L'Association Canadienne des Professeurs de Comptabilité
The Canadian Academic Accounting Association

COMPTE RENDU
PROCEEDINGS

CONGRÈS ANNUEL DE 1989
1989 ANNUAL CONFERENCE

Juin 1989 / June 1989

Université Laval
Québec

PROCEEDINGS OF THE CAAA 1989 CONFERENCE

COMPTE RENDU DU CONGRÈS ANNUEL DE 1989

The Canadian Academic Accounting Association

Toronto

1989

The Canadian Acacemic Accounting Association would like to express its appreciation to Prentice-Hall Canada, Inc., which has given financial support to this project.

TABLE OF CONTENTS/TABLE DES MATIÈRES

L'Association Canadienne des Professeurs de Comptabilité
The Canadian Academic Accounting Association

June 28, 1989

To the Members of the
Canadian Academic Accounting Association:

These proceedings contain the program, paper abstracts and some of the papers presented at the 1989 Annual Conference of the Canadian Academic Accounting Association held at Université Laval, June 6 and 7. Many of the research papers have not been included in this volume at the request of the authors.

The program consisted of invited papers, and papers received in response to the general call. Twenty-three papers were received in response to the general call, of which eleven were accepted following a review by two referees.

Many persons contributed to the planning and to the presentation of this conference. The CAAA Executive under the presidency of Irene Gordon, the Education Committee chaired by Derek Acland, Harold Guay from the Faculté des sciences de l'administration and the CAAA Administrative Officer Barbara Jaeger, all contributed significantly. Howard Armitage and Gordon Richardson organized two of the invited sessions. Twenty-eight persons played a critical role in refereeing the papers received in response to the general call. A list of the referees and their university affiliation follows. I acknowledge especially those who presented the invited and submitted papers, and we thank all those who responded to the general call but whose papers could not be included in the program. A final acknowledgement to the members who attended the conference and by their presence and involvement contributed to its success.

I am confident that this conference will further the development of academic accounting in Canada.

Sincerely,

Jean Bédard, Ph.D., C.A.
Professor
Université Laval
1989 CAAA Conference Chairperson

L'Association Canadienne des Professeurs de Comptabilité
The Canadian Academic Accounting Association

le 28 juin 1989

À l'intention des membres de l'Association
Canadienne des professeurs de comptabilité

Vous trouverez ci-joint le programme du congrès 1989 de notre Association tenu à l'Université Laval les 5 et 6 juin. Nous y avons joint les résumés des mémoires qui y ont été présentés et dans certains cas, leur texte intégral. À la demande de leurs auteurs, plusieurs mémoires n'ont pas été inclus.

Les mémoires présentés lors du congrès avaient fait l'objet d'une sollicitation individuelle et générale. Des vingt-trois mémoires reçus en réponse à notre sollicitation générale, onze ont été acceptés après examen par deux arbitres.

De nombreuses personnes ont contribué de façon significative à la préparation et la présentation de ce congrès; le bureau exécutif de notre association, présidé par Irene Gordon; le Comité d'enseignement présidé par Derek Acland, Howard Armitage et Gordon Richardson, les organisateurs de deux séances plénières, Harold Guay de la Faculté des sciences de l'administration et l'adjointe administrative de notre Association, Barbara Jaeger. Vingt-huit personnes ont accepté de juger les mémoires reçus en réponse à notre sollicitation générale. Vous trouverez plus loin les noms de ces arbitres ainsi que ceux de leur université. Si nous sommes particulièrement reconnaissants à ceux qui ont présenté des mémoires, nous aimerions également remercier tous ceux qui nous ont soumis des textes ainsi que les cent quarante participants qui ont permis de faire de ce congrès une réussite.

Nous avons bon espoir que ce congrès et les mémoires présentés contribueront à l'avancement des sciences comptables au Canada.

Croyez, chers collègues, à l'expression de mes sentiments les meilleurs.

Jean Bédard, Ph.D., C.A.
Professeur
Université Laval
Président du congrès 1989 de l'A.C.P.C.

Referees of submitted papers
Arbitres des mémoires soumis

Noms - Names	Université - Universities
Derek Acland	Concordia
Joel Amernic	Toronto
J. Efrim Boritz	Waterloo
Benoît Boyer	Laval
Heidi Chrisman	Laval
Denis Cormier	U.Q.A.M.
Daniel Coulombe	Laval
Lucie Courteau	Laval
Len Eckel	Waterloo
Lois Etherington	Simon Fraser
Jack Hanna	Waterloo
Yvon Houle	U.Q.A.M.
Duane Kennedy	Waterloo
Henry Kennedy	Alberta
Réal Labelle	U.Q.A.M.
Antonio Lagana	Laval
Léo-Paul Lauzon	U.Q.A.M.
Michel Legault	Laval
Bruce Larochelle	Concordia
Claude Pilote	Laval
Gordon Richardson	McMaster
Chris Robinson	York
Howard D. Teall	Wilfrid laurier
Daniel Thornton	Calgary
Doria Tremblay	Laval
Pierre Vézina	Laval
John Waterhouse	Alberta
Daniel Zéghal	Ottawa

1989 CONFERENCE PROGRAM
UNIVERSITÉ LAVAL

Tuesday, June 6

8:00am-4:00pm	**REGISTRATION**	
	Location:	Hall d'entrée, Pavillon Pollack
7:00pm-10:00pm	**CAAA WELCOME RECEPTION** Sponsored by Canadian Institute of Chartered Accountants	
	Location:	Salon 2, Pavillon Pollack

Wednesday, June 7

7:45am-8:45am	**BREAKFAST** Sponsored by Irwin Dorsey of Canada	
	Location:	Salon des professeurs, Pavillon Pollack
8:00am-4:00pm	**REGISTRATION**	
	Location:	Hall d'entrée, Pavillon Pollack
9:00am-9:15am	**WELCOME***	
	Speakers:	Jean Bédard, Conference chairperson Irene M. Gordon, President of CAAA Jacques Lussier, Dean of Faculté des sciences de l'administration, Université Laval
	Location:	Room 2105, Pavillon Comtois

* Simultaneous translation will be provided for these sessions.

Wednesday, June 7

9:15am-10:30am **PLENARY SESSION 1*** **The role of Canadian Universities in assisting accounting education in less developped countries**

Chairperson: Howard Armitage (University of Waterloo)

Speakers:
Lewis Perinban (Vice-President, Canadian International Development Agency)
Efrim Boritz (University of Waterloo)
Doria Tremblay (Université Laval)
William Langdon (Society of Management Accountants of Canada)

Location: Room 2105, Pavillon Comtois

10:30am-10:45am **BREAK**
Sponsored by Ordre des comptables agréés du Québec

10:45am-12:15pm **CONCURRENT SESSIONS Ia) et Ib)**

SESSION Ia)*

Chairperson: Claude Pilote (Université Laval)

Speakers: Lois Etherington (Simon Fraser University)
Tom Janz (University of Calgary)
«Performance Evaluation of Staff Auditors in Public Accounting Firms: A Firm Perspective»

Steven Zeff (Rice University)
«Arthur Andersen & Co. and the Two-Part Opinion in the Auditor's Report: 1946-1962»

Discussant: Len Eckel (University of Waterloo)

Location: Room 2105, Pavillon Comtois

Wednesday, June 7

SESSION Ib)

Chairperson: Lucie Courteau (Université Laval)

Speakers: Peter Cheng (University of Chicago)
Daniel Coulombe (Université Laval)
«A theory on Volontary Income Increasing Accounting Changes»

Wanda A. Wallace (Texas A&M University)
S. Duane Smith (Texas A&M University)
«Determinant of the Value of Stock Options Issued by Corporations»

Location: Room 2102, Pavillon Comtois

12:30pm-2:30pm **CAAA AWARDS LUNCHEON**
Sponsored by the Certified General Accountants Association of Canada

Chairperson: Irene M. Gordon, CAAA President

Speaker: Raymond Garneau
President et chief of Operations
L'Industrielle-Alliance
«titre de la présentation»

Location: Salon des professeurs, Pavillon Pollack

2:45pm-4:15pm **CONCURRENT SESSIONS IIa) et IIb)**

SESSION IIa)* **Challenges to Canadian Accounting Standards-Setting**

Chairperson: Ross Skinner (University of Toronto)

Speakers: John Denman (Accounting Standards Director, CICA)
«What are the Challenges?»
Paul-Victor Paré (Université Laval)
«Les réponses du Comité des normes à ces défis»

Location: Room 2105, Pavillon Comtois

Wednesday, June 7

SESSION IIb)

Chairperson: Denis Cormier (Université du Québec)

Speakers: Carol E. Dilworth (University of Toronto)
Daniel B. Thorntorn (University of Calgary)
«Incremental Information in Current Cost Disclosures: Canadian Evidence on Relative Input Price Sensitivity»

Heidi H. Chrisman (Université Laval),
«The Maturity Structure of Nominal contracts in an Inflationary Environment»

Location: Room 2102, Pavillon Comtois

4:15-4:30 **BREAK**

4:.30-5:45 **CAAA ANNUAL MEETING***

Chairperson: Irene M. Gordon, CAAA President

Guest: John K. Simons, President elect, American Accounting Association

Location: Room 2105, Pavillon Comtois

6:00pm-9:00pm **CAAA MEMBERS RECEPTION**
Sponsored by John Wiley & Sons

Location: Salon des professeurs, Pavillon Pollack

Thursday, June 8

8:30am-10:30am **PLENARY SESSION 2 Empirical Research on Capital Market**

Chairperson: Gordon Richardson (McMaster University)

Speakers: Duane Kennedy (University of Waterloo)
Wayne Shaw (Cornell University)
«A Comparison of the Ability of Audit Opinions and Bankruptcy Models to Predict Successful Reorganization of a Company»

Howard D. Teall (Wilfrid Laurier University)
«Information Content of Canadian Oil and Gas Companies' Cash Flow Disclosures»

Peter Clarkson (Simon Fraser University)
Alex Dontoh (University of British Columbia)
Gordon Richardson (McMaster University)
Stephen Sefcik (University of Washington)
«The Voluntary Inclusion of Earnings Forecasts in Initial Public Offering Prospectuses»

Location: Room 2105, Pavillon Comtois

10:30am-10:45am **BREAK**

10:45am-12:15pm **CONCURRENT SESSION IIIa) et IIIb)**

SESSION IIIa)

Chairperson: Pierre Vézina (Université Laval)

Speakers: Alex J. Milburn (Clarkson Gordon)
«Accounting with Interest - A Present Value Expectation Framework for Financial Accounting»

Sally Gunz (University of Waterloo)
«The Role of Corporate Counsel in Controlling the Legal Costs of the Firm»

Location: Room 2102, Pavillon Comtois

Thursday, June 8

SESSION IIIb)

