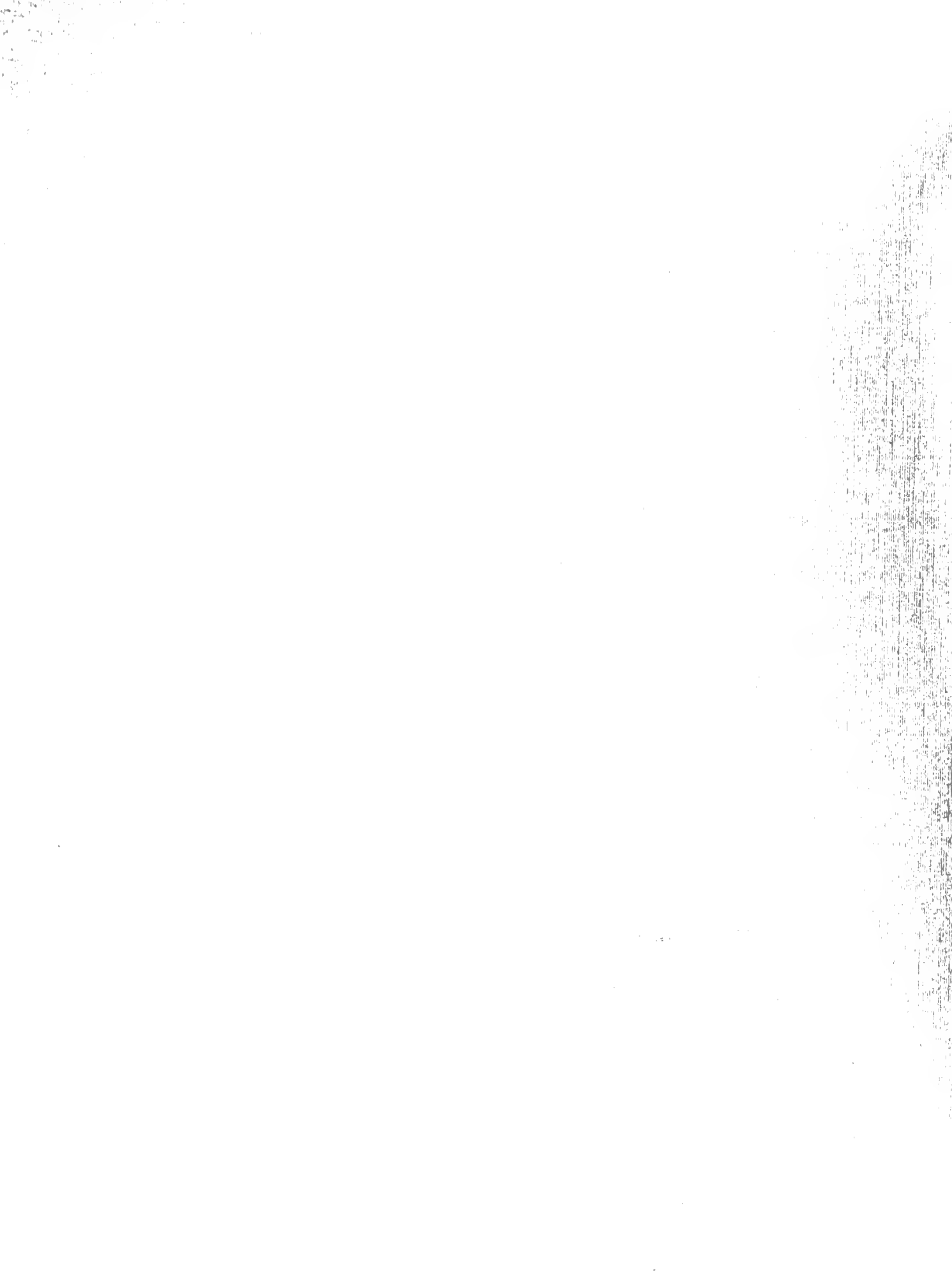


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Eliminating "Subject To" Audit Qualification,
Contradictory Standards, and Assessment of Risk

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June 1984

Eliminating "Subject To" Audit Qualification,
Contradictory Standards, and Assessment of Risk

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ELMINATING "SUBJECT-TO" AUDIT QUALIFICATION,
CONTRADITORY STANDARDS, AND
ASSESSMENT OF RISK

Abstract

Sixty-four experienced Canadian bank loan officers participated in two experiments that aimed at evaluating the effects on assessment of risk of the "subject to" audit qualification. Each experiment required a sequence of judgments about long term loans to each of three companies. Judgments were requested over a (simulated) period of three years. The research design permitted manipulating the nature of contingencies, the combination of contingency disclosure and audit qualification, the resolution of those contingencies, and the presence of contradictory standards between the U.S. and Canada for cross listed companies.

The findings (using ANOVA and multiple comparisons) are consistent with the hypothesis that the existence (or absence) of disclosed contingency, not the "subject to" audit qualification, is the primary influencing factor in the assessment of risk by bank loan officers. Furthermore, the findings indicate that bankers assign a lower weight to the audit opinion (as a source of uncertainty assessment) than to analysis of profitability, liquidity and solvency using the company's financial history. Finally, while the AICPA continues to debate its merits, Canadian bankers have adapted to the elimination of the "subject to" audit qualification by becoming more inquisitive about footnote disclosures.

ELIMINATING "SUBJECT-TO" AUDIT QUALIFICATION,
CONTRADICTIONARY STANDARDS, AND ASSESSMENT OF RISK

I. INTRODUCTION

In this paper we report the findings of two experiments concerning the effects of different standards for reporting loss contingencies on bankers' assessment of the riskiness of corporate borrowers. The subjects in both experiments were 64 commercial bank loan officers employed in seven large banks located in Canada. This setting was chosen because the subject-to qualification was eliminated in Canada as of September 1980. Each experiment required a series of judgments over a (simulated) time of three years for each of three different companies. Specifically, the loan officers were asked to examine the financial performance of each company in the preceding period(s) and make judgments about:

- (i) the level of each company's debt-paying ability,
- (ii) the interest rate premium above the prime rate to be charged to each company, and
- (iii) the probability of default.

