to:

(a) discover errors or breaches in the accounting system, and

(b) withstand client pressures to disclose selectively in the event a breach is discovered."

This definition seems to be the most widely accepted as reflecting audit quality, credibility, assurance and related concepts, and so we will use it in explaining our model. The definition relates to the probability of material misstatement of audited information. High assurance or credibility means that this probability is low, and vice versa.

In general, there is little controversy in defining audit assurance as 1 – PMM, where PMM is the probability of material misstatement after audit. Major controversies arise, however, when one attempts to further specify PMM. Perhaps the most widely used approximation is the audit risk model of auditing standards such as SAS 39 and 47 (AICPA 1999 , AU350 and 312). These standards describe the evidence integration process as a multiplicative relationship of inherent risk, control risk, and detection risk of substantive procedures. There is evidence indicating that auditor reasoning, if not purely Bayesian, is likely quasi-Bayesian in applying the audit risk model in practice (e.g., Krishnamoorthy et al. 1999, 110; Loebbecke 1995, 190). Thus a reasonable approach may be to let audit risk (henceforth AR) approximate PMM. In fact, this is suggested in some auditing standards when high assurance is related to low AR and medium assurance to medium AR (e.g., International Standards on Auditing 100, para. 29 and 30, or AICPA 1999, AU 316). This is also the reasoning that appears to underlie the audit partners' assessments of the INRISK variable used in the O' Keefe et al. (1994) study discussed above.

Our primary concern with the audit risk (AR) concept is that it may be too narrow for the economic analysis of audit fees and accruals-based earnings. Specifically, we feel that the traditional AR concept is too narrow a basis for interpreting the credibility of audited financial reporting or in assessing audit quality (Thornton 1983, 93, Simunic and Stein 1996. 129 and Messier and Austen 2000, 130 indicate a similar concerns). The core problem, as we see it, is a failure to clearly distinguish between two types of uncertainties: audit uncertainties (primarily covered by GAAS with its AR model) and accounting uncertainties (primarily covered by GAAP).

A good example of this distinction is provided by the Petroni and Beasley (1996, 169) results which show that after audit PMM for some accounts can be as high as .9.[1] If we assume that their auditors used a typical planned AR of, say, .05 then it is clear that PMM is not the same as AR. There is a "risk gap" here. What is the source of this gap? We account for it in our expanded risk model. The gap suggests that auditors need to consider both accounting and auditing uncertainties in deciding on the form of the audit opinion, and in

influencing audit fees. We do this with the simplest analytical risk model possible, consistent with probability axioms, incorporating both classes of uncertainties.

The model[2] is as follows:

(1) $PMM = AR + ((1 - AR) \times VR)$

Where AR is audit risk or risk of material misstatement due to audit uncertainty, and VR is the valuation risk or risk of material misstatement due to accounting uncertainty. VR is like the value-at-risk concept of finance for market risks associated with financial instruments, except that VR is more complex. Depending on the account in question VR can also include risks such as credit risk, actuarial risk, liquidity risk, operational risk, legal risk, and all of these need to be adjusted for material misstatements. VR incorporates the uncertainties associated in making accounting estimates, usually dealing with events affecting future cash flows. VR thus is intended to cover the uncertainties associated with using the many accounting estimates and disclosures required by accrual accounting and GAAP—the VR associated with cash and known cash flows is normally zero. VR reflects the uncertainties left over under the ideal audit conditions of 100 percent testing and perfect execution of all evidence gathering procedures so that all audit uncertainties are eliminated and AR would equal zero in equation (1). On the other hand, a greater than zero AR deals with the uncertainties associated with the audit evidence gathering procedures.

Conversely, letting PMM=AR implies VR=0. In such a situation auditing becomes more a compliance type engagement, with GAAP representing the compliance criteria. In this case the meaning of GAAP in terms of reflecting accounting uncertainties is left out of the risk model. The essence of introducing equation (1) is to make the accounting uncertainties explicit and more visible in the PMM.

In our equation (1) framework, PMM thus stands for the total risk of material misstatement in audited financial statements.[3] Note that with equation (1) PMM may vary much more than AR because of the impact of accounting standards on the acceptability of different levels of VR for different accounts. Thus, depending on GAAP there is a potential for PMM to vary greatly with different accounts in the financial statements. Introducing accounting uncertainties to PMM via VR adds a new dimension to the determinant of audit fees. Note that both types of uncertainties are equally important to users because they both deal with risk of material misstatements. Yet they are quite different as reflected by the separate standard setting processes for GAAS (dealing with audit uncertainties) and GAAP (dealing with accounting uncertainties).

VR and AR are distinguished primarily by the fact that AR is controlled through the amount of evidence, whereas VR is not. AR relates to the evidence gathering stage of the audit process and was designed primarily to ensure that sufficient evidence was obtained. VR, on the other hand, relates to how best to reflect this evidence (ideally evidence from a perfect audit when AR=0) in the accounting measurements and disclosures. Thus VR also affects the auditor's opinion. It would be natural to also assume that the auditor's opinion depends on the results of negotiations with the client so that the VR component is reduced to acceptable levels after any adjustments (Petroni and Beasley 1996, 156)—these topics are normally considered accounting issues and traditionally covered in accounting courses (just not quite in the way represented here).

A striking example of the potential usefulness of distinguishing between the VR and the AR uncertainties is in explaining the risk gap in Petroni and Beasley 1996. This study analyzed the accuracy of audited estimates of property casualty insurance claim losses and their results suggest a PMM=0.9 for these estimates. Since these are audited estimates AR is about .05, meaning that the risk gap is accounted for by our equation (1) risk model as VR=.89. This illustrates that VR can represent the vast majority of uncertainty associated with audited accounting numbers. Acceptable levels of VR by an audit firm may thus be much more important in reflecting high quality audits than the level of AR.

With our definition of PMM, an auditor would be successfully sanctioned or sued by third parties whenever a material misstatement occurs. The probability of such a lawsuit is a function of the efficiency of the legal system, in particular to what extent the full social damages of audit failures are incorporated in the dollar amount of the lawsuit. For a risk-neutral auditor, expected liability losses would then be PMM times the damage award from a lawsuit. As the typical damage award increases, the risk-neutral auditor would reduce PMM proportionately. (Heninger (2001) provides some evidence consistent with a general inverse relationship between PMM and auditor litigation.) Note that, because auditors use the words "present fairly" in their report, VR levels are not necessarily limited to GAAP. Courts sometimes (e.g., Continental Vending Case) expect auditors to use higher-level fairness criteria if GAAP is considered to be misleading in a given context. This is part of the auditor's professional judgment and social responsibilities and suggests that auditors need to consider more seriously the deeper logical bases of their conclusion—something that our PMM concept attempts to address in a better way. GAAP in our framework provides a

(frequently vague) upper bound on acceptable VR, and one way auditors may differentiate themselves is by using lower VR considered more appropriate for users in specific contexts. This may be an especially important issue with the increasing international harmonization of accounting standards. In our equation (1) framework, such harmonization would be achieved through harmonizing acceptable levels of VR for different accounting issues (e.g., conditions of acceptability of fair value accounting for financial instruments).[4]

In conclusion, we propose a parsimonious audit assurance model (1 – PMM) to better explain the behavior of audit fees in different contexts. In particular, the explicit representation of two major, distinct classes of uncertainties may be especially helpful in explaining audit fees under the severe economic conditions focused on in this study.

INSTITUTIONAL INFORMATION

Hong Kong data has been used in several prior studies of audit pricing including Defond et al. (2000), Gul (1999) and Lee (1996). Hong Kong provides an interesting setting for the study of audit fees for several reasons. First, audit fees are a mandatory disclosure item in Hong Kong. Hence, the data provided is relatively precise and less subject to survey response bias than in countries where audit fees need not be disclosed. Second, Hong Kong is largely a city state, and as argued convincingly by Defond et al. (2000), audit pricing is free of many disturbances that cannot be avoided by audits in large countries. Third, the recent financial crisis provided an interesting laboratory setting to study the effects of bankruptcy risk and governance on audit pricing.

Prior to the Asian Financial Crisis, Hong Kong had been called the least litigious place on earth (IFAC 1995). Hence, there is no strong *a priori* justification for Hong Kong audit fees to be significantly affected by bankruptcy factors, as auditors' legal liability was believed to be minimal. Studies using Hong Kong data prior to the Asian Financial Crisis (e.g., Defond et al. 2000; Gul 1999) indicated that variables relating to a firm's financial condition were insignificant.