Chairperson: Benoît Boyer (Université Laval)

Speakers: Michael Plauntz (Peat Marwick Main)
Marguerite H. Fisher (University of Waterloo)
«An Experimental Market Assessment of Constant Dollar Accounting»

Ramy R. Elitzur (University of Toronto)
«Translation of Foreign Financial Statements of Operations in Highly Inflationary Economies - An Analytical Examination»

Location: Room 2107, Pavillon Comtois

12:30pm-2:00pm **CAAA MEMBERS LUNCHEON**
Sponsored by the Society of Management Accountants of Canada

Chairperson: Jack Hanna, president elect CAAA

Location: Salon des professeurs, Pavillon Pollack

2:15pm-3:45pm **PLENARY SESSION 3** **Professional Judgment and Financial Reporting**

Chairperson: Lois Etherington (Simon Fraser University)

Speakers: Michael Gibbins (University of Alberta)
Alister K. Mason (Deloitte Haskins & Sells)

Participant: Hank D. Howarth (Dofasco Inc. and former chairman of the Accounting Standards Committee)

Location: Room 2105, Pavillon Comtois

3:45pm-4:00pm BREAK

Thursday, June 8

4:00pm-5:30pm **CONCURRENT SESSION IVa) AND IVb)**

SESSION IVa)

Chairperson: Farhad Simyar (Concordia University)

Speakers: Stan Laiken (University of Waterloo)
Alan Macnaughton (University of Waterloo)
«Automobiles: A Tax Planning and Tax Policy Analysis»

Ronald A. Davidson (University of Calgary)
«Accounting for Contingencies: A Comparison of U.S. and Canadian Terminology»

Location: Room 2102, Pavillon Comtois

SESSION IVb)

Chairperson: Andrée Lafortune (École des Hautes Études Commerciales)

Speakers: Zelma Rebman-Huber (Simon Fraser University)
«A Synthesis of the Approaches to Comparing National Accounting Systems»

Alan J. Richardson (Queen's University)
John J. Williams (Queen's University)
«Canadian Academic Accounting Productivity: A Survey of 10 Refereed Publications 1978-1988»

Location: Room 2107, Pavillon Comtois

PROGRAMME DU CONGRÈS 1989
UNIVERSITÉ LAVAL

Mardi, 6 juin

8h.00-16h.00	**INSCRIPTION**	
	Endroit:	Hall d'entrée, Pavillon Pollack
19h.00-22h.00	**RÉCEPTION DE BIENVENUE DE L'A.C.P.C.** Patronnée par l'Institut canadien des comptables agréés	
	Endroit:	Salon 2, Pavillon Pollack

Mercredi, 7 juin

7h.45-8h.45	**PETIT DÉJEUNER** Patronné par Irwin Dorsey of Canada	
	Endroit:	Salon des professeurs, Pavillon Pollack
8h.00-16h00	**INSCRIPTION**	
	Endroit:	Hall d'entrée, Pavillon Pollack
9h.00-9h.15	**BIENVENUE***	
	Conférenciers:	Jean Bédard, président du congrès Irene M. Gordon, présidente de l'A.C.P.C. Jacques Lussier, Doyen, Faculté des sciences de l'administration, Université Laval
	Endroit:	Local 2105, Pavillon Comtois

* Ces séances bénéficient du service d'interprétation.

Mercredi, 7 juin

9h.15-10h.30 **SÉANCE PLÉNIÈRE 1*** **Le rôle des universités canadiennes dans l'enseignement des sciences comptables dans les pays en développement**

Président: Howard Armitage (University of Waterloo)

Conférenciers:
Lewis Perinban (Vice-Président, Agence canadienne de développement international)
Efrim Boritz (University of Waterloo)
Doria Tremblay (Université Laval)
William Langdon (Société des comptables en management)

Endroit: Local 2105, Pavillon Comtois

10h.30-10h.45 **PAUSE**
Patronnée par l'Ordre des comptables agréés du Québec

10h.45-12h.15 **SÉANCES CONCOMITANTES Ia) et Ib)**

SÉANCE Ia)*

Président: Claude Pilote (Université Laval)

Conférenciers: Lois Etherington (Simon Fraser University)
Tom Janz (University of Calgary)
«Performance Evaluation of Staff Auditors in Public Accounting Firms: A Firm Perspective»

Steven Zeff (Rice University)
«Arthur Andersen & Co. and the Two-Part Opinion in the Auditor's Report: 1946-1962»

Participant: Len Eckel (University of Waterloo)

Endroit: Local 2105, Pavillon Comtois

Mercredi, 7 juin

SÉANCE Ib)

Présidente: Lucie Courteau (Université Laval)

Conférenciers: Peter Cheng (University of Chicago)
Daniel Coulombe (Université Laval)
«A theory on Volontary Income Increasing Accounting Changes»

Wanda A. Wallace (Texas A&M University)
S. Duane Smith (Texas A&M University)
«Determinant of the Value of Stock Options Issued by Corporations»

Endroit: Local 2102, Pavillon Comtois

12h.30-14h.30 **DÉJEUNER DES PRIX DE L'A.C.P.C.**
Patronné par l'Association des comptables généraux licenciés du Canada

Présidente: Irene M. Gordon, présidente de l'A.C.P.C.

Conférencier: Raymond Garneau
Président et chef des opérations,
L'Industrielle-Alliance
«titre de la présentation»

Endroit: Salon des professeurs, Pavillon Pollack

14h.45-16h.15 **SÉANCES CONCOMITANTES IIa) et IIb)**

SÉANCE IIa)* **Les défis pour la normalisation comptable au Canada**

Président: Ross Skinner (University of Toronto)

Conférenciers: John Denman (Directeur de la normalisation comptable, I.C.C.A.)
«What are the Challenges?»
Paul-Victor Paré (Université Laval)
«Les réponses du Comité des normes à ces défis»

Endroit: Local 2105, Pavillon Comtois

Mercredi, 7 juin

SÉANCE IIb)

Président: Denis Cormier (Université du Québec)

Conférenciers: Carol E. Dilworth (University of Toronto)
Daniel B. Thorntorn (University of Calgary)
«Incremental Information in Current Cost Disclosures: Canadian Evidence on Relative Input Price Sensitivity»

Heidi H. Chrisman (Université Laval),
«The Maturity Structure of Nominal contracts in an Inflationary Environment»

Endroit: Local 2102, Pavillon Comtois

16h.15-16h.30 **PAUSE**

16h.30-17h.45 **ASSEMBLÉE ANNUELLE DE L'A.C.P.C.***

Présidente: Irene M. Gordon, présidente de l'A.C.P.C.

Invité: John K. Simons, président élu de l'American Accounting Association

Endroit: Local 2105, Pavillon Comtois

18h.00-21h.00 **RÉCEPTION DES MEMBRES DE L'A.C.P.C.**
Patronnée par John Wiley & Sons

Endroit: Salon des professeurs, Pavillon Pollack

Jeudi, 8 juin

8h.30-10h.30 **SÉANCE PLÉNIÈRE 2** **Recherche empirique sur le marché des capitaux**

Président: Gordon Richardson (McMaster University)

Conférenciers: Duane Kennedy (University of Waterloo)
Wayne Shaw (Cornell University)
«A Comparison of the Ability of Audit Opinions and Bankruptcy Models to Predict Successful Reorganization of a Company»

Howard D. Teall (Wifrid Laurier University)
«Information Content of Canadian Oil and Gas Companies' Cash Flow Disclosures»

Peter Clarkson (Simon Fraser University)
Alex Dontoh (University of British Columbia)
Gordon Richardson (McMaster University)
Stephen Sefcik (University of Washington)
«The Voluntary Inclusion of Earnings Forecasts in Initial Public Offering Prospectuses»

Endroit: Local 2105, Pavillon Comtois

10h.30-10h.45 **PAUSE**

10h.45-12h.15 **SÉANCES CONCOMITANTES IIIa) et IIIb)**

SÉANCE IIIa)

Président: Pierre Vézina (Université Laval)

Conférenciers: Alex J. Milburn (Clarkson Gordon)
«Accounting with Interest - A Present Value Expectation Framework for Financial Accounting»

Sally Gunz (University of Waterloo)
«The Role of Corporate Counsel in Controlling the Legal Costs of the Firm»

Endroit: Local 2102, Pavillon Comtois

Jeudi, 8 juin

SÉANCE IIIb)

Président: Benoît Boyer (Université Laval)

Conférenciers: Michael Plauntz (Peat Marwick Main)
Marguerite H. Fisher (University of Waterloo)
«An Experimental Market Assessment of Constant Dollar Accounting»

Ramy R. Elitzur (University of Toronto)
«Translation of Foreign Financial Statements of Operations in Highly Inflationary Economies - An Analytical Examination»

Endroit: Local 2107, Pavillon Comtois

12h.30-14h.00 **DÉJEUNER DES MEMBRES DE L'A.C.P.C.**
Patronné par la Société des comptables en management du Canada

Président: Jack Hanna, président désigné de l'A.C.P.C.

Endroit: Salon des professeurs, Pavillon Pollack

14h.15-15h.45 **SÉANCE PLÉNIÈRE 3** **Jugement professionnel et information financière**

Président: Lois Etherington (Simon Fraser University)

Conférenciers: Michael Gibbins (University of Alberta)
Alister K. Mason (Deloitte Haskins & Sells)

Participant: Hank D. Howarth (Dofasco Inc. et ancien président du Comité des normes comptables)

Endroit: Local 2105, Pavillon Comtois

15h.45-16h.00 PAUSE

Jeudi, 8 juin

16h.00-17h.30 **SÉANCES CONCOMITANTES IVa) ET IVb)**

SÉANCE IVa)

Président: Farhad Simyar (Concordia University)

Conférenciers: Stan Laiken (University of Waterloo)
Alan Macnaughton (University of Waterloo)
«Automobiles: A Tax Planning and Tax Policy Analysis»

Ronald A. Davidson (University of Calgary)
«Accounting for Contingencies: A Comparison of U.S. and Canadian Terminology»

Endroit: Local 2102, Pavillon Comtois

SÉANCE IVb)

Présidente: Andrée Lafortune (École des Hautes Études Commerciales)

Conférenciers: Zelma Rebman-Huber (Simon Fraser University)
«A Synthesis of the Approaches to Comparing National Accounting Systems»

Alan J. Richardson (Queen's University)
John J. Williams (Queen's University)
«Canadian Academic Accounting Productivity: A Survey of 10 Refereed Publications 1978-1988»

Endroit: Local 2107, Pavillon Comtois

LE RÔLE DES UNIVERSITÉS CANADIENNES DANS L'ENSEIGNEMENT DES SCIENCES COMPTABLES DANS LES PAYS EN DÉVELOPPEMENT

Howard Armitage (University of Waterloo)
Lewis Perinbam (CIDA)
Efrim Boritz (University of Waterloo)
Doria Tremblay (Université Laval)
William Langdon (SMAC)

Cet atelier sera l'occasion d'explorer le rôle des universités canadiennes dans l'assistance aux pays en voie de développement pour l'avancement de la comptabilité. M. Lewis Perinbam, vice-président de l'ACDI, exposera d'abord la position du gouvernement canadien en matière d'aide à l'étranger, les critères servant à l'évaluation des programmes d'aide et le rôle que doivent jouer les universitaires canadiens dans ce domaine.