Using three companies and three years of simulated time in each experiment provided the opportunity to vary the following factors:

- (a) The nature of the contingency, if any, reported by the company, and
- (b) The audit report, as to whether it is an unqualified, a qualified, or a "split" opinion.¹

The results indicate that the Canadian bankers' assessments of uncertainty were influenced more by the existence of loss contingencies than by the subject-to qualification of the audit report. This finding is generally consistent with Libby (1979). Differences in research

design between this and other studies, the use of various factor combinations, and carefully controlling for the sequence of information flows to each subject distinguishes this study from the extant literature.

II. BACKGROUND

The Issues

Present accounting standards (FASB Statement No. 5) require the disclosure of a material expected loss that might result from a contingency as long as the realization of that loss is at least reasonably "probable." Similarly, U.S. auditing standards require that a qualified subject-to (or disclaimer) report be issued in such a circumstance.² Issuing a qualified opinion in those situations was viewed unfavorably by the Commission on Auditor's Responsibility (1978, pp. 25-28) which saw a conflict between the auditor's role in expressing opinion on the fairness of presentation and reporting on uncertainty; the auditor would be both a reporter and an interpreter of financial information. The Commission emphasized that the need to single out for inclusion in the auditor's report the contingencies for which adequate disclosure is made by the management creates both confusion in the minds of users, and false expectations.³ As Anderson (1977, p. 517) pointed out, "[A]ll business enterprises are subject to various types and degrees of uncertainty. The segregation of a particular set of uncertainties as requiring 'subject to' qualifications is bound to be somewhat arbitrary."

In response to the strong opposition to the "subject-to" qualification, the AICPA has twice proposed its elimination in October, 1977

and in March, 1982. At a subsequent hearing, a number of arguments were advanced in favor of the "subject-to" including the idea that it serves as a "red flag" directing users to probe further into the matter mentioned in the auditors' report. It was also reported that "Some users believed that auditors have inside information in addition to what is disclosed in the financial statements and that 'subject-to' can be used by them to tip the reader off to that fact..." (Forbes, August 16, 1982, p. 92). In commenting on the meeting, Carmichael (1982) expressed surprise at the "Apparent agreement among users, particularly analysts, that the "subject-to" was a useful tool for analysis." However, the arguments put forth were strong enough to effectively block passage of the proposal.

Unlike the AICPA, the Canadian Institute of Chartered Accountants (the CICA) reasoned that GAAP includes a requirement for adequate disclosure. In 1980, the CICA concluded:

"If the auditor has obtained sufficient appropriate audit evidence to determine that, in his opinion, the accounting treatment, disclosure and presentation of a contingency are in accordance with generally accepted accounting principles, he should not express a reservation (subject to) of opinion nor otherwise refer to the contingency in his report."
(CICA Handbook, Sec. 5510.49.)

In addition, the CICA issued (in April, 1981) an Accounting Guideline that applies when a Canadian auditor is reporting on a Canadian company that also submits audited financial statements to the SEC in the U.S. If U.S. auditing standards differ, an explanatory comment is required for the U.S. readers. The comment is not part of the auditor's Canadian report and is identified to the U.S. readers as a

result of the contradiction in auditing standards. Such a report is what we refer to as a "split opinion" (see the Appendix).

The Research Problem

The research problem of interest in this study is whether significant decision-effects emanate from providing "subject to" qualification in audit reports in addition to management's disclosure of contingencies. To the extent that auditors must "authenticate" the quality of all management's footnote disclosure, issuing a "subject to" qualification might be perceived to be caused by either deficient footnote disclosure, or, auditor disagreement with the management's assessment of the degree of uncertainty. Such a perception characterized the opinions of users of financial statements who attended the AICPA conference (see Forbes, 1982). Their comments imply attributing higher risk to a company whose audit report has been qualified for uncertainty relative to an identical situation in which the qualification is absent.

This is essentially the hypothesis that had been investigated by a series of studies (Shank et al., 1978, 1979; Reckers and Gromling, 1979; Libby, 1979; Banks and Kinney, 1982; Hicks, 1982; Muchler, 1984, and Richardson, 1982). In the Libby study, thirty-six bankers were the subjects in an experiment carried out by mail. The objective was to evaluate the extent to which bank loan officers evaluate uncertainty, depending upon the type of contingency communication. The conditions included supplemental information prepared by the company's legal counsel attesting to the validity of the claim against the company. Libby concluded that the qualification of audit opinion, did not influence

banker's assessment of risk. That finding was challenged by Berthold (1979) and Schultz (1979) on various grounds concerning their evaluation of the study's internal validity. Libby, however, suggested the need for further research on the initial formation of "hypotheses which affects the nature of uncertainty workup," and, on the weight given to the audit qualification. This study serves as an extension of Libby's work in which some of these issues and the concerns of its critics were considered in the research design and implementation.⁴

III. RESEARCH METHOD

The approach adopted is a pre-test, post-test with controls. Each experiment consisted of making repeated judgments about three companies. Those judgments were to be made over a simulated period of three years. The experimental treatments consisted of manipulating the form and type of contingency disclosure and the manner in which the contingencies were resolved. More discussion of the research design follows.

1. The Task

In each experiment, the task consisted of making an unsecured-term loan to three different and unrelated companies. After having recorded their assessment of debt paying ability, loan officers were requested to make judgments about the interest rate premium (above the prime rate) that would be charged on each loan. The interest rate premium was to be adjustable annually (with the use of new information) in accordance with bankers' re-evaluation of each company's debt-paying ability and assessment of the probability of default. These judgments

were conditional on the additional information provided by financial performance and by the various audit opinions. Each experiment, therefore, consisted of a simulated time sequence of three fiscal periods in which consecutive judgments were made based on sequential analysis of information for each successive year.

2. Subjects and Task Performance

Canadian commercial bank loan officers were chosen for several reasons.⁵ For one thing, in August 1980, the CICA eliminated the subject-to qualification for contingencies. Hence, including that situation in the experiment is not as hypothetical for Canadian as it would be for American bankers. Moreover, one of the experimental manipulations ("split" audit opinion) consists of an audit opinion that is qualified for U.S. stockholders only. This unusual type of report only affects Canadian companies that are required to submit financial statements to the SEC in the U.S. Since the Canadian companies borrow in Canadian capital markets, split audit opinions are not new to Canadian bank loan officers. The situation is, of course, different for U.S. bankers; they have not encountered such an opinion as part of a loan application since SAS continue to require the "subject to" qualification.