We use data from 1998 when Hong Kong was in the midst of the crisis. As Table 1 shows, the Asian Financial Crisis caused a dramatic decline in economic conditions in Hong Kong. As one of the Four Little Dragons in Asia, Hong Kong had experienced continuous growth in gross domestic product, imports and exports for decades prior to 1997. However, this trend shifted abruptly in 1998. Positive growth was replaced by economic contraction.

The effects of the Asian Financial Crisis were substantial. *Business Week* (1998) described the situation in Hong Kong as follows: "Consumer confidence has evaporated, with devastating effect on retailers. One sign of the times: PricewaterhouseCoopers has expanded its liquidation practice fourfold." During that period, as detailed in the timeline in Table 2, accountants were heavily criticized by the public and regulatory agencies. The Stock Exchange of Hong Kong, for instance, referred a number of audited reports to the Hong Kong Society of Accountants for investigation, alleging audit malpractice. The crisis also caused several auditors to withdraw their original reports and change to qualified opinions. There was an overall substantial increase the rate of qualified opinions to about 10% of companies listed in the stock exchange. This is consistent with the findings of Chen and Church (1996) and Holder-Webb and Wilkins (2000) that such audit qualifications have information value.

HYPOTHESIS DEVELOPMENT

Audit Fees and Bankruptcy Risk

Though the evidence on whether audit fees are adjusted for bankruptcy risk is at best inconclusive, there are reasons to believe that auditors are more concerned about such risks when the economy is weak. First, bad economic times are characterized by a tightening of credit policies by the lending institutions and a sharp drop in stock prices. Thus, financing may be difficult to obtain. Firms in poor financial condition are also more likely to fail than they are in good times. Second, in bad times, auditors are more likely to be blamed, by regulatory bodies and investors, for their inability to warn the public of corporate failure. Blaming auditors can be a useful tactic for taking the pressure off regulators. For example, it has been argued that auditors were used as a scapegoat for poor government policies in the U.S. Savings and Loan crisis (Knapp 1993). Moreover, investors are also likely to target auditors, who are perceived to have deep pockets.

In terms of our PMM model, increased bankruptcy risk and difficult economic times can increase the VR for many accruals. In addition, AR is also increased through the inherent risk used to help plan how much evidence to gather, unless offset by increased audit evidence. Thus, *ceteris paribus*, increased bankruptcy risk will increase PMM *ex ante*. Consequently, if PMM is to be kept at a target level, auditors will need to increase their reliance on controls or substantive work. And in the case of increased VR, auditors need to consider more adjusting entries and negotiations with clients about proper accounting given the available evidence. Also, PMM may need to be reduced because of an increase in expected losses due to litigation. All these factors point to increased audit fees. Thus, despite prior results

documenting the insignificance of bankruptcy risks for audit fees, we hypothesize that during the Asian Financial Crisis, audit fees were highly sensitive to bankruptcy risk.

H1: Audit fees are highly sensitive to bankruptcy risk in a financial crisis.

Audit Fees and Corporate Governance

Evidence concerning the relationship between corporate governance and audit fees is mixed. Recent studies have documented that well-governed firms tend to spend more on audit fees. For example, Carcello et al. 2000 found that firms with better governance are willing to pay more to obtain better-quality audits. Our explanation for higher audit quality in better-governed firms relates to the VR component of PMM. Under our formulation, one way to reduce PMM in specific accounts is to reduce VR for those accounts. Better-governed firms prefer to issue higher-quality financial statements that go beyond minimal GAAP. This will tend to reduce VR because GAAP sets a (usually vague) range of acceptable levels of VR. However, the higher the maximum acceptable level of VR the more alternative measurements become acceptable. Reduced VR reduces PMM, *ceteris paribus*. Thus using equation (1) we provide an alternative explanation to using the external audit to complement corporate governance.

Better quality in our definition includes justifiable accruals and less uncertainty surrounding audited accounting numbers (i.e., lower PMM). Better audits will enhance a firm's overall governance level because of improved accountability due to higher-quality financial performance measures. This is well explained in terms of lower VR for the higher quality performance measures. But, on the other hand, poor economic conditions can increase VR, e.g., because of questions raised about the going concern assumption. (See Carcello and Neal 2000 for evidence of the effects on independent external auditors.)

For this reason, consistent with the arguments we made above, during financial crises, good governance alone may not be sufficient for auditors to reduce their audit testing and fees. Governance and the client's financial condition may need to be considered jointly in assessing audit fees and the extent of testing. Firms in bad financial condition that have good governance still pose high risks to auditors. In sum, in economic downturns, auditors will rely on governance information to reduce audit fees only when the firm's financial condition is sufficiently sound. Of course, in economic downturns, the number of firms experiencing difficulty should increase along with their audit fees. This discussion leads to the following conjecture.

H2: Corporate governance and financial condition interact to affect audit fees. Audit fees will be lower for firms with both a favorable financial condition and good corporate governance. Audit fees will not be lower for firms that have good governance but are in poor financial condition.

Audit Fees and Accounting Quality

Evidence of a relationship between audit fees and accounting quality is sparse. However, there is a huge literature studying earnings management and smoothing (e.g., Healy and Wahlen 1999). Typical measures of accounting quality include a firm's total or discretionary accrual level. Other things being equal, firms with higher accruals are more likely to engage in earnings management and thus have a lower accounting quality. Even though more discretionary accruals may facilitate performance measurement, the risk of opportunistic behavior also increases. Moreover, the higher the accrual level, the more time required for auditors to verify their reasonableness. From an auditor's perspective, increased accruals result in increased risk (because VR, and therefore PMM, increases), especially in the case of discretionary/abnormal accruals. Healy and Whalen (1999, 367) express concerns about reliance on management's judgments in making the accounting estimates used in accrual accounting. From this perspective, one of the auditor's roles should be to evaluate management's justification in support of its judgments. If an accrual is not sufficiently logically supported by management's arguments and explanations, and auditor evidence, then the auditor should insist on adjustments that are justified, given the available evidence.[5] This leads to the familiar relevance vs. reliability measurement issues of accounting (Healy and Wahlen 1999, 366). In our framework VR represents the lack of reliability of an accounting measure, while relevance is captured by the strength of the auditor's justification argumentation and how well the conclusion of the argument meets user needs.[6]

As soon as accruals are introduced to the accounting system, so is accounting uncertainty, but that is the price of giving users more relevant information (Healy and Whalen 1999). But, as acceptable uncertainty is increased, so is the set of acceptable alternative accruals. Note it is non-zero VR that creates this added complexity. So there must be a point at which the cost of increased alternatives (including opportunistic accruals) is more than offset by the benefits of the increased flexibility. Abnormal accruals increase the risk of opportunistic or discretionary accruals. Hence, *a priori*, audit effort level and increased negotiation (and thus audit fees) will be positively related to a firm's abnormal accruals.

Auditors will therefore exert greater audit effort on firms with lower accounting or earnings quality because of the increased potential for negotiations and the resulting adjustments . However, the financial statements we obtained have been audited and are therefore presented after the auditors' adjustments for excessive accruals. We expect that in times of financial crisis, auditors will need to evaluate the assumptions underlying accruals more carefully. In particular, firms with abnormal accruals will pay a higher fee. Auditors will be more willing to tolerate abnormal accruals, however, if those accruals are considered relatively safe (i.e., their VR is relatively low). Nevertheless, since the overall financial condition of a client can affect the going concern assumption, more risky clients will generally have higher VRs associated with their accounting numbers. In other words, accruals will more likely be tolerated for non-risky clients (i.e., auditees in sound financial condition). Accruals by firms in bad financial condition, on the other hand, will be more carefully monitored by auditors, thereby increasing audit fees for those firms.[7]

Hence, we hypothesize that:

H3a: Abnormal accruals are more likely to be found in the audited financial statements of firms in good financial condition.

H3b: Audit fees will be significantly higher for firms with more abnormal accruals.

RESEARCH DESIGN

Introduction

In this section, we describe the variable constructs and the resulting regression model used in our analysis. In addition, the data sources are described.

Constructs of Bankruptcy, Governance and Accounting Quality Measures

Bankruptcy Model

We used the more widely applicable Altman Z' ' model (Altman 1993) in our analysis. The model is as follows.

*Z' ' score = 6.56 * WCAP/TASSET + 3.26 * RE/TASSET + 6.72 * EBIT/TASSET + 1.05 * BEQUITY/TLIAB*

Where

WCAP = Working capital

TASSET = Total assets

RE = Retained earnings
EBIT = Earnings before interest and taxes
BEQUITY = Book value of equity
TLIAB = Book value of debt (total liabilities)

Under this model, firms with a score of less than 1.10 are considered to have a severe risk of bankruptcy. Those with scores between 1.10 and 2.60 are in the gray area and those above 2.60 are considered sound.