Doria Tremblay, de l'Université Laval, et Efrim Boritz, de l'Université de Waterloo, viendront ensuite décrire brièvement les projets qu'ils ont récemment réalisés en Afrique et en Amérique du Sud. Leurs commentaires auront pour but 1) d'expliquer les avantages du programme pour l'université, l'équipe de recherche et les bénéficiaires et 2) de décrire les exigences minimums indispensables pour assurer le succès du projet. Bill Langdon, vice-président directeur de la Société des comptables en management du Canada, terminera par une analyse du rôle actuel et futur des organismes comptables professionnels canadiens dans l'aide à l'avancement de la comptabilité à l'étranger.

THE ROLE OF CANADIAN UNIVERSITIES IN ASSISTING ACCOUNTING EDUCATION IN LESS DEVELOPED COUNTRIES

Howard Armitage (University of Waterloo)
Lewis Perinbam (CIDA)
Efrim Boritz (University of Waterloo)
Doria Tremblay (Université Laval)
William Langdon (SMAC)

This session explores the role of Canadian universities in assisting accounting progress in less developed countries. Mr. Lewis Perinbam, Vice-President of CIDA will open the session by outlining the position of the Canadian government on overseas assistance, the criteria used to evaluate assistance programs and the role to be played by Canadian academics in development issues.

Following Mr. Perinbam, Doria Tremblay of Laval and Efrim Boritz of Waterloo will give brief descriptions of projects that they have recently completed in Africa and South America. The purpose of these remarks is: (1) to discuss the benefits of the program from the perspectives of the minimum criteria necessary to ensure a successful project. Bill Langdon, Executive Director, Society of Management Accountants of Canada, will complete the session by examining the current and future role of Canadian professional accounting bodies in assisting overseas accounting development.

PERFORMANCE EVALUATION OF STAFF AUDITORS IN PUBLIC ACCOUNTING FIRMS: A FIRM PERSPECTIVE

Lois Etherington (Simon Fraser University)
Tom Janz (University of Calgary)

Les auteurs se penchent sur le rendement des vérificateurs adjoints dans dix cabinets d'expert-comptables d'envergure au Canada et aux États-Unis. Ils procèdent à une analyse des incidents critiques à partir de laquelle ils dérivent dix dimensions critiques du rendement du vérificateur adjoint accompagnées des conséquences, pour le cabinet, de ce rendement en fonction de chacune de ces dimensions. Quarante-trois chefs d'équipe ont évalué 172 de leurs vérificateurs adjoints, ce qui a permis d'obtenir des mesures des conséquences, pour le cabinet, du comportement des adjoints au travail. Un coût a ensuite été associé à ces données, de façon à créer une méthode d'évaluation de leur importance pour les cabinets. Les résultats de l'étude indiquent que le comportement personnel ou professionel serait peut-être plus important qu'on l'a cru jusqu'à maintenant, tant pour l'efficacité au travail du vérificateur adjoint que pour le cabinet d'experts-comptables. Les auteurs font la synthèse de ce que ces résultats signifient pour la gestion des cabinets.

PERFORMANCE EVALUATION OF STAFF AUDITORS IN PUBLIC ACCOUNTING FIRMS: A FIRM PERSPECTIVE

Lois Etherington (Simon Fraser University)
Tom Janz (University of Calgary)

This paper examines staff auditor performance in ten large public accounting firms in Canada and the United States. A critical incident analysis was conducted, from which ten dimensions critical to staff auditor performance were derived, together with outcomes to the firm of performance along each dimension. Forty-three supervisors evaluated 172 of their staff auditors to provide measures of outcomes to the firm of staff work behaviors. These were then costed, providing a method of evaluating their importance to the firms. Results indicate that personal/professional behaviors may be more important than previously believed both to the staff auditor in achieving successful performance and in terms of the public accounting firm. Implications for practice management are provided.

ARTHUR ANDERSEN & CO. AND THE TWO-PART OPINION IN THE AUDITOR'S REPORT: 1946-1962

Steven Zeff (Rice University)

L'auteur analyse en rétrospective ce qui amena Arthur Andersen & Cie à adopter, en 1946, le principe du partage en deux volets de l'opinion du vérificateur dans toutes ses missions et à revenir ensuite sur sa décision pour rétablir la forme standard du rapport du vérificateur. Ce partage en deux volets de l'opinion du vérificateur avait pour objet de faire la distinction entre l'opinion du vérificateur sur la fidélité de la présentation de l'information financière et sur le respect des principes comptables généralement reconnus.

Contrarié par la multiplicité des principes comptables tour à tour reconnus, le cabinet prenait cette décision en 1946. En 1950, il avait déjà entrepris de plaider en faveur de l'utilisation de la comptabilité indexée sur le niveau général des prix; il avait d'ailleurs été approuvé dans cette dérogation aux principes comptables généralement reconnus dans ses rapports sur les états financiers de plusieurs services publics ayant adopté la méthode.

Après un certain temps, avec la multiplication de cas de dérogation aux méthodes comptables, le cabinet décida en 1962 de renoncer à l'opinion en deux volets et de revenir à l'opinion standard. Il était incidemment préoccupé par le fait qu'il approuvait publiquement la comptabilité indexée sur le niveau général des prix tout en se voyant contraint de formuler des opinions sans réserve à l'égard des états financiers d'un nombre important de ces clients qui n'appliquaient pas la méthode. Le cabinet estima donc qu'il serait plus efficace de défendre son point de vue en publiant des brochures et des tirés à part des exposés de ses associés qu'en exprimant ses préférences à l'intérieur de ses rapports sur les états financiers de ses clients. Un autre facteur intervint aussi dans sa décision de revenir à l'opinion standard: sa confiance dans la capacité de l'*Accounting Principles Board*, nouvellement créé, d'articuler les objectifs des états financiers et de réduire les écarts entre les principes comptables.

ARTHUR ANDERSEN & CO. AND THE TWO-PART OPINION IN THE AUDITOR'S REPORT: 1946-1962

Steven Zeff (Rice University)

This paper constitutes a historical study of the roots of Arthur Andersen & Co.'s decision in 1946 to adopt a two-part auditor's opinion for all of its engagements, and its eventual decision to return to the standard form of the auditor's report. The essence of two-part opinion was to decouple the auditor's opinion on fairness of presentation from his opinion on conformity with generally accepted accounting principles.

The origins of the firm's decision in 1946 resided in its frustration with the multiplicity of alternatively accepted accounting principles. By the 1950s, the firm had begun to champion the use of general price-level accounting, and, in its reports on the financial statements of several public utilities that had adopted the practice, the firm registered approval of the departure from generally accepted accounting principles.

In the end, as the number of to its disagreements with accepted practice multiplied, the firm decided in 1962 to abandon its two-part opinion in favor of the standard one-part opinion. In addition, the firm became concerned over the awkwardness of its public approval of general price-level accounting at a time when it was, of necessity, giving clean audit opinions to the large numbers of its clients that did not follow the practice. The firm believed that it would be more efficacious to advocate its views through the publication of booklets and reprints of its partners' speeches than via the expression of its preferences in audit reports attached to its clients' financial statements. The firm's belief that the newly created Accounting Principles Board showed promise of articulating the objectives of financial statements and narrowing the areas of difference in accounting principles was another factor in the decision to return to a one-part auditor's opinion.

A THEORY ON VOLUNTARY INCOME INCREASING ACCOUNTING CHANGES

Peter Cheng (University of Chicago)
Daniel Coulombe (Université Laval)

Les auteurs proposent une théorie explicative des raisons pour lesquelles les gestionnaires choisissent de modifier leur stratégie d'information financière (c'est-à-dire de changer leurs méthodes comptables). Selon cette théorie, les choix comptables dépendent des coûts externés, du système de rémunération des cadres et des contraintes imposées par la dette. Devant un revers ou la stricte probabilité d'une défaillance d'ordre technique, le gestionnaire est amené à effectuer un changement comptable qui augmente les bénéfices. L'incidence de l'annonce d'un changement sur le prix de l'action est ensuite analysée comme étant fonction des prévisions logiques des investisseurs en ce qui a trait aux mesures prises par le gestionnaire en matière d'information financière et en fonction du volume d'information dont disposent les investisseurs sur le revers en question, avant l'annonce du changement. Les auteurs vérifient la valeur prédictive de la théorie auprès d'un échantillon de 101 entreprises. La réaction des investisseurs au changement comptable est contrôlée au moyen des rendements anormaux constatés à la date de l'annonce, et les tests sectoriels associent la réaction des investisseurs avec l'information qu'ils détenaient au préalable relativement à la situation financière des entreprises de l'échantillon.

A THEORY ON VOLUNTARY INCOME INCREASING ACCOUNTING CHANGES

Peter Cheng (University of Chicago)
Daniel Coulombe (Université Laval)

This paper presents a theory to explain why managers would elect to modify their reporting strategy (i.e., change accounting methods). The theory proposes that accounting choices are a function of externality costs, manager's compensation schemes and debt constraints. Facing adversity and/or the strict probability of technical default, the manager would be motivated to effect an income increasing accounting change. The share price effect of a change announcements is then analyzed as a function of investors' rational expectations of the manager's reporting actions and the level of information about adversity that investors may have prior to the change announcement. A sample of 101 firms are drawn to test the validity of the predictions of the theory. Investors' reaction to the accounting change is tested by abnormal returns on dates of announcement, and cross-sectional tests associate the investors' reaction with their prior information about the financial status of the sample firms.

DETERMINANT OF THE VALUE OF STOCK OPTIONS ISSUED BY CORPORATIONS

Wanda A. Wallace (Texas A & M University)
S. Duane Smith (Texax A & M University)

Le sujet sur lequel se penchent les auteurs est l'établissement des facteurs qui déterminent le niveau des régimes d'options d'achat d'actions et l'évaluation des différences systématiques entre les entreprises qui émettent des droits à la plus-value des actions en parallèle avec des options d'achat d'actions et celles qui ne le font pas.