A total of 66 commercial bank loan officers participated in this study. Initial contact with subjects was made through a senior vice president in each of seven large banks in a metropolitan area. Experience with processing commercial loan applications, including financial statement analysis, was the only requirement. The average

experience with actual evaluation of commercial loan applications for participants was about nine years.

One researcher met with each loan officer to conduct the experiment, which consumed approximately one hour per officer. The one-on-one meeting assisted in randomizing the extraneous factors (associated with the experimental setting, location, interaction between subjects, etc.) and facilitated sequencing the flow of information to subjects. The stated objective of the study was to examine the use of accounting information in making judgments by loan officers. The researcher's role was to explain the sequence of the experimental material such that judgments were made in a manner consistent with the simulated fiscal periods.

The experimental judgments made by two participants were considered invalid because of lack of internal consistency of their judgments. Of the 64 valid experimental participants, 33 were in the first experiment and 31 were in the second.

3. Design

The three hypothetical companies (denoted ABC, LMN, and XYZ) in the study are based on information about three actual corporations. The background information provided in the experimental package included a brief description of the business of each company. The financial statements of the three companies were altered to meet several research design constraints:

(a) The size of each company was scaled in order to avoid using size as a variable. After scaling, total assets were \$92 (for ABC),

\$86 (for LMN) and \$100 (for XYZ) million in the year of granting the loan.

(b) The financial conditions were re-structured such that there would be little qualitative discrimination between the three companies at the initial setting, the point at which bankers formed their priors about the companies used in the study.

In order to avoid introducing confounding variables, two conditions were imposed:

1. A financial leverage constraint: The levels of debt to equity in the second and third judgment periods were either equal to or lower than the levels of that ratio in the first simulation period.
2. Profitability constraint: The ratio of net income to sales was kept at 0.02 throughout the study.

The combined effect of both conditions is that, other than the uncertainty generated by the contingencies, the financial conditions of the three companies had relatively improved over time.

Exhibit 1 presents the basic research design of the two experiments with respect to the manipulated independent variables (contingencies and audit opinions) for the three companies and for the three simulated years.

Insert Exhibit 1 here

As shown in Exhibit 1, the information presented to subjects about the three companies varied between the two experiments (in years 2 and 3). A discussion of the research design is presented below for each experiment separately, after a brief listing of the elements common to both.

Exhibit 1

Basic Research Design of the Two Experiments
for the Three Companies and the Three Simulated
Decision Periods

Experiment	Company	Simulated Judgment Period		
		Year 1	Year 2*	Year 3*
(1)	ABC	Clean opinion No contingency	Qualified opinion Tax assessment	Clean opinion Tax assessment
	LMN	Clean opinion No contingency	Clean opinion No contingency	Clean opinion No contingency
	XYZ	Clean opinion No contingency	Qualified opinion Litigation	Clean opinion Litigation settled
(2)	ABC	Clean opinion No contingency	Clean opinion Tax assessment	Clean opinion Tax assessment
	LMN	Clean opinion No contingency	Clean opinion No contingency	Clean opinion No contingency
	XYZ	Clean opinion No contingency	Split opinion** Litigation	Clean opinion Litigation settled

*Note: In all cases, a company's financial position changed over time but the following constraints apply:

- (1) Net income to sales -- remained the same
- (2) Net income to net worth -- improved in subsequent years over Year 1
- (3) Long term debt to net worth -- either remained the same or improved over time

**Split opinion refers to the case where Canadian stockholders get a clean opinion that is followed by a paragraph containing a subject-to qualification for the U.S. stockholders.

Essential Features:

The essential differences between the two experiments concern the information provided in the second year and the consequences of the different information treatments. In terms of the effects on findings, the structure of the second year information between the two experiments should assist in

(1) comparing judgments made about ABC company under two states: (a) contingency disclosure and qualified audit report, versus (b) contingency disclosure, but the subject-to qualification was not required;

(2) comparing judgments about XYZ company under two states: (a) contingency disclosure and a "standard" audit qualification, versus (b) contingency disclosure and a "split" audit report;

and (3) comparing judgments in the third year when the resolution of those contingencies was conditioned on these different states that prevailed in the second year.

(1) Elements Common in Both Experiments

The experimental booklets of each company in both experiments contained the following information.

(1.1) Introductory statements concerning background information about each of the companies, the objective of the study and the types of decisions that need to be made.

(1.2) Bank loan officers in the two experiments received the same information about ABC, LMN, and XYZ in the first simulated period, the period in which an unsecured four-year loan was made to each of the three companies. The information consisted of summarized

financial reports and financial ratios for the preceding three years for each company. The financial ratios were those used by one of the banks (see Appendix). The financial statements of each company included a summarized set of footnotes and an audit opinion covering the most recent year (and the preceding year by reference). No contingencies were reported and all received unqualified audit opinions in the first period. The same set of financial statements and the accompanying information for year one was used in both experiments. Hence, the information base used in forming initial judgments about each of the three companies did not differ between the two experiments.

- (1.3) The information about company LMN was the same for both experiments; a "no contingency" status was maintained.
- (1.4) At the end of each experiment, each subject completed a debriefing questionnaire, which followed the last decision sequence of the study. In particular the participants were asked to provide various demographic information, to state their views about the experimental packages and to allocate weights to several factors, including the audit opinion, in terms of their significance in loan evaluation.

(2) Elements That are Unique to Each Experiment

In years two and three, loan officers were asked to consider new information about the financial performance of the three companies in (i) re-evaluating the debt-paying ability of each company, (ii) revising the interest premium to be charged above the prime rate, and (iii) estimating the probability of default on the loan. In connection with the

experimental manipulation, the two experiments differed by (1) the nature of contingency, and (2) the form of audit report on that contingency for companies ABC and XYZ. Otherwise, the financial condition of the companies were identical in both experiments. The discussion that follows elaborates on the particulars of each experiment.