Corporate Governance Measurement

Recent studies measure a firm's governance by constructing a summary index aggregating individual governance features (e.g., Engel et al. 2000). We follow this practice and construct a summary index, CGOV, as follows. The base value of CGOV is 0. A firm will score 1 point for each of the following governance features: i) audit committee (ACOM) in place in 1998, ii) CEO and board chairman duality (DUAL), iii) a board composed predominantly (above 50%) of outside directors (MPOD), and iv) above-average board size (ANMB; mean number of board members = 8.58; median = 8.0). The minimum possible value of CGOV is 0.0 (worst governance) and the maximum possible value is 4.0 (best governance). We label firms with a score of 3.0 and above as well-governed firms. About 13% of our sample firms met this criterion.

Accounting Quality

We measure a firm's accounting quality using key accrual measures described in Dechow et al. (1995). First, we compute a firm's total accrual based on the Jones (1991) accrual model as follows: TA = [Δ Current assets – Δ Cash] – Δ Current liabilities – Depreciation and amortization expense. Δ is taken as the difference between the years 1998 and 1997. We then normalize the total accrual by a firm's total assets in 1997 ($tasset_7$). Discretionary (abnormal) accrual is defined in a Modified Jones sense as the normalized total accrual less nondiscretionary (expected) accrual, which is obtained by the following cross-sectional regression equation on our sampled firms: $TA/tasset_7 = \alpha + \beta_R ((\Delta REV - \Delta REC) /tasset_7) + \beta_P (PPE /tasset_7) + \varepsilon_j$, where Δ REV is the change in revenue between 1998 and 1997, PPE is the gross property plant and equipment, and Δ REC = net receivables in 1998 less net receivable in 1997 scaled by total assets at 1997. Hence, discretionary accrual is computed as $\mu_j = TA_j /tasset_{7j} – (\alpha + \beta_R (\Delta REV_j - \Delta REC_j) /tasset_{7j} + \beta_P PPE_j /tasset_{7j})$. The purpose of Δ REV is to control for nondiscretionary accruals of current assets and liabilities, on the grounds that they depend on changes in business activity as measured by revenues. PPE_j controls for nondiscretionary accruals of depreciation expenses as they depend on a

firm's investment in capital assets. Δ REC adjusts for changes in receivables. Our computed abnormal accrual figures represent the firm's (excess) accrual after the portion normally attributed to sales (receivable changes adjusted) and fixed assets has been deducted.

Regression Model

To ensure comparability with prior studies using Hong Kong data, in addition to our experimental variables, we encompass all variables used in Defond et al. (2000; henceforth DFW).[8] Moreover, we put in dummy variables for audit qualification and property industries. We believe that a dummy variable for audit qualification is needed because, during the period covered, many audit qualifications were issued in Hong Kong. A dummy variable for the property industry is needed because previous studies have argued that the Hong Kong property industry is unique in that it's relatively straight-forward to manage (Hofstede 1994).

The base linear regression model used is:

$$LNAF = \beta_0 + \beta_1 LNTA + \beta_2 SRSUB + \beta_3 FSP + \beta_4 LTLR + \beta_5 QUICK + \beta_6 ETAR + \beta_7 CATA + \beta_8 LOSS + \beta_9 MONID + \beta_{10} QUAL + \beta_{11} BSCORE + \beta_{12} GOVGF + \beta_{13} GOVBF + \beta_{14} DACC + \beta_{15} PROPDUM$$

The variables and the expected signs are:

Dependent variables

LNAF = Natural logarithm transformation of audit fee

Control variables

LNTA = Natural logarithm transformation of total assets (+)

SRSUB = Square root of number of subsidiaries (+)

FSP = Foreign subsidiaries as a percentage of all subsidiaries (+)

LTLR = Long-term liability to long-term asset ratio (+)

QUICK = Quick ratio, which is computed as quick assets (total current assets minus inventory) divided by current liabilities (–)

ETAR = Earnings before taxes to total assets ratio (–)

CATA = Current asset to total assets ratio (+)

LOSS = A dummy variable to capture whether there was a loss in the three years prior to 1998 (+)

MONID = Year-end month. The variable is assigned a value of 0 if the year-end is in the peak month (March) and a value of 1 otherwise (–)

QUAL = Qualified opinion. The variable is assigned a value of 1 if the firm received a qualified opinion in 1998 and a value of 0 otherwise (+)

PROPDUM = Property industry dummy. The variable is assigned a value of 1 if the firm is classified by the Stock Exchange of Hong Kong as engaging in the property (real estate) industry, and a 0 otherwise

Experimental variables

BSCORE = Bankruptcy score based on the Altman Z'' model. To facilitate interpretation, we reverse the sign of the Z'' score (multiplying the score by –1). Before this transformation, the higher the Z'' score, the healthier the firm is financially. After the transformation, the higher the BSCORE (= –Z'' score), the higher the bankruptcy risk (+)

GOVGF = The variable is assigned a value of 1 if the firm is classified as having good governance and above-median financial condition, and a value of 0 otherwise (–)

GOVBF = The variable is assigned a value of 1 if the firm has good governance and below-median financial condition, and a value of 0 otherwise (insignificant)

DACC = Discretionary accrual based on the Modified Jones' Model (+).

Sample Selection

We selected firms listed in Hong Kong in 1998. To ensure comparability with DFW, we concentrated our analysis on three major industries: i) consolidated firms, ii) industrial firms, and iii) property industry. We obtained our data, except as indicated below, from the Datastream database, which covers about 70% of listed firms in Hong Kong. We obtained the information relating to audit fees, subsidiaries, financial year-end, audit qualifications, corporate governance and retained earnings, which were not covered by Datastream, from the annual report files contained in the Hong Kong Stock Exchange Annual Report CD-ROMs. Our final sample comprises 403 firms [including 144 (93 in DFW) consolidated, 178 (117 in DFW) industrial and 81 property (78 in DFW) firms]. A smaller subset of 347 firms had the full data for accrual analysis. Thus our sample size compares favorably with other studies employing Hong Kong data.

RESULTS

Descriptive Statistics

Tables 2 report the descriptive statistics. To benchmark with the DFW study, we also report the comparable DFW figure in brackets. The mean (median) firm size (LNTA) is 14.13 (13.96) [DFW: 13.64, 13.58 respectively]. Mean log (audit fee) is 7.16, which is higher than the 6.76 in DFW. The mean value of SRSUB (square root of subsidiaries) is 5.20, also larger than the 4.36 reported in DFW. Percentage of foreign subsidiaries is about 48%, compared to

the 36% reported in DFW. Current asset to total assets ratio is about 0.48, identical to DFW's figure. Some 58% of firms have a non-March year-end, as compared to 52% in DFW. All characteristics are comparable with those of the DFW sample.

There are also differences from the DFW sample due to the changing economic conditions. The mean quick ratio of our firms is much lower (mean 1.35 versus 2.157 in DFW) due possibly to the deteriorating economic environment. Debt financing increased from 0.06 of long-term assets in DFW to 0.12 in our sample period. The percentage of firms that reported losses in any of the past three years, 27%, is much higher than that reported in DFW (14%). The average firm showed a loss in 1998, with an earnings to assets ratio (ETAR) of –0.071, versus the 0.084 reported for 1992 in DFW. About 15% of the sampled firms received qualified audit opinions. Note also that our mean Z'' score (pre-transformed) is 3.28 (median 3.58), which means that the average firm was solvent and was above the critical Z'' score defined in Altman (1993). About 13% of our firms had three or more desirable features in their governance structure. Among these well-governed firms, 58% were in above-average and 42% in below-average financial condition. Finally, the mean discretionary accrual was 0.002 of total assets.

Table 3 presents the correlation analysis of key variables. Since DFW did not provide such information, benchmarking with that study is not possible. However, univariate correlation suggests that while conventional variables (e.g., total assets, number of subsidiaries, quick ratios) are significantly correlated with audit fees, BSCORE is also significant and in the predicted direction (correlation = $\rho = 0.10$). This means that firms with higher bankruptcy risks tend to pay higher audit fees. Moreover, the BSCORE is highly correlated with the following variables (QUAL: $\rho = 0.42$; LOSS: $\rho = 0.30$; QUICK: $\rho = -0.41$; ETAR: $\rho = -0.80$). The correlation coefficients are intuitive and consistent with the notion that firms in poor financial condition were more likely to be subject to qualified opinions and to incur prior (LOSS) or current losses (ETAR), as well as being less liquid (QUICK).