Les auteurs ont recours à l'analyse descriptive comparative des test t, des test U de Mann-Whitney, des analyses du chi carré, de la corrélation du moment mixte de Pearson et de l'analyse de régression multiple pour déterminer les effets relatifs et combinés de la taille et de la structure du capital sur l'étendue des valeurs des options d'achat d'actions. La méthode Black-Scholes et la méthode de l'évaluation à la valeur du marché sont utilisées pour calculer les valeurs des options d'achat d'actions. L'échantillon a été tiré de la population des entreprises de la Bourse de New York dont le chiffre d'affaires dépasse 400 millions de dollars. L'échantillon a été divisé par dichotomie en entreprises offrant des options d'achat d'actions et des droits à la plus-value des actions d'une part, et en entreprises offrant des droits d'achat d'actions sans droits à la plus-value des actions d'autre part. Les activités de lobbying des entreprises de l'échantillon auprès du FASB ont également été analysées, à la lumière de l'importance des options d'achat d'actions dans l'ordre du jour.

Les résultats ont confirmé les hypothèses. Les entreprises offrant des droits à la plus-value des actions sont beaucoup plus grandes, elles présentent des ratios d'endettement plus faibles et leurs options d'achat d'actions en circulation ont des valeurs plus élevées. Les activités de lobbying confirment également que les entreprises en cause ont une propension plus grande au lobbying.

DETERMINANT OF THE VALUE OF STOCK OPTIONS ISSUED BY CORPORATIONS

Wanda A. Wallace (Texas A & M University)
S. Duane Smith (Texas A & M University)

The research question addressed by this paper is to identify the factors which determine the level of stock option grants and to assess the systematic differences among companies which issue stock appreciation rights in tandem with stock options and those who to not.

The paper uses comparative descriptive analyses of t-tests, Mann-Whitney U tests, Chi-square analyses, Pearson product-moment correlation, and multiple regression analysis to determine the relative and joint effects of size and capital structure on the magnitude of stock option values. The Black-Sholes and the marked-to-market methods were used to compute stock option values. The sample was drawn from the population of New York Stock Exchange firms with sales over $400 million. The sample was dichotomized into companies with stock options and stock appreciation rights and companies with stock options and no stock appreciation rights. The lobbying activity of the sample firms with FASB was also analyzed, in light of the agenda's attention to stock options.

The results were as hypothesized. Companies with SARs are significantly larger, have smaller debt-to-equity ratios, and have larger values of stock options outstanding. The lobbying was also consistent with the hypothesis that affected firms have a greater propensity to lobby.

CHALLENGES TO CANADIAN ACCOUNTING STANDARDS-SETTING

John Denman (I.C.C.A.)
Paul-Victor Paré (Université Laval)

Le Comité des normes comptables de l'I.C.C.A. doit aujourd'hui relever cinq défis: produire des normes avec célérité en assurant le respect de la procédure établie; conserver au jugement professionnel la place qu'il occupe; compler les besoins d'information auxquels ne répondent pas les états financiers; satisfaire les exigences des responsables de la réglementation et du milieu des affaires; travailler à l'harmonisation internationale.

Le Comité des normes comptables ne doit pas accélérer le processus d'établissement des normes en limitant les travaux de recherche sous-jacents. Il ne doit pas non plus raccourcir chaque étape du processus en restreignant la possibilité d'intervention des experts et du public. La rapidité du processus n'aurait rien à gagner de l'affectation d'un comité à plein temps à l'établissement des normes. L'importance de la procédure établie ne doit pas être sous-estimée. L'élaboration d'une norme doit cependant se faire dans un délai approprié. L'examen périodique de la procédure établie tient compte de la nécessité d'un travail efficient et efficace. Le Comité sur les problèmes nouveaux oriente les travaux en temps utile.

Le rôle du jugement professionnel est progressivement restreint. Il s'agit de déterminer quel degré de précision doivent avoir les normes. Dans le Manuel de l'I.C.C.A., les lacunes de certaines normes sont rectifiées. Le Comité sur les problèmes nouveaux limite l'exercice du jugement dans des circonstances précises.

Alors que les progrès du traitement de l'information et des communications donnent lieu à des demandes d'information financière qui dépassent les limites traditionnelles des états financiers, le Manuel demeure axé sur les états financiers. Le Comité des normes comptables reconnaît cependant cette tendance vers "l'information financière". Les travaux actuels portent sur les prévisions et les projections, la discussion et les analyses de la direction, la présentation de l'information relative au risque et à l'incertitude, l'information concernant les conséquences de l'évolution des prix, l'information financière à

CHALLENGES TO CANADIAN ACCOUNTING STANDARDS-SETTING

John Denman (CICA)
Paul-Victor Paré (Université Laval)

Five challenges currently facing the CICA Accounting Standards Committee are: to produce timely standards and maintain due process; to maintain the role of professional judgment; to respond to the need for information outside the financial statements; to meet the demands of the regulators and the business community; to seek international harmonization.

The Accounting Standards Committee should not speed up the process of setting standards by reducing the amount of research done. Nor should it compress the time allowed for each stage in the development of a standard by reducing the opportunity for expert and public input. Timeliness would not be improved by establishing a full time board to set standards. The importance of the due process should not be underestimated. However, there is a proper time span for the development of a standard. The need for efficiency and effectiveness is recognized by periodic reviews of the process. The Emerging Issues Committee is providing timely guidance.

The role of professional judgment is gradually being restricted. The question is "how detailed should standards be?" In the CICA Handbook, weaknesses in certain standards are being remedied. The Emerging Issues Committee will limit the scope for judgment in specific circumstances.

While advances in information processing and communications are bringing demands for financial information that go beyond the traditional boundaries of financial statements, the Handbook continues fo focus on financial statements. However, the trend to "financial information" has already been recognized by the Accounting Standards Committee. Current work is dealing with forecasts and projections, managements' discussion and analyses, risk and uncertainty disclosures, reporting the effects of changing prices, financial reporting in the information age and information relating to environmental and human resource matters.

l'ère de l'informatique et l'information reliée aux questions d'environnement et de ressources humaines.

Les responsables de la réglementation n'insistent pas beaucoup sur la prise de dispositions qui exigeraient que l'on s'écarte des mécanismes existants de la communication et de consultation. Comme pour le milieu des affaires, leur influence sur le Comité des normes comptables se maintient aussi, et les relations sont bien établies. La seule exception est peut-être celle des établissements financiers, que le Comité des normes comptables vient tout juste d'intégrer au Manuel.

Certaines normes comptables canadiennes sont différentes des normes américaines; cela est inévitable, en particulier lorsque l'intervention du public entre en ligne de compte. Le Comité des normes comptables internationales (C.N.C.I.) travaille à l'amélioration de ses normes à la demande des commissions des valeurs mobilières du monde entier. Certaines modifications proposées marginaliseraient les normes canadiennes. L'on parviendra sans doute à une harmonisation internationale grâce à la modification des normes nationales.

Ces défis, le Comité des normes comptables en a rendu compte dans la formulation de sa stratégie et de son plan quiquennal, récemment publiés en invitation aux commentaires.

There is no great pressure from the regulators for action that connot be dealt with in accordance with existing arrangements for communication and consultation. As for the business community, its influence on the Accounting Standards Committee is also on-going and relationships are well established. The only exception may be in the area of financial institutions, where the Accounting Standards Committee has only recently moved to bring them within the scope of the Handbook.

It is inevitable that some Canadian accounting standards are different from standards in the United States particularly as public input is taken into account. The International Accounting Standards Committee (IASC) is working to improve its standards at the request of securities commissions around the world. Some proposed changes would put Canadian standards "off-side". International harmonization is likely to be achieved by changing national standards.

These challenges have been recognized by the Accounting Standards Committee in formulating its Strategy and Five Year Plan, which has recently been published as an invitation to comment.

INCREMENTAL INFORMATION IN CURRENT COST DISCLOSURES: CANADIAN EVIDENCE ON RELATIVE INPUT PRICE SENSITIVITY

Carol E. Dilworth (Univesity of Toronto)
Daniel B. Thornton (University of Calgary)

Les auteurs examinent les propriétés théoriques et empiriques de la "sensibilité-prix relative de facteurs de production" (S.P.R.F.P.) des entreprises canadiennes pendant la période de trois ans écoulée entre 1983 et 1985. Le calcul de la S.P.R.F.P. exige des estimations fiables des redressements au titre de la structure financière opérés par les entreprises en fonction des gains de détention totaux, redressements qui étaient présentés au Canada mais ne l'étaient pas aux États-Unis. Les résultats de l'étude démontrent que la S.P.R.F.P. ne peut être estimée avec exactitude à partir de l'information financière publiée; de plus, la S.P.R.F.P. présente des différences appréciables selon le moment, pour des entreprises données, et selon l'entreprise de l'échantillon, à un moment donné. La mesure ne devrait donc apporter qu'une information marginale tant à la direction de l'entreprise qu'aux lecteurs externes de ses états financiers. Ces résultats viennent appuyer la nécessité pour les universitaires et les praticiens de continuer de s'intéresser à l'information financière qui n'est pas présentée au coût d'origine, bien que le milieu des affaires et les lecteurs des états financiers soient peu enclins à l'accepter.

INCREMENTAL INFORMATION IN CURRENT COST DISCLOSURES: CANADIAN EVIDENCE ON RELATIVE INPUT PRICE SENSITIVITY

Carol E. Dilworth (University of Toronto)
Daniel B. Thornton (University of Calgary)

This study examines the theoretical and empirical properties of Canadian firms' "relative input price sensitivity" (RIPS) during the three years 1983-85. Computation of RIPS requires reliable estimates of firms' financing adjustments based on total holding gains, which were disclosed in Canada but not the United States. The paper demonstrates that RIPS cannot be estimated accurately from externally reported data; moreover, RIPS differs significantly, both over time for given firms and across firms in the sample at a given time. Thus, the measure should be incrementally informative, both to management and to external readers of firms' financial statements. These findings provide justification for continuing interest by academics and practitioners in non-historic cost financial information, despite its lack of acceptance by the business community and by financial statement readers.

LA STRUCTURE DE L'ÉCHÉANCE DES CONTRATS NOMINAUX EN SITUATION D'INFLATION

Heidi H. Chrisman (Université Laval)

Les effets des contrats nominaux des entreprises, tel que présentés dans leurs états financiers, sur les différences entre leurs rendements à partir d'une annonce d'inflation sont analysés dans cette recherche. En premier, on présente un modèle des changements de la valeur de l'entreprise provenant de l'inflation non-anticipée. Ce modèle tient compte des changements de la valeur de deux sortes de contrats nominaux: les éléments monétaires et les abris fiscaux fondés sur le coût historique. Pour prévoir les rendements des actions ordinaires en situation d'inflation, le modèle non-linéaire de Pearce and Roley [1988] est utilisé. Les rendements journaliers à partir de l'annonce de l'indice des prix de la consommation (IPC) sont prévus, en utilisant les investissements dans des contrats nominaux qui ont été effectués par les entreprises. On tient compte des effets sur les contrats nominaux étrangers, des régimes de retraite, et des filiales non-consolidées, pour la première fois dans cette recherche. Ceci a beaucoup amélioré les calculs des contrats nominaux. Cependant, il semble que le modèle n'explique pas significativement les rendements.