(2.1) The First Experiment (X=1)

In the second sequence of the judgment process, bank loan officers were provided a package consisting of the financial statements of the preceding three years (i.e., simulated year one of the experiment, plus the two previous years), footnotes, financial ratios, and audit opinions. The experimental manipulation consisted of providing two different types of contingencies--a claim by Revenue Canada (IRS equivalent) for back taxes assessed against ABC, and litigation against XYZ company by a customer for alleged non-performance on a contract. LMN reported no contingencies. The uncertainties about the merit of the claims reflected in the two types of contingencies for ABC and XYZ resulted in subject-to opinions about the financial statements for year two. The stated contingent claims were approximately equal to the net operating cash flows generated by the companies during that year.

In the third year, it was assumed that the requirement to render a subject-to qualification was no longer in effect. The income tax contingency of the ABC company was disclosed in a footnote to the financial statements, but the auditor's report was not qualified. XYZ company disclosed that it had settled its client's claim by committing to make certain repairs at a much lower amount than had been claimed. The estimated cost of repair was accrued as a liability and the auditors did not have to qualify their opinion.

(2.2) The Second Experiment (X=2)

In this experiment, the subject-to qualification was assumed to be eliminated in year two rather than year three as was the case in experiment one. The financial statements and footnotes were the same in both experiments. Although the same contingencies existed, the audit reports were different. ABC received a clean opinion. As disclosed in the background information furnished to the participants, because XYZ company was listed on both the Toronto and the American Stock Exchanges, it received a "split opinion." The remaining components of the research design were identical to those in the first experiment.

IV. EXPECTATIONS AND HYPOTHESES

Given the research design of the two experiments discussed above, the general objective of evaluating decision-effects was operationalized by specifying several testable hypotheses. In order to place these hypotheses in context, consider the following points:

(i) Grouping of companies

Bankers were asked to make judgments about three companies (ABC, LMN, XYZ) in each decision sequence. Consequently, a banker's judgment about each company was made on the basis of three years of information: the company specific information, and the relative standing of the company by comparison to others in the same package. Specifically, the more favorable a company looked by comparison with others in the same package, the lower should be the bankers' estimation (on average) of its risk. Two approaches are used for considering this conditional nature of the data base. The first approach assumes that the three

companies in a package constitute a portfolio of loans--the "portfolio" approach. The second approach considers the judgments made about each company to be separate from those made about others--the "individual" approach.

(ii) Bankers' own judgment models

The models that individual bankers used in making the judgments called for in these experiments are not explicitly specifiable. If different loan officers used different decision models, their judgments would differ throughout the study. Thus, using these judgments in a cross sectional analysis without some transformation will not allow for discriminating between model differences and the effects of the manipulated (experimental) variables. The transformation employed consists of using the initial judgment made by each individual as standards against which subsequent judgments made by the same individual are compared. Given that the experimental material was completed by each subject within a time span of approximately an hour, it can be safely assumed that the decision heuristic of a given individual banker was stationary throughout the study. Hence, changes in each bank loan officer's judgment in the two subsequent decision periods from the initial judgment (the standard) can be attributed to two factors: decline in time to maturity, and the different information cues presented.

(iii) Measurement scales

Judgments about debt-paying ability (DPA) and the probability of default (PD) were elicited on pre-determined variable interval scales, while judgments on interest rate premiums (IP) were made on a scale that is incremented by 1/4 percent. Accordingly, only categorical

analysis can be used for DPA and PD, while both categorical and parametric analysis can be used in the analysis of the interest rate premium since bankers' evaluation of the effects of the changes in each company's risk on IP was recorded on ratio scale.

Hypotheses about interest rate premiums (IP)

In each of the three simulated years, each banker made judgments about the interest rate premium (IP) to be charged to each company. The provision that IP is adjustable once a year required that these judgments be revised after new information was received. Each banker, therefore, made three initial judgments about the interest premium and six subsequent revisions. Testing hypotheses about those judgments will utilize ANOVA and pairwise t-tests.

For the purpose of this analysis, we define the following terms:

IP_{jCY} = the interest rate premium charged by banker j to company C in the simulated decision year Y .

C = the company: ABC, LMN, or XYZ.

j = bankers, where the first 33 are in the first experiment and the remaining 31 are in the second experiment.

DIP_{jCY} = the difference between IP for the second year and that of the first year ($Y=2$), and between IP of the third year and that of the first year ($Y=3$).

The DIP measures, therefore, reflect changes in the judgment of each banker about the interest rate premium charged to each company after the receipt of new information about that company. As indicated earlier, certain items of the information presented varied between simulated periods and between experiments as shown in Exhibit I. As

can be seen, for the first experiment, second year decisions represent the effects of more signals about uncertainty than in the third year. Except for the format (uncertainty signals in the form of a footnote for ABC and a split opinion for XYZ), the same was true for the second experiment. Accordingly, the two years in which bankers revised their judgments (Y=2, and Y=3) can be used as surrogates for the information about uncertainty, with year two containing more signals about uncertainty than year three. Accordingly, the index Y will be used in the analysis of variance that follows to represent the information signals.

Profitability and leverage ratios started at equivalent levels for all three companies in both experiments and were maintained at either stable or improved levels during the simulated three year period. Moreover, the loans were structured as four-year (unsecured) term loans with the principal due at maturity and interest paid annually. Under these conditions, and *ceteris paribus*, the closer the term loan is to maturity, the lower the risk of default on the loan. Accordingly, the absence of "bad news" (during years of stable profits and leverage) implies a lower risk of default as time to maturity decreases. That is, average $DIP \leq 0$; the interest rate premiums charged in the second and third years should not be higher than those charged in the first year. Thus, obtaining $DIP > 0$ could only result from adverse evaluation of the information provided in the (simulated) periods subsequent to that of the initial decision. The hypotheses development that follows will be discussed at two levels: the portfolio of companies in the same package, and the individual company level.