The governance information is reported in greater detail in Panel A of Table 4. About 11.8% of the firms in our sample had audit committees in 1998, 76% had separate CEO and board chairman, and 16% had boards dominated by outside directors. Panel B reports the correlation table for the governance variables. CGOV is the summary variable of corporate governance. It is highly correlated with the component governance variables, such as ACOM, MPOD, DUAL and ANMB. The correlation ranges from 0.38 to 0.72. Hence, the summary variable appears to express a firm's governance condition. The correlation of LNAF and CGOV ($\rho > 0.22$) is consistent with recent studies documenting that firms with better

governance are more willing to pay higher audit fees. In our case, this seems to be partly explained by the fact that larger firms tend to be better governed and, as noted above, the size of the firm is significantly positively correlated with audit fees, suggesting that the audit complements corporate governance for these firms.

As shown in Table 3, firms with recent losses are more likely to engage in discretionary accrual (correlation of LOSS and DACC = 0.12). Discretionary accruals are associated with boosted profit figures (correlation of DACC and ETAR = 0.151; $p < 0.004$). Though not reported in the table, the correlation of the interaction term of ETAR and LOSS with DACC is 0.37 ($p < 0.0001$). Hence, firms with recent losses that report a current profit are more likely to make a positive discretionary accrual. Interestingly, it appears that only firms that have good governance and are in above-median financial condition can engage in discretionary accrual (correlation of DACC and GOVGF = 0.20). These companies represent the least risky firms for auditors. The relationship is consistent with our hypothesis that auditors are more likely to tolerate accruals by these firms based on their earnings management behavior.

Regression Results

Tables 5 - 10 report regression results. Regression 5 replicates DFW and displays similar results. However, some variables which were insignificant in DFW are significant in our study. They include LOSS (t = 1.894), ETAR (t = –4.004) and LTLR (t = –1.772). Hence, firms with current and prior losses paid significantly higher fees in our sample but not in DFW. Firms in Hong Kong have relatively low leverage, yet the audit fee decreases with long-term leverage. The negative coefficient of LTLR can also be found in DFW and may be caused by the high correlation between LTLR and CATA. Though not reported here in separate tables, when we remove CATA from our regression, LTLR becomes positively significant ($t > 3.0$). Note that firms receiving qualified opinions in our sample (QUAL) also paid a significantly higher fee (t = 2.220).

BSPEC, DFW' s audit specialist variable, is insignificant in our sample. This is possibly due to the changes in the industry structure after the merger of Price Waterhouse and Coopers & Lybrand to form PricewaterhouseCoopers (PWC) and Deloitte and Touche with Kwan Wong Tan Fong to form Deloitte Touche Kwan Wong Tan Fong (DTKWTF). Hence, with only four major players in the local audit market (PWC, KPMG, DTKWTF and Ernst & Young), the definition of audit specialist becomes correlated with the size of the audit firm. After the merger, PWC and DTKWTF became industry leaders in almost all segments we studied. The lower audit fees charged by the former Kwan Wong Tan Fong had also lowered

the significance of Big 5 audit specialization. We find this specialization variable to be insignificant in all other regressions and thus drop it from our analysis.

Regression 6 adds the bankruptcy score, BSCORE, to the regression. This variable is significant ($t = 3.883$; $p < 0.0001$) and affects the significance of variables such as QUICK, ETAR, LOSS and QUAL. This is to be expected as the BSCORE is highly correlated with these variables. Regression 7 reports the results when two (ETAR and QUICK) variables highly correlated (correlation > 0.30) with BSCORE are deleted. After deletion, the significance of BSCORE jumps considerably ($t = 6.324$). Its explanatory power is just below that of LNTA.

In all subsequent tables, we add the property industry dummy (PROPDUM) to the regression. Table 8 documents that audit fee in this industry is much lower than the other two ($t = -7.917$). This table also reports the effects of the governance variables (HGOV) which has the expected sign but insignificant ($t = –1.315$). Regression 9 separates this governance variable into two: GOVGF for firms with good governance and above-median financial condition, and GOVBF for firms with good governance but below-median financial condition. Consistent with hypothesis 2, auditees with good governance and above-median financial condition paid a significantly lower fee ($t = –2.119$). The same, however, cannot be said for firms with good governance but below-median financial condition ($t = 0.415$). Note that our multivariate result differs from the univariate one, which documented a positive relationship between audit fees and governance. Our multivariate result is consistent with the notion that, in an economic downturn, auditors have to consider both corporate governance and a firm's financial condition in order to reduce the extent of substantive tests on auditees and/or negotiations with the client.

Regression 10 adds the accounting quality variable. Due to the unavailability of some accrual data, our sample size shrinks to about 347. Even in this reduced sample, our results are qualitatively identical to the larger sample of 403 reported on above. For conciseness, we only report the modified Jones model results in the table. The discretionary accrual variable is significant ($t = 2.017$; p-value < 0.02). This variable may be an indicator of abnormal or opportunistic accruals according to prior research. Results using other measures are largely similar.

Robustness Check

Accounting quality measure based on the Original Jones Model is significant (t = 1.882; p-value < 0.006). Furthermore, since accounting principles with respect to depreciation and fixed assets in Hong Kong are different from those in the United States in that Hong Kong allows firms to revalue fixed assets to market value. Fluctuations in the value of fixed assets can affect depreciation charges and thus may reduce the generalizability of our results. To overcome this problem, we also compute an alternate accrual measure adding back depreciation charges to the accrual figures and estimate normal accrual by regressing on $TA/tasset_7 = \alpha + \beta_R (\Delta REV /tasset_7)$ only. This measure (not reported in the table) is also significant (t = 2.529; p-value < 0.02).

Our results are robust to different definitions of good governance. We labeled a firm as well governed if it had at least three out of four desirable governance features. However, some of the component governance variables are more controversial than others. For example, it has been argued that a larger board may not signify better governance. As a robustness test, we deleted this variable and redefined good governance to mean having at least two desirable features out of the three remaining governance variables. Our result became even more significant (t = –2.946). When duality was excluded from the governance computation, the results remained significant with a t-value = –2.04. The effect is weaker when we exclude outside directorship from the governance computation; GOVGF then becomes insignificant (t = –1.529; p < 0.127). When we exclude ACOM (audit committee) from the governance computation, the variable also becomes insignificant (t = –0.733).

SUMMARY

Our results support the hypothesis that bankruptcy risk has a very significant effect on audit pricing (H1). Firms with a high bankruptcy risk pay significantly higher audit fees. Moreover, the significance of this variable in our sample surpasses all other conventional variables of audit pricing, with the sole exception of total assets. We also find that well-governed firms with above-median financial condition pay a significantly lower fee (H2). This result is interesting as evidence on corporate governance and audit pricing is limited. It also shows the important effect of uncertainties on audit fees. We also find that accounting quality, as reflected by a firm' s discretionary/abnormal accruals, affects audit fees. Firms with more discretionary accruals generally paid a higher fee (H3b). However, auditors appear to allow only auditees in good financial condition to engage in earnings management (H3a),

perhaps because the consequences are less severe in financially strong firms. This is a useful area for future research.

Our results may be specific to Hong Kong in this period of economic crisis. As discussed above, many past studies, including those employing Hong Kong data, reported no significant results for bankruptcy risk. Our results thus suggest that audit pricing may be affected by the macroeconomic environment. In good times, auditors may not be as concerned about a client's financial condition (perhaps because the likelihood of damages from material misstatements is lower). In a prosperous economy, even if a firm were to suffer from economic difficulty, it would have a better chance of recovering than in a poor economy. Moreover, from a large audit firm's perspective, an isolated incidence of audit failure may not be as serious as systematic failure across many clients. It is in difficult economic times, when banks are tightening credit for many firms simultaneously, that auditors may be most sensitive to bankruptcy risks. Our results may also be driven by the abundance of firms in financial difficulty in our sample. This helped to create the variations needed to detect the significance of economic conditions.