THE MATURITY STRUCTURE OF NOMINAL CONTRACTS IN AN INFLATIONARY ENVIRONMENT

Heidi H. Chrisman (Université Laval)

This study reexamines the effects of nominal contracts in determining cross-sectional differences in firms' inflation surprise responses. First, a model of the inflation surprise induced changes in value of two types of nominal contracts, monetary items and historical cost tax shields, is presented. Pearce and Roley's [1988] non-linear asset pricing model of firms' equity returns on the day of the CPI announcement are predicted using individual firm investment in nominal contracts. Many adjustments to improve the calculation of firms' nominal contracts, such as those associated with operating leases, foreign investments, pension plans, and unconsolidated subsidiaries are included for the first time in this study. However, the model does not appear to have any significant explanatory power.

A COMPARISON OF THE ABILITY OF AUDIT OPINIONS AND BANKRUPTCY MODELS TO PREDICT SUCCESSFUL REORGANIZATION OF A COMPANY

Duane B. Kennedy (University of Waterloo)
Wayne H. Shaw (Cornell University)

Les auteurs examinent les facteurs susceptibles d'influer sur la décision du vérificateur ayant trait à l'opportunité d'exprimer une réserve à l'égard de son opinion dans le cas de 204 entreprises qui ont par la suite déclaré faillite entre 1973 et 1985. Ils examinent ensuite dans quelle mesure l'opinion du vérificateur permet de prévoir l'issue favorable de la faillite. La performance du vérificateur est évaluée par rapport au modèle prédictif de faillite. En résumé, les auteurs concluent que la relation entre l'opinion formulée par le vérificateur et le règlement de la faillite subit l'influence de la taille de l'entreprise, du laps de temps qui s'écoule entre l'émission de l'opinion et la déclaration de la faillite, de la réputation du vérificateur et la Loi de 1978 concernant la faillite. Ils concluent cependant que, dans l'ensemble, le vérificateur ne parvient pas mieux qu'un modèle mécanique à prévoir le succès de la réorganisation en formulant une opinion sans réserve avant la déclaration de faillite, et que ni le vérificateur ni le modèle qu'ils utilisent n'est capable d'établir la distinction entre le succès et l'insuccès des réorganisations.

A COMPARISON OF THE ABILITY OF AUDIT OPINIONS AND BANKRUPTCY MODELS TO PREDICT SUCCESSFUL REORGANIZATION OF A COMPANY

Duane B. Kennedy (University of Waterloo)
Wayne H. Shaw (Cornell University)

In this study, we examine factors that possibly affect the auditor's decision whether to qualify his (her) audit opinion on 204 firms that subsequently filed for bankruptcy between 1973-1985. We then examine the ability of the auditor's opinion to predict successful resolution of the bankruptcy. The auditor's performance is judged relative to the prediction of a bankruptcy model. In summary, we find that the relation of the audit opinion given to the outcome of the bankruptcy proceeding is impacted by firm size, the length of the time lag from when the opinion is issued to when the company files for bankruptcy, the auditor's stature, and the Bankruptcy Act of 1978. However, we find that overall the auditor predicts successful reorganization through giving an unqualified opinion prior to the bankruptcy filing no better than a mechanical model, and that neither the auditor or the model we used was able to discriminate between successful and unsuccessful reorganizations.

INFORMATION CONTENT OF CANADIAN OIL AND GAS COMPANIES' CASH FLOW DISCLOSURES

Howard D. Teall (Wilfrid Laurier University)

L'étude a pour but d'évaluer le contenu informationnel de quatre mesures des flux monétaires que les sociétés d'exploitation pétrolière et gazière canadiennes disent utiliser, par rapport au contenu informationnel du bénéfice par action. Le contenu informationnel est défini comme étant la capacité d'une mesure des flux monétaires de tenir compte de l'évolution du prix des actions ordinaires.

L'une des conclusions les plus répandues de la recherche en comptabilité et en finance est l'existence d'une relation significative entre les bénéfices comptables et le rendement des actions ordinaires. Dans le secteur pétrolier et gazier, on croit généralement que les bénéfices comptables ne reflètent pas fidèlement les événements et les activités qui ont eu de l'importance pour l'entreprise au cours de l'année et qu'ils risquent, par conséquent, d'être inutiles aux investisseurs. De plus, il semble que les cadres et les analystes dans ce secteur perçoivent les flux monétaires comme étant plus informatifs que les bénéfices au coût d'origine.

A partir d'un échantillon de 67 entreprises analysées aur la période de cinq ans écoulée entre 1983 et 1987, l'auteur examine quatre mesures des flux monétaires:
(1) la marge brute d'autofinancement par action,
(2) l'encaisse provenant de l'exploitation par action,
(3) l'encaisse pouvant être affectée à l'investissement par action et
(4) le flux monétaire discrétionnaire par action.

L'hypothèse de l'auteur est que les flux monétaires ont un contenu informationnel marginal relatif au bénéfice au coût d'origine, pour les sociétés d'exploitation pétrolière et gazière. Lorsqu'on effectue une analyse de régression/corrélation multiple sectorielle, toute mesure des flux monétaires par

INFORMATION CONTENT OF CANADIAN OIL AND GAS COMPANIES' CASH FLOW DISCLOSURES

Howard D. Teall (Wilfrid Laurier University)

The purpose of this paper is to evaluate the information content of four cash flow measures that have been reported by Canadian oil and gas exploration and development companies, in comparison to the information content provided by earnings per share. Information content is defined as the ability of a cash flow measure to account for changes in common stock prices.

One of the most pervasive conclusions in accounting and finance research is that there exists a significant relationship between accounting earnings and common stock returns. In the oil and gas industry, it is a common perception that accounting earnings do not appropriately reflect the events and activities of significance to the company over the year, and for this reason it may not be useful to investors. Furthermore, it has been reported that executives and analysts in the industry perceive cash flow to be more informative than historic cost earnings.

Based on a sample of 67 companies over the five-year period 1983 to 1987, this paper examines four cash measures namely:

(1) funds from operations per share,
(2) cash from operations per share,
(3) cash available for investing per share, and
(4) discretionary cash flow per share.

The hypothesis of this paper is that cash flow provides incremental information content relative to historic cost income for oil and gas exploration and development companies. By employing a cross-sectional multiple regression/correlation analysis, any per share cash flow measure which accounts for a statistically significant proportion of the variance of the changes in common stock prices, after recognizing the proportion accounted for by historic cost earnings per share, will be interpreted as providing information content.

action représentant une proportion statistiquement significative de la variation du prix de l'action ordinaire, une fois déterminée la proportion que représente le bénéfice par action au coût d'origine, est interprétée comme ayant un contenu informationnel.

Contrairement à ce qu'on croit, le bénéfice par action a invariablement un contenu informationnel, puisque dans presque toutes les analyses, le contenu informationnel du bénéfice par action est supérieur à celui des autres mesures du flux monétaire par action.

Parmi les mesures du flux monétaire, le flux monétaire discrétionnaire semble être le plus utile. Les résultats de l'analyse sont particulièrement probants pour les années 1986 et 1987 où la présentation de l'intérêt et des frais généraux capitalisés était requise. Toutefois, étant donné la courte période, de 1985 à 1987, pendant laquelle le flux monétaire discrétionnaire a pu être mesuré, il pourrait être prématuré de conclure que son utilité se maintiendra. Il est également intéressant de noter que son utilité augmente pour les entreprises dont l'actif est inférieur à 500 millions de dollars. Au total, la présentation soutenue du flux monétaire discrétionnaire est fortement recommandée.

Despite perceptions to the contrary, earnings per share provide consistent evidence of information content, as in almost every analysis the information content provided by earnings per share is greater than that provided by any measure of cash flow per share.

Of the cash flow measures, discretionary cash flow appears to be the most useful. The analysis results are very significant in 1986 and 1987 which are the years in which the disclosure of capitalized interest and capitalized overhead is required. But given the limited period of 1985 to 1987 when discretionary cash flow could be measured, it may be premature to conclude that it will continue to be consistently significant. It is also interesting to note that its usefulness is increased for companies with assets of less than 500$ million. Overall the continued disclosure of discretionary cash flow is strongly recommended.

THE VOLUNTARY INCLUSION OF EARNINGS FORECASTS IN INITIAL PUBLIC OFFERING PROSPECTUSES

Peter Clarkson (Simon Fraser University)
Alex Dontoh (University of British Columbia)
Gordon Richardson (McMaster University)
Stephen Sefcik (University of Washington)

L'étude porte sur l'analyse empirique du rôle joué par la présentation directe d'information dans l'évaluation des émissions initiales faisant appel public à l'épargne. L'auteur analyse les raisons pour lesquelles certaines entreprises qui procèdent à une première émission faisant appel public à l'épargne donnent dans leur prospectus une prévision des bénéfices alors que d'autres ne le font pas et, en particulier, le rôle de la présentation directe de cette information dans l'évaluation des émissions initiales faisant appel public à l'épargne. Les auteurs explorent plusieurs hypothèses dérivées de la documentation relative à l'indication et à la présentation volontaire d'information. Il étudie l'hypothèse selon laquelle les émissions initiales sont motivées par le désir de transmettre de "bonnes nouvelles" au sujet des perspectives de flux monétaire au moyen de la présentation directe d'information comme la prévision volontaire des bénéfices, hypothèse également avancée par Lev et Penman [1986] pour expliquer la décision de formuler des prévisions volontaires chez les entreprises précédemment citées. Les résultats de l'étude sont généralement conformes à l'hypothèse des *bonnes nouvelles*.

La présentation directe d'information étant onéreuse, l'émission initiale faisant appel public à l'épargne doit rapporter un bénéfice, soit une évaluation supérieure de l'émission par suite de la présentation d'information. Les entreprises ne font des prévisions que si les bénéfices prévus en termes de valeur accrue excèdent les coûts prévus de cette information. Les résultats obtenus par l'auteur sont, de façon générale, conformes à l'hypothèse de la pertinence de l'évaluation: l'évaluation des émissions augmente par suite de l'indication des bénéfices fournie par les prévisionnistes.