The Loan Portfolio Approach:

In each experiment bankers made their judgments about all three companies at the same time, it can be assumed that each banker ranked the three companies before making judgments about the interest rates to be charged. Under these circumstances, analysis of the three companies as a combined judgment (the "portfolio" approach) reduces the judgment variations resulting from this conditional judgment on individual companies). These relationships can be examined by two ANOVA models. The first is a 2x3 model in which the information factor Y takes on two levels: information provided in the second year (Y=2) and the information provided in the third year (Y=3). The second factor (C) represents the companies, and takes three levels (for ABC, LMN, and XYZ). This model (M1) is to be estimated once for each experiment. The second ANOVA model (M2) is a 2x3x2 and extends the first model to include the two experiments as a third factor. These models are presented as follows:

$$DIP = M + Y + C + Y*C + u \dots (M1) \quad (\text{for each experiment})$$

$$DIP = M + Y + C + Y*C + X + u' \dots (M2) \quad (\text{for both experiments})$$

where: M is the unconditional mean of the changes in the interest rate premiums, Y is the information factor representing the nature of audit qualifications and contingencies reported over the second and third years, C is the company factor, Y*C is an interaction term, X is the experiment, and u and u' are error terms with expected value of zero and variance estimated by S.

The specific hypotheses to be tested here are:

H(o): $Y = C = Y*C = X = 0$

H(a): $Y > 0$, for the information levels;

$C \neq 0$, for the companies since aside from Y there is no particular direction to their risk assessment;

$Y*C > 0$, for the interaction because, in at least one third of the cases, there were no contingencies to report, while in others contingencies existed;

$X \neq 0$, for the experiment since there is no a priori reason to expect differences between bankers in both experiments.

Two conditions must be satisfied for the ANOVA models to be appropriate. The first is homogeneity of variance, a basic assumption underlying ANOVA. Various tests (using Cochran C) suggest that such a condition is satisfied. The second relates to the nature of the priors formed by bankers in the two experiments at the time the loans were granted. The absence of a directional hypothesis about the experimental factor, X, is due to the underlying assumption that bankers participating in both experiments were, as groups, not different. Hence, it becomes important to validate this assumption by examining the consistency of their judgments since both groups received identical information in the first simulated year. Also, the initial level of the interest rate premium is important in that it provides the standard from which information-induced departures (DIP) are measured.

The Individual Company Hypotheses:

Comparison with the Control Company: LMN was used as control--no contingencies were reported. Thus, the increase in interest

rate premium (DIP) for companies ABC and XYZ in the second year is expected to be greater than the change in DIP for LMN. If the subject-to qualification generates decision-effects beyond the footnote disclosure, such a relationship would be observed for the first experiment, but not for the second, and for DIP of ABC in the second, but not in the third year. Finally, in the third year DIP of XYZ should be statistically equal to DIP in LMN because XYZ contingency was resolved at low cost in that year.

These expectations lead to formulating the following hypotheses:

$$CH_0: \text{DIP}_y(\text{ABC} - \text{LMN}) = \text{DIP}_y(\text{XYZ} - \text{LMN}) = 0, \quad \text{for } y = 2,3$$

$$CH_{a_1}: \text{DIP}_y(\text{ABC} - \text{LMN}) > 0, \quad \text{for } y = 2,3$$

$$CH_{a_2}: \text{DIP}_y(\text{XYZ} - \text{LMN}) > 0, \quad \text{for } y = 2,3$$

The alternative expectations discussed above can be operationalized as follows:

(i) The subject-to qualification induces significant decision-effects would be consistent with (1) rejecting the null for $\text{DIP}(\text{ABC} - \text{LMN})$ in the first, but not the second experiment and in the second year only, and (2) rejecting the null for $\text{DIP}(\text{XYZ} - \text{LMN})$ for both experiments in the second year only.

(ii) The subject-to qualification does not induce any more decision-effects than contingency footnote disclosure would be consistent with rejecting the null throughout except for $\text{DIP}(\text{XYZ} - \text{LMN})$ in the third year when neither company reported any contingency.

Within Company Comparisons Across Periods:

Since the experimental manipulation varied between companies and experiments, several testable hypotheses about DIP are developed. These hypotheses are grouped in four categories as follows:

Category A: Hypotheses stated in connection with situations having no contingencies. These are for company LMN in both experiments for both years two and three, and for XYZ in both experiments for the third year only.

Category B: Hypotheses related to reporting subject-to qualifications. These are made in connection with companies ABC and XYZ in the second year of the first experiment only.

Category C: Hypotheses about the reporting of contingencies which are not accompanied by qualified audit opinions. These are made in connection with companies ABC in the third year of both experiments, and in the second year of the second experiment.

Category D: Hypothesis stated about the "split" audit opinion. This is a single hypothesis about XYZ company in the second year of the second experiment.

As indicated earlier, *ceteris paribus*, the shorter the time to maturity, the lower the expected risk of default should be for a term loan. Consequently, DIP should be equal to or less than zero for Category A. The existence of contingencies, however, should increase the risk of default. Thus, DIP is expected to be significantly greater than zero for the other three categories. On the other hand, if the subject-to qualification of audit opinions is an information cue to which bankers attribute more value than the management disclosure foot-

note in assessing the risk of default, then DIP should be significantly positive for Category B, and should be equal to or less than zero for Category C. In this case, however, no directional expectations can be determined about the Category D hypothesis because bankers are equally as likely to consider as to ignore the appended subject-to qualification in the "split" opinion. Specific statements of these hypotheses are presented in Exhibit 2.

Hypotheses about debt paying ability and probability of default were developed to test the consistency of judgments. Categorical analysis of data was used to test these hypotheses.⁶

Insert Exhibit 2 here

V. ANALYSIS AND RESULTS

The ANOVA results of estimating both M1 and M2 models are presented in Table 1. In all cases, the effects of the information factor, Y, and the company factor, C, were statistically significant (at $p < 0.05$). The interaction term $Y * C$ was significant when both experiments were combined (using the $p < 0.05$ level). The experimental factor, X, was marginally significant ($p < 0.06$) when M2 was estimated. This level indicates that some differences existed between the two experiments. All the ANOVA models were statistically significant at $p < 0.05$.