Generally, the results are as predicted by our PMM model. Higher bankruptcy risk tends to increase audit fees because inherent risks and valuation risks also rise, thus increasing the need for substantive testing and for further accounting adjustments or disclosures. With respect to quality of financial statements, we need to qualify our conclusions in line with the methodological limitations noted by Healy and Wahlen (1999). With these qualifications in mind, our results suggest that, as quality of earnings is reduced (as proxied by discretionary / abnormal accruals), audit fees increase because of the increased need for accounting adjustments. If corporate governance is improved, then audit fees can decrease because VR is reduced due to higher quality performance measures, and/or inherent risks are reduced, thus reducing the amount of audit work. This is the argument for the external audit as substitute for corporate governance (Carcello et al. 2000). Also, good corporate governance may tend to reduce independence risks for auditors with the consequence that they will not need to be as defensive and cautious in their efforts, thereby also reducing audit fees. (See Johnstone et al. 2001, 8 for a discussion of ways to mitigate independence risks, and Carcello and Neal 2000 for problems that may arise when such independence may be lacking.)

The alternative argument is the audit as complement to corporate governance (Carcello et al. 2000) wherein the audit is an integral part of corporate governance. Under this audit as complement argument we provide an alternative explanation that the auditor is expected to go beyond minimal GAAP and use lower VR in order to get higher quality

performance measures. This will result in increased audit fees for improved governance. Under either the complement or substitute arguments we feel our approach using equation (1) provides a parsimonious, yet improved explanation for the complex interaction between governance and financial condition.

Finally, reduced quality of earnings through abnormal accruals increases the need for audit adjustments; however, this can be mitigated by the client's overall financial condition. Hence, the effect of abnormal accruals on audit fees seems to be conditional on the financial health of the client. Again, this can be explained in terms of the effect on VR. Good financial condition tends to reduce VR and the necessity for audit adjustments. Our empirical results indicate this can offset the increased VR normally associated with abnormal accruals. Thus global, firm-wide risk factors may have a greater impact on audit fees than localized risks relating to specific accounts or cycles in the audit. This result is consistent with the effects of upper-level management controls as compared to more detailed, localized controls (e.g., Eilifsen and Messier 2000, 29).

These explanations follow from our model that assumes a target PMM which, if exceeded, must be compensated for by additional audit adjustments, disclosures (perhaps with accompanying negotiations) and/or additional evidence gathering efforts. All of these activities will tend to increase audit fees. And perhaps these fees should be increased if the quality of the audit and resulting audited numbers are to be maintained in severe economic conditions like those of the 1998 Hong Kong financial crisis.

Endnotes

1. Other good examples which show that there are differences in the levels of audit and accounting uncertainties can be found in Amer et al. (1994), especially their Table 2.
2. This model is derived in Smieliauskas (1999), where PMM is referred to as PAAR or post audit accounting risk.
3. It is possible to develop an equation for PMM that also incorporates the effects of independence risk on both the gathering of evidence and subsequent negotiations with the client on adjustments. However, such refinements are not needed for this study so we keep the equation for PMM as parsimonious as possible.
4. To simplify and standardize the analysis, we can assume the "conceptual primacy" of assets and liabilities over revenues and expenses, as in FASB's conceptual framework for financial reporting (Storey and Storey 1998, 79). This means that, consistent with the statistical reasoning used with planned AR, a hypothesis testing reasoning can also be applied to determine whether an asset or liability should be recorded. The result of this test determines how the entry, if any, should be recorded.
5. This does not necessarily mean more conservative accounting—a key issue is whether, and what type of, differences in VR are allowed for asset vs. liability accounts. For some evidence see, e.g., Petroni and Beasley (1996), Kennedy et al. (1997), Hackenbrack and Nelson (1996), and Kinney and Nelson (1996). However, Smieliauskas (1999) identifies some coherent accounting measurement systems in which high assurance is consistent with conservative accounting.
6. There is also an interaction between relevance and reliability in the sense that less reliable numbers can also be less relevant numbers. Note, however, that more reliable numbers are not necessarily more relevant numbers.
7. For example, it is an open question whether the high PMM's observed by Petroni and Beasley 1996 would have been as acceptable for firms in poor financial condition, such as those in Carcello and Neal 2000.
8. With the exception of the variable for non–Big 5 specialist firms: with the merger of Kwan Wong Tan Fong with Deloitte Touche and Tohmatsu, there no longer were any non–Big 5 specialist firms in Hong Kong.

References

Altman, E. 1993. *Corporate Financial Distress and Bankruptcy*, 2nd ed. New York: John Wiley & Sons.

Amer, T., K. Hackenbrack, and M. Nelson. 1994. Between-auditor differences in the interpretation of probability phrases. *Auditing: A Journal of Practice & Theory* 13 (1), 126–136.

American Institute of Certified Public Accountants (AICPA). 1995. *Consideration of Internal Control in a Financial Statement Audit: An Amendment of SAS No. 55*. Statement on Auditing Statements No. 78. New York: AICPA.

——. 1999. *AICPA Professional Standards,* Vol. 1. New York: AICPA.

Beasley, M. S. 1996. An empirical analysis of the relation between the board of director composition and financial statement fraud. *The Accounting Review* 71 (4): 443–465.

Beatty, R. P. 1993. The economic determinants of auditor compensation in the initial public offerings market. *Journal of Accounting Research* 31 (2): 294–302.

Business Week. 1998. Report Card on Asia. *Business Week* (November 23): 70

Carcello, J., D. Hermanson, T. Neal, and R. Riley. 2000. Board characteristics and audit fees. Paper presented at the 2000 Annual American Accounting Association Meeting. Philadelphia, PA.

-,. and T.L. Neal. 2000. Audit Committee Composition and Audit Reporting. *Accounting Review*. 75 (4):453-467.

Chen, K.L. and B.K. Church. 1996. Going concern opinions and the market' s reaction to bankruptcy filings. *The Accounting Review*. 71 (1): 117-129

Chung, D., and W. Lindsay. 1988. The pricing of audit services: The Canadian perspective. *Contemporary Accounting Research.* 5 (1): 19–46.

Cohen, R. J., and D. M. Hanna. 2000. Auditors' consideration of corporate governance and management control philosophy in preplanning and planning judgements. *Auditing: A Journal of Practice & Theory* 19 (2): 133–146.

Committee of Sponsoring Organizations of the Treadway Commission (COSO). 1992. *Internal Control – Integrated Framework*. New York: COSO.

DeAngelo, L. E. 1981. Auditor independence, "low balling," and disclosure regulation. *Journal of Accounting and Economics* 3: 113–127.

Dechow, P. M; R. G. Sloan, and A.P. Sweeney. 1995. Detecting earnings management. *The Accounting Review* 70(2):193-225

Dechow, P.M., R. G. Sloan, and A. P. Sweeney. 1996. Causes and consequences of earnings manipulations: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research* 13 (1): 1–36.

Defond, M., J. Francis, and T. Wong. 2000. Auditor industry specialization and market segmentation. Evidence from Hong Kong. *Auditing: A Journal of Practice & Theory* 19 (1): 49-67.

Eilifsen, A., and W. F. Messier, Jr. 2000. The incidence and detection of misstatements: A review and integration of archival research. *Journal of Accounting Literature* 19:1–44.

Engel, E., R. Bushman, A. Smith, and Q. Chen. 2000. The sensitivity of corporate governance systems to the timeliness of accounting earnings. Working paper, University of Chicago and University of North Carolina at Chapel Hill.

Francis, J. 1984. The effect of audit firm size on audit fees. A study of the Australian market. *Journal of Accounting and Economics* 6: 133–151.

——, and D. Stokes. 1986. Audit prices, product differentiation, and scale economies. Further evidence from the Australian markets. *Journal of Accounting Research* 24 (2): 383–393.

——, J. D. Hanna, and L. Vincent. 1996. Causes and effects of discretionary asset write-offs. *Journal of Accounting Research* 34 (Supplement): 117–134.

Francis, J.R., E. L. Maydew, and H. C. Sparks. 1999. The role of Big 6 auditors in the credible reporting of accruals. *Auditing: A Journal of Practice & Theory* 18 (2): 17–34.

Gul, F. 1999. Audit prices, product differentiation and economic equilibrium. *Auditing: A Journal of Practice & Theory* 18 (1): 90–100.

Hackenbrack, K., and M. W. Nelson. 1996. Auditor' s incentives and their application of financial accounting standards. *The Accounting Review* 71,1: 43–59.

Healy, P. M. 1996. Discussion of a market-based evaluation of discretionary accrual models. *Journal of Accounting Research* 34 (Supplement): 107–115.

Healy, P. M., and J. M. Wahlen. A review of the earnings management literature and its implications for standard setting. *Accounting Horizons* 13,4: 365–383

Heninger, W. G. 2001. The association between auditor litigation and abnormal accruals. *The Accounting Review* 71 (1): 111–126.