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Peter Clarkson (Simon Fraser University)
Alex Dontoh (University of British Columbia)
Gordon Richardson (McMaster Univeristy)
Stephen Sefcik (University of Washington)

The purpose of this study is to consider empirically the role played by direct disclosure in the valuation of initial public offerings (IPOs). We investigate why some firms making an initial public offering voluntarily include an earnings forecast in the offering prospectus and others do not, and in particular, the role of such direct disclosures in IPO valuation. We explore several hypotheses motivated by the signalling and voluntary disclosure literature. The study explores the hypothesis that IPOs are motivated to signal their "gook news" about future cash flow prospects through direct disclosures such as voluntary earnings forecasts, a hypothesis also advanced by Lev and Penman [1986] to explain the voluntary forecast decision for previously listed firms. Our results are generally consistent with the Good News hypothesis.

Given that direct disclosure is costly, the IPO must perceive a benefit, namely, increased IPO valuation as a result of the disclosure. Firms will forecast only if the expected benefits in terms of increased valuation exceed the expected costs of disclosure. Our results are generally consistent with the valuation relevance hypothesis: IPO valuation is increasing in the earnings signal provided by forecasters.

ACCOUNTING WITH INTEREST - A PRESENT VALUE EXPECTATIONS FRAMEWORK FOR FINANCIAL ACCOUNTING

Alex J. Milburn (Clarkson Gordon)

L'auteur examine la prémisse de base sur laquelle repose la monographie de l'I.C.C.A. *Incorporating The Time Value Of Money In Financial Accounting* (version française en préparation) et les conséquences globales qu'on lui attribue en matière de comptabilité générale. Cette prémisse de base veut que les prévisions logiques en ce qui a trait à la valeur actualisée soient prises en considération dans l'évaluation des éléments d'actif et de passif de toute nature appartenant à l'entreprise. Ces prévisions sont évidentes dans le marché financier et sous-entendues dans un grand nombre d'ouvrages des domaines économique et financier portant sur les taux d'intérêt. Dans des conditions raisonnables d'efficience du marché des capitaux, conditions dont on peut présumer l'existence dans certains marchés obligataires, les prévisions relatives aux taux d'intérêt (cours inter-temporels) selon diverses échéances et divers risques peuvent être dérivées des prix du marché des obligations.

Suivant l'hypothèse générale avancée, il faut supposer, aux fins de la comptabilité générale, que l'entreprise acquiert ses éléments d'actif (et de passif) de toute nature dans la perspective de réaliser des flux de liquidités futurs correspondant au coût, majoré d'un rendement du capital investi comparable aux taux d'intérêt que pourraient lui rapporter au même moment, sur le marché financier, des placements monétaires présentant des risques et des échéances similaires.

Selon l'auteur, les hypothèses aux prévisions en matière de valeur actualisée ont des répercussions considérables sur la comptabilité générale, qu'elles soient fondées sur le modèle de la comptabilité d'exercice à la valeur d'origine ou sur celui de la valeur marchande actuelle.

L'auteur montre comment les définitions reconnues de l'actif et du passif en comptabilité générale pourraient englober les prévisions en matière de valeur actualisée et, à l'aide d'un exemple de prêt très simple, comment certains principes comptables peuvent être dérivés dans le cadre proposé des prévisions en matière de valeur actualisée.

ACCOUNTING WITH INTEREST - A PRESENT VALUE EXPECTATIONS FRAMEWORK FOR FINANCIAL ACCOUNTING

Alex J. Milburn (Clarkson Gordon)

The paper reviews the basic premise underlying the CICA Research Study *Incorporating The Time Value Of Money In Financial Accounting* and its proposed general implications for financial accounting. The basic premise is that rational present value expectations should be presumed to underlie all forms of assets and liabilities of business enterprises. These expectations are readily evident in the financial marketplace, and are presumed in a rich body of economics-finance literature on interest rates. Under reasonably efficient market conditions, which may be assumed to exist for certain bond markets, interest rate expectations (inter-temporal prices) for various terms to maturity and risks can be derived from bond market prices.

The general proposition is put forward that, for financial accounting purposes, all forms of business assets (and liabilities) should be presumed to be acquired with the expectation of realizing future cash-equivalent flows equal to the cost plus a return on investment that is commensurate with the interest rates then obtainable in the financial marketplace for monetary investments of equivalent risks and durations.

It is proposed that these present value expectations presumptions have immense implications for financial accounting, reasoning within either cost-based accrual of current market value models.

The paper illustrates how the accepted definitions of assets and liabilities in financial accounting could be expanded to embody present value expectations and, using a very simple loan example, how certain principles of accounting may be derived within the proposal of the present value expectations framework.

THE ROLE OF CORPORATE COUNSEL IN CONTROLLING THE LEGAL COSTS OF THE FIRM

Sally Gunz (University of Waterloo)

L'auteure s'intéresse à un aspect particulier des efforts de l'entreprise pour contrôler les coûts: les efforts visant le contrôle des frais de contentieux. Elle pose au départ l'hypothèse selon laquelle les frais de contentieux préoccupent bon nombre d'organisations, d'une part, et cette préoccupation s'accentue, d'autre part, soit du fait que les frais de contentieux en tant que tels augmentent, comme on l'explique souvent, soit du fait que la prise de conscience de l'existence de ces frais se répand.

L'auteure examine un élément particulier de la fonction de contrôle: le rôle du conseiller juridique interne ou de l'avocat dont l'organisation s'assure les services dans la gestion des frais de contentieux. Cet intérêt tient au fait que les conseillers juridiques ont beaucoup attiré l'attention de la presse qui en a fait les responsables de toutes les questions de nature juridique dans l'entreprise et, en particulier, du contrôle de l'envergure des charges juridiques dans l'ensemble. De fait, on assiste au pays, depuis deux décennies, à une augmentation de l'effectif des conseillers juridiques d'entreprise, tendance que l'on justifie le plus souvent par leur compétence en matière de contrôle.

L'auteure fait état de certaines préoccupations ou de certaines questions fondamentales relatives à la capacité des conseillers juridiques de s'acquitter du mandat qui leur est confié. Elle analyse ensuite comment, dans la réalité, les conseillers juridiques au Canada répondent aux besoins de l'entreprise par les mesures qu'ils appliquent concrètement dans leurs services. Dans cette analyse, l'auteure s'appuie sur les résultats d'une étude empirique récemment menée auprès des conseillers juridiques d'entreprise. Il existe, conclut-elle, certaines contradictions fondamentales entre la façon dont on décrit le processus de gestion des frais de contentieux et ce que l'on est à même de constater dans les faits. En outre, dans la majorité des services juridiques soumis à l'étude, les types de contrôle que l'on retrouve habituellement dans d'autres secteurs de l'entreprise semblent être, au mieux, appliqués à l'aveuglette.

THE ROLE OF CORPORATE COUNSEL IN CONTROLLING THE LEGAL COSTS OF THE FIRM

Sally Gunz (University of Waterloo)

This paper considers a particular aspect of the firm's cost control effort, namely the control of legal costs. It assumes as its beginning point that the magnitude of legal costs is a concern to many organizations and that this concern is growing either because, as is often stated, legal costs themselves are growing, or alternatively, awareness of legal costs is more widespread.

The paper looks at one particular part of the control function: the role of the corporate counsel or organization employed lawyer in managing legal costs. This stems from the considerable attention corporate counsels have attracted in the press as the new guardians of all law related matters for the firm and, in particular, the overall control of the magnitude of legal expenditures. There has undoubtedly been increased employment of corporate counsel in the past two decades in this country and the justification for the trend is most frequently stated in terms of the control skills they offer the firm.

This paper raises some basic concerns of questions about the ability of corporate counsel to fulfil the mandate ascribed to them. It then examines how corporate counsel in Canada are in fact meeting the needs of the firm in terms of the measures they actually apply within their departments. For this examination, the paper relies on findings from a recent empirical study of corporate counsel. It concludes that there are some basic inconsistencies between what is said to happen in the management of legal costs and what is in fact happening. Moreover, the types of control that would typically be found in other areas of the firm appear to be applied haphazardly at best in the majority of legal departments studied.

AN EXPERIMENTAL ASSET MARKET ASSESSMENT OF CONSTANT DOLLAR ACCOUNTING

Michael Plauntz (Peat Marwick Main)
Marguerite H. Fisher (University of Waterloo)

Les études réalisées sur le terrain n'ont pas permis d'isoler les effets des changements enregistrés dans le pouvoir d'achat général du dollar sur les décisions des investisseurs. Les auteurs ont créé des marchés de biens expérimentaux pour étudier si l'information explicite relative aux conséquences de l'inflation sur la perte de pouvoir d'achat général avait une incidence sur les prix du marché et le niveau d'activité.

Les marchés de biens expérimentaux sont modestes, mais il s'agit de marchés économiques véritables à l'intérieur desquels les sujets négocient des parts d'actif et empochent les bénéfices résultant des opérations et les dividendes afférents. Les auteurs ont posé certaines hypothèses simplificatrices. Les sujets ont reçu un bilan dans lequel figuraient un seul élément d'actif à valeur vénale fixe (un placement en obligations) et l'avoir des actionnaires. L'intérêt que rapportaient les obligations était remis aux sujets sous forme de dividendes trimestriels. La perte de pouvoir d'achat général se réflétait dans le versement de dividendes à la fin de chacun des quatre trimestres, en fonction du pouvoir d'achat réel au début du premier trimestre et en fonction de l'inflation véritable. Dans les marchés C (marchés NC), tous les sujets ont reçu (ou n'ont pas reçu) une formule à utiliser dans le calcul du dividende prévu, en dollars du début du trimestre.

Les résultats des tests de comparaisons appariées de Wilcoxon appliqués par les auteurs sont affectées par le comportement anormal d'un marché C dans lequel ont été relevés un niveau d'activité, un écart de prix et une dispersion moyenne par rapport au dividende prévu beaucoup plus grands que dans les deux autres marchés C. Si l'on fait abstraction de ce marché, les hypothèses nulles selon lesquelles il n'existe aucune différence entre les marchés C et les marchés NC sont rejetées, et les prédictions voulant que les marchés NC présentent un niveau d'activité, un écart de prix et une dispersion plus grands sont confirmées. Avant de conclure à l'utilité de la formule remise aux sujets, les auteurs procèdent cependant à d'autres tests.

AN EXPERIMENTAL ASSET MARKET ASSESSMENT OF CONSTANT DOLLAR ACCOUNTING

Michael Plauntz (Peat Marwick Main)
Marguerite H. Fisher (University of Waterloo)

Field studies have not isolated successfully the effects of changes in the general purchasing power of the dollar on investor decisions. We conducted experimental asset markets to study whether explicit information about the effect of inflation on general purchasing power loss would affect market prices and volume.