These findings indicate that bankers adjusted the interest rate premium significantly in the second and third year over their initial assessment in the first period. Furthermore, those changes varied between companies. It is important, therefore, to examine the sources of differences and the directions of those changes. Duncan Multiple

Exhibit 2

Individual Company Hypotheses
About the Mean of
Adjustments to Interest Rate Premiums (DIP)

Panel A: Alternative with Company Hypotheses for X=1 and X=2		
	DIP in Y=2	DIP in Y=3
Company ABC	(for X=1) B1: DIP > 0 (for X=2) C1: DIP > 0	(for X=1,2) C2: DIP > 0
LMN	(for X=1,2) A1: DIP < 0	(for X=1,2) A2: DIP < 0
XYZ	(for X=1) B2: DIP > 0 (for X=2) D1: DIP > 0	(for X=1,2) A3: DIP < 0
Panel B: Differences Between Experiments X=1 and X=2 for Each Company		
ABC	dif. DIP > 0	dif. DIP = 0
LMN	dif. DIP = 0	dif. DIP = 0
XYZ	dif. DIP > 0	dif. DIP = 0

Note: Category A: No contingencies and no qualification
 Category B: Contingencies are present and audit opinions include "subject-to" qualifications
 Category C: Contingencies are reported, but audit opinions are not qualified
 Category D: Split opinion (Clean for Canadian Stockholders, but qualified for the U.S.)

Range Tests were used for that purpose. The results of the tests are presented in Table 2.

Insert Tables 1 and 2 here

The test results suggest the following:

1. The significant effect of the information factor, Y, results from a significant decrease in the interest rate premium (negative DIP) in the third year as compared to the second year. This is consistent with expectations since, coupled with a shorter term to maturity, one half of the contingencies that existed in the second year were cleared in the third year.
2. With respect to the differences between companies, company LMN had the greatest reduction in the interest rate premium in both experiments, and that was significantly different from either ABC or XYZ. The adjustments made to interest rate premiums for ABC and XYZ were significantly different in the first, but not in the second, experiment. An examination of the magnitudes of average DIP suggests that the significant upward adjustment of the interest rate premium for ABC as compared to XYZ in the first experiment (when a qualified opinion was issued) was not observed in the second experiment (when a clean opinion was issued). Changes in the interest rate premiums for ABC under the two conditions are discussed below.

The results of testing interest rate differences for individual companies (for both between and within experiments) are presented in Tables 3 and 4. Test results of comparing treatment companies (ABC and XYZ) versus the control company (LMN) are reported in Table 3. As

Table 1

Results of ANOVA Estimates Assuming
the Portfolio Approach

FACTOR	Model	M1		M2
	Statistics	EX1	EX2	Both Ex- periments
Y = Information Effect	F ratio	5.43	6.74	11.96
	Probability	0.02	0.01	0.001
C = Company Factor	F ratio	9.37	5.52	14.71
	Probability	0.001	0.005	0.001
Y*C = Interaction	F ratio	2.58	2.09	6.64
	Probability	0.08	0.13	0.01
X = Experiment	F ratio	NA	NA	3.96
	Probability			0.06
Model F ratio		5.87	4.34	9.06
Probability of significance		0.001	0.001	0.001
Degrees of Freedom		(5,197)	(5,185)	(6,377)

N.A. = Not applicable.

Table 2

Duncan Multiple Range Tests for
Testing Differences Between Levels of Factors

Exp.	Factor	Period	No. of obser.	Mean	S.D.	Test grouping*	Rank
1	Y = information	2	99	0.0202	0.222	A	1
		3	99	-0.058	0.271	B	2
	C = company	ABC	66	0.068	0.268	A	1
XYZ		66	-0.0152	0.23	B	2	
LMN		66	-0.11	0.23	C	3	
2	Y = information	2	93	-0.022	0.226	A	1
		3	93	-0.108	0.248	B	2
	C = company	ABC	62	-0.008	0.23	A	1
XYZ		62	-0.044	0.27	A	2	
LMN		62	-0.1411	0.18	B	3	

Note: *Same letter within each category means not significantly different at $p < 0.05$. Different letters means statistically significant at 0.05. Also, the rank refers to signed values of mean DIP.

shown, only DIP(XYZ - LMN) in year 3 was not statistically significant (at $p \leq 0.05$). In all other comparisons, the null was rejected in favor of the alternative hypotheses at $p \leq 0.05$. As stated earlier, these findings are consistent with the proposition that the "subject-to" audit qualification had no decision-effects beyond what is generated by the loss contingency disclosure.

The following points summarize the results of within company comparisons across time that are presented in Table 4:

Insert Tables 3 and 4 here

1. For category A hypotheses, average DIP was significantly negative (at $p < 0.05$) for LMN company in the second and third years, and for XYZ company in Y=3. This finding was obtained consistently for both experiments.
2. For category B hypotheses, an increase in the interest rate premium accompanied the disclosure of a contingency and reporting qualified audit opinion for XYZ only (average DIP was significantly different from zero at $p < 0.05$). Although the amounts of contingency and their relationships to the cash flows of each company were about the same for ABC and XYZ, bankers evaluated their degree of riskiness differently. Based on post-experiment discussions with bankers, they indicated that income tax assessments have a low present value because they could take years in the courts to settle. The threatened legal suit by a client of XYZ company was perceived to be a source of greater uncertainty than the tax claim.

Table 3

Test Results of Comparing Adjustments to Risk
Premiums of Treatment Companies Against the Control Company

Diff. in interest rate premium	Experi- ment	ABC - LMN			XYZ - LMN		
		Mean	t	Prob.	Mean	t	Prob.
DIP ₂	1	0.15	2.97	0.004	0.16	3.26	0.002
	2	0.086	1.97	0.05	0.137	2.38	0.022
DIP ₃	1	0.204	2.96	0.004	0.03	0.5	0.60*
	2	0.177	2.87	0.006	0.056	0.99	0.32*

*Only when the contingency of XYZ was resolved did DIP of XYZ company was not significantly different from DIP of LMN, the control company.