Hofstede, G. 1994. Cultural constraints in management theories. *Academy of Management Executive* 7 (1): 81-95.

Holder-Webb, L.M. and M.S. Williams. 2000. The Incremental Information Content of SAS # 59 Going Concern Opinions. *Journal of Accounting Research*. 38,1: 209-219

International Federation of Accountants (IFAC). 1995. Auditors' Legal Liability in the Global Marketplace. *Report prepared by the IFAC Auditor' s Legal Liability Taskforce. New York: IFAC.*

——. 2000 *IFAC Handbook, Ethics and International Standards on Auditing*. IFAC, New York.

Johnstone, K. M., M.H. Sutton, and T. D. Warfield. 2001. Antecedents and consequences of independence risk: Framework for analysis. *Accounting Horizons* 15 (1): 1–18

Jones, J. 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 29 (2): 193-228.

Kennedy, J., D. N. Kleinmuntz, and M. E. Peecher. 1997. Determinants of the justifiability of performance in ill-structured audit tasks. *Journal of Accounting Research* 35 (Supplement): 105–130.

Kinney, W. R., Jr., and M. W. Nelson. 1996. Outcome information and the "expectations gap": The case of loss contingencies. *Journal of Accounting Research.* 34 (1): 281–299.

Knapp, M. L. 1993. *Contemporary Auditing*. St. Paul, MN: West Publishing.

Krishnamoorthy, G., T.J. Mock, and M.T. Washington. 1999. A comparative evaluation of belief revision models in auditing. *Auditing: A Journal of Practice & Theory* 18 (2): 105–127.

Lee, D.S. 1996. Auditor market share, product differentiation and audit fees. *Accounting and Business Research* 26: 315–324.

Loebbecke, J. K. 1995. On the use of Bayesian statistics in the audit process. *Auditing: A Journal of Practice & Theory* 14 (2): 188–192.

McMullen, D.A. 1996. Audit committee performance: An investigation of the consequences associated with audit committees. *Auditing: A Journal of Practice & Theory* 15 (1): 87–103.

Messier, F. M., Jr., and L. A. Austen. 2000. Inherent risk and control risk assessments: Evidence on the effect of pervasive and specific risk factors. *Auditing: A Journal of Practice & Theory* 19 (2): 119–131.

O' Keefe, T.B., D.A. Simunic and M.T. Stein, 1994. The production of audit services: Evidence from a major public accounting firm. *Journal of Accounting Research* 32 (2): 241–262.

Palmrose, Z. 1986. Audit fees and auditor size: Further evidence. *Journal of Accounting Research* 24 (1): 97-110.

Peecher, M. 1996. The influence of auditors' justification process on their decisions: A cognitive model and experimental evidence. *Journal of Accounting Research* 34 (1): 125–140.

Petroni, K., and M. Beasley. 1996. Errors in accounting estimates and their relation to audit firm type. *Journal of Accounting Research*. 34 (1): 151–171.

Schipper, K. 1989. Commentary: Earnings management. *Accounting Horizons* 3, 4: 91–102.

Simunic, D. 1980. The pricing of audit services: Theory and evidence. *Journal of Accounting Research* 18 (1): 161-183.

——, and M. Stein 1996. The impact of litigation risk on audit pricing: A review of economics and the evidence. *Auditing: A Journal of Practice & Theory* 15 (Supplement): 119-135.

Skinner, R. M. 1987. *Accounting Standards in Evolution.* Toronto: Holt Rinehart and Winston of Canada Ltd.

Smieliauskas, W. 1999. *A Framework for Assurance Evidence and Its Role in Accounting.* Toronto: Canadian Academic Accounting Association..

Storey, R.K., and S. Storey. 1998. *The Framework of Financial Accounting Concepts and Standards.* New York: FASB.

Subramanyam, K. R. 1996. The pricing of discretionary accruals. *Journal of Accounting and Economics* 22: 249–281.

Thornton, D. B. 1983. *The Financial Reporting of Contingencies and Uncertainties: Theory and Practice.* Research Monograph no. 5. Vancouver: Certified General Accountants Association of Canada.

Turpen, R. 1990. Differential pricing on auditors' initial engagements: Further evidence. *Auditing: A Journal of Practice & Theory* 9 (1): 60–76.

Vafeas, N. 2000. Board structure and the informativeness of earnings. *Journal of Accounting and Public Policy* 19 (2): 139–160.

TABLE 1
Timeline of Events: The Asian Financial Crisis and Auditing in Hong Kong

1. October 27, 1997: Start of the Asian Financial Crisis. The Dow Jones Industrial Average (Dow Average) plunged 554.26 points that day, the largest decline ever in points but the second-largest fall in percentage terms (7.18 percent).
2. October 1997 – September 1998: Deterioration of the Asian Economy. Hong Kong's GDP declined for the first time in recent history.
3. August 31, 1998: A new low for the Hang Seng Stock Index (the local key stock market index) of 7354 was recorded. The value was about 40% of the pre–Financial Crisis high recorded in August 1997.
4. November 1998: Real estate values on average declined 50% from their pre–Financial Crisis levels. Unemployment rate rose to 8% (average 1990-97: 2.30%). Imports and exports recorded negative growths of –1.81% and –3.51% respectively (average 1990-97: +15.45% and +14.71%).
5. September 1998: Auditors of eight listed companies changed previously unqualified opinions to disclaimers.
6. May 1999: Deloitte Touche Tohmatsu withdrew its audit report on the 1997 financial statements of Guangnan (Holdings) after the company declared bankruptcy.
7. May 1999: 10% of listed companies received qualified auditors' reports for 1998.
8. June 1999: The Stock Exchange of Hong Kong referred 11 cases to the Hong Kong Society of Accountants for follow-up on alleged material misstatements.
9. June 2000: The Hong Kong Court cleared the HKSA to probe some of the international Big 5 in Hong Kong.

Sources: As reported by the *South China Morning Post* during the period. Contained in electronic form in the International News section of the Nexis Lexis Database. Historical economic data are obtained from the Datastream Database.

TABLE 2
Descriptive Statistics [a]

Variables [b]	Mean	Standard Deviation	Minimum	Maximum
LNAF	7.16	0.80	4.80	10.34
LNTA	14.17	1.47	9.76	19.08
SRSUB	5.20	2.23	1.73	16.06
FSP	0.48	0.22	0.00	1.00
CATA	0.50	0.75	0.01	14.56
QUICK	1.35	2.17	12.38	22.28
LTLR	0.12	0.28	0.00	5.14
ETAR	–0.07	0.69	12.28	1.09
MONID	0.58	0.49	0.00	1.00
LOSS	0.27	0.44	0.00	1.00
QUAL	0.15	0.35	0.00	1.00
GOVGF	0.08	0.27	0.00	1.00
GOVBF	0.05	0.23	0.00	1.00
PROPDUM	0.21	0.40	0.00	1.00
BSCORE	–3.28	10.54	53.59	135.59
DACC	0.00	0.24	–1.28	2.91

[a] Number of observations: for variables except DACC: 403; for DACC: 354.

[b] Variable definitions:

LNAF = Natural logarithm transformation of audit fee;
LNTA = Natural logarithm transformation of total assets
SRSUB = Square root of number of subsidiaries
FSP = Foreign subsidiaries as a percentage of all subsidiaries
LTLR = Long-term liability to long-term asset ratio
QUICK = Quick ratio, quick assets divided by current liabilities
ETAR = Earnings before taxes to total assets ratio
CATA = Current asset to total assets ratio
LOSS = 1 if firm incurred loss in the three years prior to 1998, else 0.
MONID = 1 if the year-end is in the non-peak month (March), else 0.
QUAL = 1 if the firm received a qualified opinion in 1998, else 0.
PROPDUM = 1 for property (real estate) firms, 0 otherwise
BSCORE = Bankruptcy score: Altman Z'' model as multiplied by –1.
GOVGF = 1 if firm has good governance and above-median financial condition, else 0
GOVBF = 1 if the firm has good governance and below-median financial condition, else 0.
DACC = Discretionary accrual (Modified Jones model).