Experimental asset markets are small but real economic markets in which subjects trade shares of stock and take home in cash trading profits and dividends. We make some simplifying assumptions. Subjects received a balance sheet showing a single monetary asset (a bond investment) and shareholder's equity. Bond interest was paid out over four quarters as dividends to the subjects. General purchasing power loss was reflected by paying dividends at the end of each of four periods based on real purchasing power at the beginning of the first period and actual inflation. In the C Markets (NC Markets) all subjects were provided (were not provided with) a formula to use in computing expected dividend in terms of beginning of period dollars.

Conclusions from our Wilcoxon paired comparison test are affected by the anomalous behavior of one C Market, which exhibited significantly higher volume, price variance and average dispersion from expected dividend than the other two C Markets. When we exclude this Market, null hypotheses of no differences between C and NC Markets are rejected. Predictions that the NC Markets would show higher volume, price variance, and dispersion are supported. However, before concluding that providing the formula was useful, we are conducting additional replications.

TRANSLATION OF FOREIGN FINANCIAL STATEMENTS OF OPERATIONS IN HIGHLY INFLATIONARY ECONOMIES - AN ANALYTICAL EXAMINATION

Ramy R. Elitzur (University of Toronto)

L'auteur analyse la conversion des états financiers exprimés de devises étrangères d'entreprises en contexte économique inflationniste.

L'analyse repose sur la comparaison des résultats obtenus à partir de l'application de la méthode temporelle et de la méthode du cours actuel aux états financiers convertis ajustés pour tenir compte de l'inflation. L'auteur pose d'abord l'hypothèse de la parité parfaite du pouvoir d'achat, théorie selon laquelle les taux d'inflation marginaux entraînent un mouvement proportionnel dans le cours du change entre les pays. Dans ce contexte, les résultats obtenus indiquent que la méthode temporelle n'entraîne pas de distorsion dans les données. La méthode du cours actuel donne cependant lieu à une distorsion par rapport au modèle de référence. D'autre part, si l'on néglige l'hypothèse de la parité du pouvoir d'achat, la méthode du cours actuel de même que la méthode temporelle occasionnent des distorsions dans les résultats. Ces distorsions sont cependant plus faibles lorsqu'on utilise la méthode temporelle par rapport au modèle de référence. L'auteur procède ensuite à l'analyse de l'optimalité des modèles de conversion dans l'optique coûts-avantages. Selon les résultats obtenus, la conversion des états financiers ajustés pour tenir compte de l'inflation est optimale. Ce résultat est attribuable au fait que le modèle de référence est plus informatif que les autres méthodes, et les coûts de production de l'information sont pratiquement les mêmes.

TRANSLATION OF FOREIGN FINANCIAL STATEMENTS OF OPERATIONS IN HIGHLY INFLATIONARY ECONOMIES - AN ANALYTICAL EXAMINATION

Ramy R. Elitzur (University of Toronto)

The study examines whether the use of the temporal method for foreign operations in inflationary economies is meaningful.

The investigation is conducted by comparing the results obtained by the temporal and the current method to the translated adjusted for inflation financial statements. The examination assumes at first a perfect purchasing power parity (PPP) assumption, or that the devaluation of the local currency is affected only by the local inflation. The results of the perfect PPP scenario indicate that the temporal method yields the same results as the translation of adjusted for inflation statements, while the current rate method yields distorted results. The study then proceeds to examine a scenario in which the perfect PPP assumption is relaxed. The results indicate that both the temporal and the current rate methods yield distorted results, however, this distortion is generally lower under the temporal method. The paper then examines, from a cost-benefit perspective, the expected net benefit from the various methods.

The analysis indicates that normally the best method of translation of foreign statements of operations in highly inflationary economies is the translation of adjusted for inflation financial statements.

JUGEMENT PROFESSIONNEL ET INFORMATION FINANCIÈRE

Michael Gibbins (University of Alberta)
Alister K. Mason (Deloitte, Haskins & Sells)

On reconnaît depuis longtemps que le jugement professionnel constitue un élément essentiel de la préparation des états financiers destinés aux investisseurs, aux créanciers et à d'autres parties intéressées. La publication de normes sur un nombre croissant de sujets relevant de la comptabilité n'a diminué en rien la nécessité de l'exercice du jugement professionnel; en fait elle l'a probablement augmentée.

Les auteurs présenteront leur récente monographie, publiée par l'I.C.C.A. en version anglaise en 1988 et en version française en 1989. Dans le cadre de cet atelier seront étudiées la nature et l'importance de l'aspect "comptable" du jugement professionnel; on procédera à l'examen des résultats de la recherche et des recommandations formulées dans la monographie. Des exemples seront utilisées et une période de temps sera réservée aux questions et à la discussion.

La monographie porte sur la nature et l'exercice du jugement professionnel dans le cadre de la présentation de l'information financière, c'est-à-dire du jugement professionnel qui touche à la mesure comptable, à la présentation et à la divulgation. L'accent est mis sur les responsabilités qui incombent aux auteurs et aux vérificateurs des états financiers; en conséquence, une certaine attention est également accordée aux questions de présentation du rapport du vérificateur (mais non aux procédés de vérification). Le jugement professionnel constitue, dans les meilleures conditions, un processus systématique et analytique axé sur l'atteinte de conclusions objectives à l'égard de questions qui peuvent s'avérer difficiles et complexes. Les auteurs font état des obstacles qui peuvent nuire à la qualité de ce processus et formulent des recommandations visant à éliminer ou à réduire ces obstacles et, par conséquent, à améliorer le déroulement du processus et ses résultats. Ils insistent particulièrement sur l'étroite relation qui existe entre le jugement professionnel et les normes professionnelles, tout comme sur certains aspects du professionnalisme comme l'intégrité, les connaissances et la consultation.

Les auteurs analysent les normes d'information en matière de comptabilité et de vérification en vigueur au Canada, ainsi que les normes comptables

PROFESSIONAL JUDGMENT IN FINANCIAL REPORTING

Michael Gibbins (University of Alberta)
Alister K. Mason (Deloitte, Haskins & Sells)

The use of professional judgment has long been recognized as an essential factor in the preparation of financial statements, for the information of investors, creditors and other interested parties. Even with the release of standards on an increasing number of accounting issues, the need for the exercise of such judgment has not diminished; in fact, it has probably increased.

The authors will present their recent CICA Research Study, published in English in 1988 and French in 1989. The session will examine the nature and importance of the "accounting" side of professional judgment and will review the research findings and recommendations reported in the study. Examples will be used and time will be provided for questions and discussion.

The study examines the nature and practice of professional judgment in financial reporting: professional judgment on accounting measurement, presentation and disclosure issues. The focus is on the reponsibilities of both preparers and auditors; therefore, some attention is also given to audit reporting issues (but not auditing procedures). Such professional judgment is shown to be, at its best, a systematic and analytical process of reaching objective conclusions about issues which may be difficult and complex. Impediments to quality in this process are identified also, and recommendations are directed to removing or reducing such impediments and therefore improving the way the process is conducted and improving its results. The close relationship between professional judgment and professional standards is given particular attention, as are such aspects of professionalism as integrity, knowledge and consultation.

The study analyzes accounting and audit reporting standards in Canada, and the US, UK and international accounting standards. Most recommendations will be relevant to standard-setters, professional accountants and others in all countries, but since this is a Canadian study, however, some recommendations have a Canadian focus.

appliquées aux États-Unis, au Royaume-Uni et à l'échelle internationale. La plupart des recommandations intéresseront les normalisateurs, les comptables professionnels et ceux que préoccupe la question dans tous les pays. Cependant, comme il s'agit d'une étude canadienne, certaines recommandation sont axées plus particulièrement sur le contexte canadien.

AUTOMOBILES: A TAX PLANNING AND TAX POLICY ANALYSIS

Stan Laiken (University of Waterloo)
Alan Macnaughton (University of Waterloo)

L'un des problèmes de planification fiscale les plus épineux reliés à la réforme fiscale canadienne récemment promulguée a trait aux automobiles utilisées par affaire. La planification fiscale en cette matière exige plusieurs décisions:

1. L'automobile doit-elle être acquise ou louée?
2. L'automobile doit-elle être fournie par l'employeur ou par l'employé?
3. Si l'automobile est fournie par l'employeur, ce dernier doit-il obtenir une allocation non imposable ou l'employé doit-il plutôt déduire ses frais de déplacement?

Les cabinets comptables abordent habituellement ces questions en élaborant des tableaux étalons de ventilation permettant l'analyse numérique de la situation particulière de chaque client. Les auteurs tentent ici d'établir des règles générales en attribuant de symboles à chaque paramètre et en déterminant par méthode algébrique l'option présentant le coût minimum. Ces résultats seront reliés à l'élaboration d'une politique fiscale dans ce domaine par voie de comparaison avec les règles fiscales antérieures à la réforme et les règles fiscales similaires d'autres pays.

AUTOMOBILES: A TAX PLANNING AND TAX POLICY ANALYSIS

Stan Laiken (University of Waterloo)
Alan Macnaughton (University of Waterloo)

One of the most difficult tax planning issues associated with the recently-enacted Canadian tax reform legislation concerns automobiles used for business purposes. Several decisions must be made:

1. Should the automobile be owned or leased?
2. Should the automobile be provided by the employer of the employee?
3. If it is provided by the employer, should the employer be given a tax-exempt allowance or should the employee deduct travelling expenses instead?

Accounting firms usually address these issues by developing spreadsheet templates to numerically analyze each separate client situation. This paper attempts to develop general rules by assigning symbols to each parameter and by algebraically determining the minimum-cost alternative. These results will be related to the design of a tax policy in this area through a comparison to the pre-reform tax rules and to similar tax rules in other countries.

ACCOUNTING FOR CONTINGENCIES: A COMPARISON OF U.S. AND CANADIAN TERMINOLOGY

Ronald A. Davidson (University of Calgary)

L'auteur compare les différents termes utilisés dans les normes canadiennes et américaines pour différencier les degrés d'incertitude liés à la comptabilisation des éventualités, qui figurent dans l'*American Statement of Financial Accounting Standards No. 5*, publié par le *Financial Accounting Standards Board*, et dans le chapitre 3290 du Manuel, publié par l'Institut Canadien des Comptables Agréés. Il traite des diverses questions liées à la mesure de l'incertitude et fait état d'une vérification empirique du caractère approprié des termes utilisés. Les résultats obtenus sont exposés pour trois groupes de sujets, un groupe américain et un groupe canadien de sujets "naïfs" (étudiants), et un groupe de vérificateurs professionnels américains. Selon ces résultats, on peut penser que la terminologie utilisée n'est pas optimale.