Table 4

Results of Bivariate Comparisons between Experiments and Conditions for Each Company

Panel A: Within Company for Each Experiment:									
Company	Exper.	DIP(1) = Y2-Y1				DIP(2) = Y3-Y1			
		Condition	Mean	S.E.	t	Condition	Mean	S.E.	t
ABC	E1	Contin. Qualified	0.068	0.041	1.65	Cont. Clean	0.068	0.052	1.3
	E2	Contin. Clean	-0.008	0.038	0.21	Cont. Clean	-0.008	0.048	0.017
LMN	E1	No Cont.	-0.083	0.03	-2.77*	No Cont.	-0.136	0.045	-3.0*
	E2	No Cont.	-0.097	0.025	-3.87*	No Cont.	-0.185	0.038	-4.8*
XYZ	E1	Contin. Qualified	0.076	0.038	1.97*	No Cont. Clean	-0.106	0.036	-2.9*
	E2	Contin. Split Opin.	0.04	0.052	0.7	No Cont. Clean	-0.13	0.042	-3.1*
Panel B: Between Experiments, E1 - E2, for Each Company									
	Statistics		DIP Y2 - Y1			DIP Y3 - Y1			
ABC	Hom. of Var. Test of Dif.		F = 1.28 t = 1.36			F = 1.24 t = 1.07			
LMN	Hom. of Var. Test of Dif.		F = 1.54 t = 0.34			F = 1.46 t = 0.83			
XYZ	Hom. of Var. Test of Dif.		F = 1.72 t = 0.54			F = 1.24 t = 0.41			

*Indicates statistical significance below the 0.05 level

3. For category C hypotheses, the inclusion of contingencies as management notes alone did not lead bankers to make a significant upward adjustment in the interest rate premiums. This was evidenced by the lack of significant difference of average DIP from zero for ABC in the second and third year of the second experiment, and in the third year of the first experiment.
4. The reporting of a split opinion, category D hypothesis, was evaluated by bankers at about the same level at which they evaluated the disclosure of a contingency by a management note only; average DIP was not significantly different from zero.

The combined evidence for comparison against the control company and within company suggests that decision-effects of the audit qualification was material. Such a conclusion could be supported further when average DIP for each company were compared between the two experiments. As shown in Panel B of Table 4, average DIP were higher, but not significantly so for (a) ABC between experiment 1 (qualified report) and experiment 2 (footnote only), and (b) for XYZ between experiment 1 (qualified opinion) and experiment 2 (split opinion). For both category B and C, in both experiments, average DIP were not significantly different from zero. This finding leads to two implications:

- (a) The evidence in Table 3 suggest that existence of contingencies generated penalties in the form of foregone opportunities by not lowering the interest rate premiums as time to maturity gets shorter (as was the case for the LMN company throughout, or for XYZ when the contingency was removed in the third year.

(b) Adding a subject-to audit qualification led to an increase in the interest rate premium, but not by an amount sufficient to make on average a significant difference.

VI. THE DEBRIEFING

At the end of each experiment, bankers were asked to complete a debriefing questionnaire. The objective of the debriefing was to obtain bankers' views in a direct elicitation mode. The first question requested a list of the most important pieces of information they think they used. A categorization of responses by frequency of mention show profitability, liquidity and solvency as the most frequent. Audit opinion and contingent liabilities were the least frequently mentioned.

Next, subjects were asked to "...allocate a total of 100 points to six factors in terms of their significance in their decisions." These factors and a summary of the responses are presented in Table 5. Three observations apply: First, there is a remarkable similarity between the two experiments in terms of the levels of means and the ranking of each factor. Second, in both experiments, profit history and cash flow were ranked either first or second, with a combined weight of 43%. Third, audit opinion was ranked sixth in both experiments with an average weight of about 9%, which is lower than the 12% weight assigned to footnote disclosure.

Insert Table 5 here

Since the subjects were Canadian bankers, they were asked to indicate their opinion about the effects of the CICA's cancelling of the subject-to opinion. Bankers rated about "average" the effect of

Table 5

A Summary of The Bankers' Own Assigned Weights to Several Key Factors in Financial Analysis of A Borrower's Financial Position

Factor	First Exper.				Second Exper.			
	Mean	S.D.	C.V.*	Rank** 1=highest	Mean	S.D.*	C.V.	Rank** 1=highest
Footnote Disclosure	12.03	6.0	0.5	5	12.7	7.5	0.6	5
Ratio Analysis	19.8	8.5	0.43	3	15.0	8.7	0.6	4
Audit Opinion	9.5	4.3	0.45	6	9.0	5.7	0.63	6
Profit History	21.0	6.6	0.31	1	21.2	6.4	0.4	2
Cash Flow	21.3	9.37	0.43	2	22.5	11.2	0.5	1
Capital	16.27	7.5	0.46	4	20.3	8.85	0.44	3
Total	100.0	—	—	—	100.0	—	—	—

Note: At the end of both experiments bankers were asked to allocate 100 points to the "following factors in terms of their significance in your decision making."

*C.V. is the coefficient of variation.

**Rank is a decreasing rank for the mean, and an increasing rank for the C.V., the coefficient of variation.

that action on the degree "to which auditors communicate uncertainty." On a five-point scale (high=5, and low=1), average scores were 3.34 and 3.45 for the two experiments. However, when asked if, as a consequence, they were led to underestimate the risk arising from contingencies, their answers indicated a small effect (the average scores were 2.63 and 2.77 for both experiments).

Finally, in response to a question on their adaptation to cancelling the "subject-to" qualification, two important features were indicated: (a) forty-one responded that they place more emphasis on future projections and on the thoroughness of financial analysis, including comparisons with industry numbers; and (b) thirty-three responses indicated that adaptation took place by seeking substitute information from management for increased assurance.

VII. CONCLUDING REMARKS

This study presents the results of two experiments in which 64 experienced commercial bank loan officers analyzed financial statements and made a sequence of judgments about three companies that were faced with varying degrees of contingencies. The form in which the loss contingency was communicated to the bankers varied between management disclosure only, management disclosure accompanied by a qualified audit opinion, and management disclosure accompanied by a clean opinion for Canadian stockholders but a qualified opinion only for the U.S. stockholders. Furthermore, the degree of uncertainty embedded in the contingency varied; the uncertainty was presumed to be higher in the case of litigation by clients than in the case of litigation for income tax assessment differences. Finally, the simulated time sequence permitted

the researchers to vary the resolution of those uncertainties; in one case a low cost settlement was reached, while in the other case the loss contingency continued.