TABLE 3
Correlation Analysis of Major Variables

	LNAF	LNTA	SRSUB	FSP	CATA	QUICK	LTLR	ETAR	MONID	LOSS	QUAL	GOVGF	GOVBF	BSCORE
LNTA	0.69***													
SRSUB	0.60***	0.63***												
FSP	0.12**	–0.06	–0.10**											
CATA	–0.00	–0.17***	–0.03	0.02										
QUICK	–0.17***	–0.06	–0.13**	0.06	0.03									
LTLR	0.19***	0.14***	0.18***	–0.08	0.78***	–0.05								
ETAR	–0.00	0.19***	0.07	–0.02	0.07	0.07	–0.05							
MONID	0.09*	0.18***	-0.00	0.16***	-0.12**	0.11**	0.07	-0.06						
LOSS	-0.09*	-0.23***	-0.03	-0.01	-0.08	-0.06	0.00	-0.39***	-0.03					
QUAL	0.04	-0.10**	-0.04	-0.03	0.01	-0.29***	0.01	-0.34***	-0.04	0.14***				
GOVGF	0.05	0.16***	0.03	0.02	0.02	0.18***	0.03	0.15***	0.10*	-0.05	-0.07			
GOVBF	0.14***	0.11**	0.15***	0.00	-0.04	-0.07	0.09*	-0.14***	0.16***	0.05	0.02	–0.07		
BSCORE	0.10**	–0.15***	–0.01	0.05	–0.22***	–0.41***	–0.07	–0.80***	–0.04	0.30***	0.42***	–0.24***	0.18***	
DACC	0.00	0.00	–0.01	–0.05	0.02	0.00	0.07	0.15***	0.08	0.12**	-0.07	0.20***	–0.07	–0.09*

*, **, and *** indicate significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

[a] We report Spearman-rank correlation coefficients for discrete variables (LOSS, MONID, QUAL, GOVGF, GOVBF) and Pearson correlations otherwise.

[b] Variable definitions:

LNAF = Natural logarithm transformation of audit fee
LNTA = Natural logarithm transformation of total assets
SRSUB = Square root of number of subsidiaries
FSP = Foreign subsidiaries as a percentage of all subsidiaries
CATA = Current asset to total assets ratio
QUICK = Quick ratio, quick assets divided by current liabilities
LTLR = Long-term liability to long-term asset ratio
ETAR = Earnings before taxes to total assets ratio
MONID = 1 if the year-end is in the non-peak month (March), else 0.
LOSS = 1 if firm incurred loss in the three years prior to 1998, else 0.
QUAL = 1 if the firm received a qualified opinion in 1998, else 0.
GOVGF = 1 if firm has good governance and above-median financial condition, else 0.
GOVBF = 1 if the firm has good governance and below-median financial condition, else 0.
BSCORE = Bankruptcy score: Altman Z'' model as multiplied by –1.
DACC = Discretionary accrual (Modified Jones model).

TABLE 4 [a]

Panel A

Descriptive Statistics of Governance Variables

Variables [b]	Mean	Standard Deviation	Minimum	Maximum
HGOV	0.13	0.34	0.00	1.00
CGOV	1.47	0.90	0.00	4.00
ACOM	0.12	0.32	0.00	1.00
DUAL	0.76	0.43	0.00	1.00
MPOD	0.16	0.37	0.00	1.00
ANBM	0.43	0.50	0.00	1.00

Panel B

Correlation Analysis [c]

	LNAF	HGOV	CGOV	ACOM	DUAL	MPOD	ANBM	GOVGF	GOVBF	BSCORE
HGOV	0.13***									
CGOV	0.22***	0.62***								
ACOM	0.06	0.56***	0.43***							
DUAL	0.04	0.22***	0.59***	0.06						
MPOD	0.07	0.42***	0.38***	0.00	-0.02					
ANBM	0.26***	0.40***	0.72***	0.16***	0.17***	0.02				
GOVGF	0.05	0.74***	0.46***	0.44***	0.16***	0.30***	0.29***			
GOVBF	0.14***	0.62***	0.38***	0.32***	0.14***	0.28***	0.25***	-0.07		
BSCORE	0.10**	-0.06	-0.02	-0.15***	0.00	-0.03	0.06	-0.24***	0.18***	
DACC	0.00	0.06	0.08	0.03	0.03	-0.03	0.11**	0.18***	-0.12**	-0.09*

*, **, and *** indicate significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

[a] Number of observations for all variables: 403.

[b] Variable definitions:

HGOV = 1 if firm classified as having good corporate governance, else 0.
CGOV = Score of the firm's governance.
ACOM = 1 if audit committee exists, else 0.
DUAL = 1 if duality (firms with separate CEO and board chairman), else 0.
MPOD = 1 if board composed predominantly of outside directors, else 0.
ANBM = 1 if firm has an above average board size, else 0.
LNAF = Natural logarithm transformation of audit fee
GOVGF = 1 if firm has good governance and above-median financial condition, else 0.
GOVBF = 1 if the firm has good governance and below-median financial condition, else 0.
BSCORE = Bankruptcy score: Altman Z'' model as multiplied by –1.
DACC = Discretionary accrual (Modified Jones model).

[c] We report Spearman-rank correlation coefficients for discrete variables (HGOV, CGOV, ACOM, DUAL, MPOD, ANBM, GOVGF, GOVBF) and Pearson correlation if both variables have continuous values.

TABLE 5
Regression Results using Same Variables of Defond et al. 2000 (DFW)

$$LNAF = \beta_0 + \beta_1 LNTA + \beta_2 SRSUB + \beta_3 FSP + \beta_4 CATA + \beta_5 QUICK + \beta_6 LTLR + \beta_7 ETAR + \beta_8 MONID + \beta_9 LOSS + \beta_{10} QUAL + \beta_{11} BSPEC + \varepsilon$$

Variable [a]	Predicted Sign	Regression Coefficients	t-statistics	p-value
INTERCEPT	NA	1.357	3.819	0.00
LNTA	+	0.351	13.087	0.00
SRSUB	+	0.084	5.578	0.00
FSP	+	0.629	5.271	0.00
CATA	+	0.230	3.421	0.00
QUICK	+	–0.038	–3.144	0.00
LTLR	+	–0.320	–1.772	0.08
ETAR	-	–0.163	–4.004	0.00
MONID	-	–0.030	–0.553	0.58
LOSS	+	0.116	1.894	0.06
QUAL	+	0.165	2.220	0.03
BSPEC	+	0.077	1.302	0.19

Sample size	403
F-value	53.583 (p-value = 0.00)
Adjusted R^2	59.0%

[a] Variable definitions:

LNTA	= Natural logarithm transformation of total assets
SRSUB	= Square root of number of subsidiaries
FSP	= Foreign subsidiaries as a percentage of all subsidiaries
CATA	= Current asset to total assets ratio
QUICK	= Quick ratio, quick assets divided by current liabilities
LTLR	= Long-term liability to long-term asset ratio
ETAR	= Earnings before taxes to total assets ratio
MONID	= 1 if the year-end is in the non-peak month (March), else 0.
LOSS	= 1 if firm incurred loss in the three years prior to 1998, else 0.
QUAL	= 1 if the firm received a qualified opinion in 1998, else 0.
BSPEC	= 1 if the firm is audited by a Big Six audit industry specialist, else 0.

TABLE 6
Regression Results with Bankruptcy Scores

$$LNAF = \beta_0 + \beta_1 LNTA + \beta_2 SRSUB + \beta_3 FSP + \beta_4 CATA + \beta_5 QUICK + \beta_6 LTLR + \beta_7 ETAR + \beta_8 MONID + \beta_9 LOSS + \beta_{10} QUAL + \beta_{11} BSCORE + \varepsilon$$

Variable [a]	Predicted Sign	Regression Coefficients	t-statistics	p-value
INTERCEPT	NA	1.273	3.643	0.00
LNTA	+	0.364	13.682	0.00
SRSUB	+	0.079	5.299	0.00
FSP	+	0.573	4.842	0.00
CATA	+	0.298	4.365	0.00
QUICK	+	–0.001	–0.088	0.93
LTLR	+	–0.372	–2.098	0.04
ETAR	-	0.080	1.092	0.28
MONID	-	–0.042	–0.795	0.43
LOSS	+	0.094	1.549	0.12
QUAL	+	0.105	1.397	0.16
BSCORE	+	0.022	3.883	0.00

Sample size	403
F-value	56.623 (p-value = 0.00)
Adjusted R^2	60.4%

[a] Variable definitions:

LNTA	= Natural logarithm transformation of total assets
SRSUB	= Square root of number of subsidiaries
FSP	= Foreign subsidiaries as a percentage of all subsidiaries
CATA	= Current asset to total assets ratio
QUICK	= Quick ratio, quick assets divided by current liabilities
LTLR	= Long-term liability to long-term asset ratio
ETAR	= Earnings before taxes to total assets ratio
MONID	= 1 if the year-end is in the non-peak month (March), else 0.
LOSS	= 1 if firm incurred loss in the three years prior to 1998, else 0.
QUAL	= 1 if the firm received a qualified opinion in 1998, else 0.
BSCORE	= Bankruptcy score: Altman Z'' model as multiplied by –1.