Bankers made several types of judgments. The most important measure was the interest rate premium to be charged above the prevailing prime rate. The loan contract provided that such a premium should be adjusted once a year based on the company's performance in that year. Performance in this case extended beyond the financial operations to include contingent claims and the form in which they were communicated. The other two measures consisted of categorical rating of the debt-paying ability and of the probability of default.

Analysis of the judgments made by loan officers revealed the following:

1. The disclosure (or the lack thereof) of a contingency, and not the qualification of audit reports, was the important factor affecting judgments about uncertainty. This is reflected in the changes in the variable interest rate premiums (especially when compared against the control company) and in the categorical assessment of both the debt-paying ability and the probability of default.
2. With one exception, the increase in the levels of interest rate premiums when a subject-to qualification was reported was not significantly different from the levels of interest rate premiums for the same company (or companies) in the absence of audit report qualification.
3. When contingencies were cleared, bankers took notice of that and significantly reduced the required interest rate premium such that it was not on average different from that of the control company.

4. All these results were further confirmed by the analysis of the changes in the categorical assignment of the debt-paying ability and of the assessment of the probability of default.
5. Finally, bankers reported that they do not believe the "audit opinion" is a very important determinant in their evaluation of the client's uncertainty. Out of six factors, the audit opinion was rated last, with an average importance weight of 9%, whereas profit history and cash flow analysis had an average importance weight of 43%, and management footnote disclosure had an average of 12%.

These findings are consistent with the thrust of Libby's results (1979). Consistency of the findings is particularly important since the present study provided a much more complex experimental design for two different experiments, conducted the experiment on a one-to-one basis with subjects, controlled the flow of new information such that it coincides with sequencing of the judgments made, and avoided the methodological problems raised by Berthold (1979) and Schultz (1979) about Libby's research design.

Footnotes

1. By "split opinion" we refer to a situation in which the auditor reports an unqualified opinion for the Canadian Stockholders but, immediately below it, provides comments addressed to U.S. readers which, in effect, reports a subject-to qualification in accordance with U.S. reporting standards. This reporting conflict is dealt with in an Auditing Guideline dated April, 1981, "Canada-United States Reporting Conflict with Respect to Contingencies and Going Concern Considerations Contained in the CICA Handbook--See Appendix--for an illustration. See Appendix A for an example. Another case was Banister Construction Limited, for 1981.
2. Banks and Kinney (1982) present a concise summary of accounting and auditing standards for loss contingencies.
3. The Report of the Commission on Auditor's Responsibility refers (p. 27) to the cases of Herfeld v. Lyenthaol Krekstein Horwath & Horwath, 378 F. Supp. 112 (S.D.N.Y. 1974) (CCH Fed. Sec. L Repr. paragraph 94,574); and Gulf & Western Industries, Inc. v. Great Atlantic & Pacific Tea Co., Inc., 476 F.2d 687, 697 (2d Cir., 1973) (CCH Fed. Sec. L. Repr. Paragraph 93,814).
4. A number of empirical studies have used security price methodology in attempting to assess the information content of subject-to qualifications. See Bailey (1982) for a critique of this methodology and for a suggested research design. Our approach is consistent with Bailey's suggestion.
5. In addition to the reasons cited in the text, Canadian commercial bank loan officers have not over studied as in the case of the U.S. bankers. Hence, they were more involved in the task constituting the experiment.
6. The results of these tests were consistent with those obtained for the interest rate premium. They were deleted from this text in order to reduce redundancy.

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Appendix A

A Case of 'Split' Audit Opinion
Falconbridge Nickel Mines Limited (1981).

AUDITORS' REPORT

To the Shareholder of Falconbridge Nickel Mines Limited:

We have examined the following financial statements of Falconbridge Nickel Mines Limited:

Consolidated financial position as at December 31, 1981 and 1980;
Consolidated earnings, consolidated retained earnings and changes
in consolidated financial position for the three years ended
December 31, 1981;

Segmented information as at December 31, 1981, 1980 and 1979 and
for the three years ended December 31, 1981; and

Investment in associated and other companies as at December 13,
1981, 1980 and 1979 and for the three years ended December 31,
1981.

Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, the above-mentioned financial statements present fairly the financial position of the company, the results of its operations and the changes in its financial position at the dates and for the periods indicated in accordance with accounting principles generally accepted in Canada, consistently applied.

Toronto, Canada, January 29, 1982.

Clarkson Gordon
Chartered Accountants

COMMENT ON DIFFERENCES IN
CANADIAN-UNITED STATES REPORTING STANDARDS FOR AUDITORS

In the United States, reporting standards for auditors require the expression of an opinion qualified as being subject to the outcome of significant uncertainties affecting the financial statements such as the uncertainty referred to in the attached statement of consolidated financial position as at December 31, 1981 and as describe in note 7(b) relating to Falconbridge Dominicana, C. por A., page 33, of the notes to consolidated financial statements. The opinion in our above report is expressed in accordance with Canadian standards and is not qualified with respect to, and provides no reference to, this uncertainty since such an opinion would not be in accordance with Canadian reporting standards for auditors when the uncertainties are adequately disclosed in the financial statements. A Canadian-United States reporting conflict did not exist in 1980.

Toronto, Canada, January 29, 1982

Clarkson Gordon
Chartered Accountants

Appendix B

A Condensed Profile of the Three Companies
During the Year of Granting the Loan
(Year 1)

Ratios *	ABC	LMN	XYZ
Quick Ratio	0.56	0.56	0.96
Current Ratio	1.54	1.37	1.96
Total Debt/Net Worth	1.46	1.92	1.25
Net Worth/Net Plant	0.99	0.84	0.89
Days Sales in Receivables	45	44	62
Sales to Net Plant	3.94	4.43	3.05
Gross Margin to Sales	0.17	0.18	0.19
Net Income/Net Worth	0.09	0.12	0.08
Net Income/Sales	0.02	0.02	0.02

These were the same ratios that were used as part of the instrument



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