TABLE 7
Regression Results with Bankruptcy Scores,
with Some Highly Correlated Variables Deleted

$$LNAF = \beta_0 + \beta_1 LNTA + \beta_2 SRSUB + \beta_3 FSP + \beta_4 CATA + \beta_5 LTLR + \beta_6 MONID + \beta_7 LOSS + \beta_8 QUAL + \beta_9 BSCORE + \varepsilon$$

Variable [a]	Predicted Sign	Regression Coefficients	t-statistics	p-value
INTERCEPT	NA	1.198	3.485	0.00
LNTA	+	0.367	13.895	0.00
SRSUB	+	0.080	5.406	0.00
FSP	+	0.577	4.899	0.00
CATA	+	0.300	4.426	0.00
LTLR	+	–0.404	–2.295	0.02
MONID	-	–0.042	–0.790	0.43
LOSS	+	0.101	1.680	0.09
QUAL	+	0.114	1.527	0.13
BSCORE	+	0.017	6.324	0.00

Sample size	403
F-value	69.054 (p-value = 0.00)
Adjusted R^2	60.4%

[a] Variable definitions:

LNTA	= Natural logarithm transformation of total assets
SRSUB	= Square root of number of subsidiaries
FSP	= Foreign subsidiaries as a percentage of all subsidiaries
CATA	= Current asset to total assets ratio
LTLR	= Long-term liability to long-term asset ratio
MONID	= 1 if the year-end is in the non-peak month (March), else 0.
LOSS	= 1 if firm incurred loss in the three years prior to 1998, else 0.
QUAL	= 1 if the firm received a qualified opinion in 1998, else 0.
BSCORE	= Bankruptcy score: Altman Z' ' model as multiplied by –1.

TABLE 8
Regression Results with Bankruptcy Scores and Governance Variables

$$LNAF = \beta_0 + \beta_1 LNTA + \beta_2 SRSUB + \beta_3 FSP + \beta_4 CATA + \beta_5 LTLR + \beta_6 MONID + \beta_7 LOSS + \beta_8 QUAL + \beta_9 BSCORE + \beta_{10} HGOV + \beta_{11} PROPDUM + \varepsilon$$

Variable [a]	Predicted Sign	Regression Coefficients	t-statistics	p-value
INTERCEPT	NA	1.051	3.263	0.00
LNTA	+	0.388	15.634	0.00
SRSUB	+	0.088	6.336	0.00
FSP	+	0.449	4.050	0.00
CATA	+	0.175	2.680	0.01
LTLR	+	–0.116	–0.692	0.49
MONID	-	0.002	0.035	0.97
LOSS	+	0.058	1.029	0.30
QUAL	+	0.105	1.515	0.13
BSCORE	+	0.015	5.946	0.00
HGOV	-	–0.094	–1.315	0.19
PROPDUM	+	–0.523	–7.917	0.00

Sample size	403
F-value	70.991 (p-value = 0.00)
Adjusted R^2	65.7%

[a] Variable definitions:

LNTA	= Natural logarithm transformation of total assets
SRSUB	= Square root of number of subsidiaries
FSP	= Foreign subsidiaries as a percentage of all subsidiaries
CATA	= Current asset to total assets ratio
LTLR	= Long-term liability to long-term asset ratio
MONID	= 1 if the year-end is in the non-peak month (March), else 0.
LOSS	= 1 if firm incurred loss in the three years prior to 1998, else 0.
QUAL	= 1 if the firm received a qualified opinion in 1998, else 0.
BSCORE	= Bankruptcy score: Altman Z'' model as multiplied by –1.
HGOV	= 1 if firm classified as having good corporate governance, else 0.
PROPDUM	= 1 for property (real estate) firms, else 0.

TABLE 9
Regression Results with Bankruptcy Scores and Governance and Financial Condition Variables

$$LNAF = \beta_0 + \beta_1 LNTA + \beta_2 SRSUB + \beta_3 FSP + \beta_4 CATA + \beta_5 LTLR + \beta_6 MONID + \beta_7 LOSS + \beta_8 QUAL + \beta_9 BSCORE + \beta_{10} GOVGF + \beta_{11} GOVBF + \beta_{12} PROPDUM + \varepsilon$$

Variable [a]	Predicted Sign [b]	Regression Coefficients	t-statistics	p-value
INTERCEPT	NA	1.020	3.173	0.00
LNTA	+	0.392	15.767	0.00
SRSUB	+	0.085	6.112	0.00
FSP	+	0.453	4.101	0.00
CATA	+	0.175	2.699	0.01
LTLR	+	–0.119	–0.709	0.48
MONID	-	–0.006	–0.113	0.91
LOSS	+	0.053	0.952	0.34
QUAL	+	0.101	1.457	0.15
BSCORE	+	0.015	5.869	0.00
GOVGF	-	–0.189	–2.119	0.03
GOVBF	n.s.	0.044	0.415	0.68
PROPDUM	-	–0.525	–7.980	0.00

Sample size	403
F-value	65.689 (p-value = 0.00)
Adjusted R^2	65.9%

[a] Variable definitions:
LNTA = Natural logarithm transformation of total assets
SRSUB = Square root of number of subsidiaries
FSP = Foreign subsidiaries as a percentage of all subsidiaries
CATA = Current asset to total assets ratio
LTLR = Long-term liability to long-term asset ratio
MONID = 1 if the year-end is in the non-peak month (March), else 0.
LOSS = 1 if firm incurred loss in the three years prior to 1998, else 0.
QUAL = 1 if the firm received a qualified opinion in 1998, else 0.
BSCORE = Bankruptcy score: Altman Z'' model as multiplied by –1.
GOVGF = 1 if firm has good governance and above-median financial condition, else 0
GOVBF = 1 if the firm has good governance and below-median financial condition, else 0.
PROPDUM = 1 for property (real estate) firms, else 0.
[b] Predicted signs include: + (positively related), - (negatively related) and n.s. (non-significant).

TABLE 10
Regression Results with Corporate Governance and Discretionary Accrual Variables

$$LNAF = \beta_0 + \beta_1 LNTA + \beta_2 SRSUB + \beta_3 FSP + \beta_4 CATA + \beta_5 LTLR + \beta_6 MONID + \beta_7 LOSS + \beta_8 QUAL + \beta_9 BSCORE + \beta_{10} DACC + \beta_{11} GOVGF + \beta_{12} GOVBF + \beta_{13} PROPDUM + \varepsilon$$

Variable [a]	Predicted Sign [b]	Regression Coefficients	t-statistics	p-value
INTERCEPT	NA	0.879	2.587	0.01
LNTA	+	0.400	15.263	0.00
SRSUB	+	0.088	6.185	0.00
FSP	+	0.528	4.459	0.00
CATA	+	0.219	3.044	0.00
LTLR	+	-0.228	-1.252	0.21
MONID	-	-0.008	-0.154	0.88
LOSS	+	0.028	0.472	0.64
QUAL	+	0.128	1.726	0.09
BSCORE	+	0.017	6.134	0.00
DACC	+	0.220	2.017	0.04
GOVGF	-	-0.240	-2.474	0.01
GOVBF	n.s.	0.065	0.600	0.55
PROPDUM	-	-0.500	-7.207	0.00

Sample size	347
F-value	59.366 (p-value = 0.00)
Adjusted R^2	68.7%

[a] Variable definitions:
LNTA = Natural logarithm transformation of total assets
SRSUB = Square root of number of subsidiaries
FSP = Foreign subsidiaries as a percentage of all subsidiaries
CATA = Current asset to total assets ratio
LTLR = Long-term liability to long-term asset ratio
MONID = 1 if the year-end is in the non-peak month (March), else 0.
LOSS = 1 if firm incurred loss in the three years prior to 1998, else 0.
QUAL = 1 if the firm received a qualified opinion in 1998, else 0.
BSCORE = Bankruptcy score: Altman Z'' model as multiplied by –1.
DACC = Discretionary accrual (Modified Jones model).
GOVGF = 1 if firm has good governance and above-median financial condition, else 0
GOVBF = 1 if the firm has good governance and below-median financial condition, else 0.
PROPDUM = 1 for property (real estate) firms, else 0.
[b] Predicted signs include: + (positively related), - (negatively related) and n.s. (non-significant).