ACCOUNTING FOR CONTINGENCIES: A COMPARISON OF U.S. AND CANADIAN TERMINOLOGY

Ronald A. Davidson (University of Calgary)

This paper compares the different terms used in the Canadian and American standards to differentiate degrees of uncertainty that are involved in the accounting for contingencies, as contained in the American Statement of Financial Accounting Standards No. 5 issued by the Financial Accounting Standards Board and in Section 3290 in the Handbook issued by the Canadian Institute of Chartered Accountants. The various measurement issues are discussed and an empirical test is reported that explores the suitability of the terms used. Findings are reported for three groups of subjects, one American and one Canadian group of "naive" subjects (undergraduates) and one group of American professional auditors. The findings indicate that the terms used may not be the optimal set.

A SYNTHESIS OF THE APPROACHES TO COMPARING NATIONAL ACCOUNTING SYSTEMS

Zelma Rebman-Huber (Simon Fraser University)

Les systèmes de présentation de l'information comptable financière diffèrent selon les pays. Ces différences, croit-on, reflètent les disparités des systèmes socio-économiques et politiques, des cultures et des systèmes juridiques de ces pays. Diverses méthodes ont été appliquées pour comparer et classer ces systèmes, et la plupart des recherches comparatives ont été axées, sans grand succès, sur les *extrants* des systèmes, des principes et des méthodes comptables de divers pays. Une autre méthode, plus récente celle-là, consiste à analyser les *intrants*, les groupes d'intérêt qui participent à l'établissement des normes et le processus lui-même. L'auteure tente de synthétiser ces méthodes en essayant de faire le point sur la situation et de déterminer dans quelle direction pourrait s'orienter la recherche comparative internationale en comptabilité.

A SYNTHESIS OF THE APPROACHES TO COMPARING NATIONAL ACCOUNTING SYSTEMS

Zelma Rebman-Huber (Simon Fraser University)

Financial accounting reporting systems differ across countries. These differences are thought to reflect diverse socioeconomic and political systems, cultures and legal systems. Various approaches to comparing and classifying such systems have been taken. Most comparative research has focused, with limited success, on the output side of accounting systems, accounting principles and practices of various countries. An alternative, more recent approach looks at the input side, the interest groups involved in standard-setting and the process itself. This paper attempts to synthesize these approaches with a view to see where we are and where we might go in comparative international accounting research.

CANADIAN ACADEMIC ACCOUNTING PRODUCTIVITY: A SURVEY OF 10 REFEREED PUBLICATIONS 1978-1988

Alan J. Richardson (Queen's University)
John J. Williams (Queen's University)

Les auteurs examinent la productivité des universitaires canadiens qui oeuvrent dans le domaine de la comptabilité en analysant les articles publiés dans 10 revues spécialisées reconnues, entre 1978 et 1988. Ils dressent l'inventaire du nombre d'articles contenus dans l'échantillon, selon l'université canadienne à laquelle sont rattachés les auteurs, ainsi qu'en fonction du sujet traité, qu'il soit théorique ou empirique, et de la revue dans laquelle l'article a été publié. Les auteurs établissent des statistiques sommaires en vue de déterminer la croissance et la productivité per capita des établissements représentés et dans le but d'identifier les 10 chercheurs les plus productifs au cours de cette période ainsi qu'au cours des périodes intermédiaires couvrant les années 1978-83 et 1984-88. Les données recueillies viennent compléter la documentation actuelle relative à la productivité des grandes universités, essentiellement américaines, et serviront de guide aux étudiants qui envisagent un programme de doctorat et aux professeurs désireux d'évaluer les établissements canadiens. Ces données pourront également permettre d'établir des taux de base pour les décisions relatives aux postes de professeurs permanents et pourront servir à évaluer les progrès enregistrés dans les universités canadiennes au chapitre de la comptabilité.

CANADIAN ACADEMIC ACCOUNTING PRODUCTIVITY: A SURVEY OF 10 REFEREED PUBLICATIONS 1978-1988

Alan J. Richardson (Queen's University)
John J. Williams (Queen's University)

In this paper we examine the productivity of Canadian academic accountants through an analysis of articles published in ten refereed journals between 1978 and 1988. We report the numbers of articles in this sample by Canadian institutional affiliation cross-tabulated by subject area, whether theoretical or empirical, and by the journal in which the article appeared. Summary statistics are computed to identify the gross and per capita productivity of the institutions represented and to identify the ten most productive researchers in this period as well as the sub-periods 1978-83 and 1984-88. The data collected complement current literature on academic productivity which focuses on large, primarily U.S., universities and provides guidance to students considering Ph.D. programs and to faculty wishing to evaluate Canadian schools. The data may also serve to establish base rates for tenure decisions and can be used to evaluate the progress of academic accounting in Canada.

Doria Tremblay, Université Laval

Teaching Accounting; Experience in Developing Countries

I would like to take a few minutes to talk about some experiences I have had as a teacher of accounting in developing countries.

The first experience and the most recent one I want to comment on is the one I have had last summer as a teacher of financial accounting in China. This activity took place at Nankai University within the Management Education Exchange Program between York/Laval/McMaster Universities and some Chinese universities.

I was engaged mainly for financial accounting course in the In China MBA program. The Table 1 shows the course structure. As you see, some courses are taught by Chinese professors and some others by Canadian professors in the case of the specialization in accounting. And they have a variety of courses in all fields of business and management.

I have realized that, to teach efficiently in a Chinese MBA program, one must have a good knowledge of the accounting systems used in China and of the economic reform China has undergone. It seems to me essential to know the main characteristics of the Chinese economic environment. In order to understand to a certain extent the needs for China as far as accounting is concerned.

As we know, to overcome the drawbacks of the traditional planned economy, China has launched a tide of reforms which places emplasis on a complete change from rigid economic management to an increased role for market regulation. Such a change will surely have an impact upon Chinese accounting. And for us we have to think if acknowledge of our accounting system can help them to modify their accounting system and to increase the productivity.

For example, since a few years, China is making the experience of inflation. The accountants are worried about this phenomena and try to find out an appropriate solution. At the request of the Tianjin association of accountants, I had the opportunity to discuss with them of the North American experience as far as inflation accounting is concerned.

Also, the Chinese hierarchy seems intent on raising in a substantial way the academic level of its citizens. Part of that goal is for China to leave third-world underdeveloped nation status and move into the category of industrialized nations. To do so, China's leaders have committed themselves to make certain modifications in the basic communist economic structure. Capitalist enterprises are eagerly sought to establish themselves in special economic areas. Various market based experiments in agriculture, industry, banking and education are encouraged throughout the country. Even a decade ago, such developments would have been unthinkable. Then, China try to attract foreign investors from Japan, Europe, North America and some other countries to establish joint-ventures. Also, they want the entreprises to become profitable. Of course, such an economic change requires changes in the objective of the accounting systems.

Table 1

In-China M.B.A. - Course Structure - Nankai University

1. Specialization in Accounting

Taught by Chinese Professors	(1)	Microeconomics
	(2)	Macroeconomics
	(3)	Management Statistics
	(4)	Economic Theory of Socialism & Economic Reform in China
	(5)	Accounting Systems in China
Taught by Canadian Professors	(1)	Accounting
	(2)	Introduction to Finance
	(3)	Marketing Management
	(4)	Organizational Behavior
	(5)	Intermediate Financial Accounting
	(6)	Managerial Cost Accounting & Analysis
	(7)	Accounting Application Quantitative Methods
	(8)	Management Accounting & Control Systems

2. Specialization in International Trade & Business Management

Taught by Chinese Professors	(1)	Financial and Managerial Accounting
	(2)	Microeconomics
	(3)	Macroeconomics
	(4)	Management Statistics
	(5)	Economic Theory of Socialism & Economic Reform in China
	(6)	Economic Theory of Chinese "Open Door" & the Policy of Chinese "Open Door"
Taught by Canadian Professors	(1)	Organizational Behavior
	(2)	Marketing Management
	(3)	International Trade
	(4)	International Business
	(5)	International Financial Management
	(6)	Applied International Economics
	(7)	Investment
	(8)	Analysis of Financial Markets

Many accounting educators from Canada should expect someday to meet students, faculty members or other visitors from the People's Republic of China, Morever, many Canadian accounting faculty members will themselves teach in China.

It is typical that Canadian educators do not know much about the structure of the Chinese educational system. They don't even know whether their respective academic disciplines exist or not in the People's Republic of China.

Many educators in Canada might be surprised to learn that accounting departments and accounting majors are commonly found in many Chinese universities and that well-known American accounting textbooks often are used by Chinese educators. In fact, North american accounting texts, journals, and monographs are often used as reference materials in advanced undergraduate courses and as basic texts in master and doctoral level classes. (See Table 2, for the fundamentals of the Accounting Major and Table 3 for the accounting elective courses).

In spite of the existence of accounting departments, accounting majors and courses in Chinese universities, the teacher faces a problem: the students have never been in a business environment. Thus, teaching financial accounting supposes that the Canadian educator must fill the gap. Many accounting or financial concepts are completely unknown or unfamiliar to the students. For example:

- the concept of earnings or profit: a capitalist concept
- the major sources of financing like bonds, shares, convertible bonds, preferred shares, common shares, retained earnings, equity, etc.

Table 2

Fundamentals of the Accounting Major (Required Courses)

1. Principles of Accounting
2. Industrial Techniques
3. Industrial Statistics
4. Basic Construction Accounting
5. The Application of Computers in Accounting
6. Computer Languages (BASIC and COBOL)
7. Industrial Accounting
8. Industrial Management
9. Financial Control of Industrial Enterprises
10. Analysis of Industrial Enterprise Activities
11. Auditing

Table 3

Accounting Elective Courses

1. Western Accounting
2. Credits and Settlements
3. Business Law
4. Socialist Business Accounting and Economic Effects
5. Modern Management Accounting
6. Accounting Principles Study
7. Models of Cost Finding
8. The Application of Value Engineering and Its Use in Cost Management

Then, the accounting educator must take the time to explain these concepts carefully and he must be aware that these concepts are not easy to understand by the students, But these concepts become more and more important, since the Chinese policy is to attract foreign capital. Consistent with this policy, in March 1985, China's Ministry of Finance has promulgated "the accounting regulation of the People's Republic of China for the Joint Ventures using Chinese and Foreign Investment". These accounting regulations are very close to our accounting principles.

Today, we expect Canadian accounting faculty members to know more than before about international matters. This is something I had already realized in a previous experience. Some years ago, I went to North Africa as member of a team whose assignment was to establish a MBA program in Tunisia at l'Institut Supérieur de Gestion de Tunisie and to develop executive training programs for some other countries like Morocco.

I think it is essential for the educators involved in foreign teaching programs to have a good knowledge about the history of the country they go to, the cultural influence that prevail and the accounting systems used, etc.

For example, accounting educators must be aware that in North African countries' accounting is similar to the "Plan comptable Français", whereas, in North America we teach accounting according to the pragmatic approach. What appears easy for us is more difficult for the North Africans to understand since we teach according to another approach.

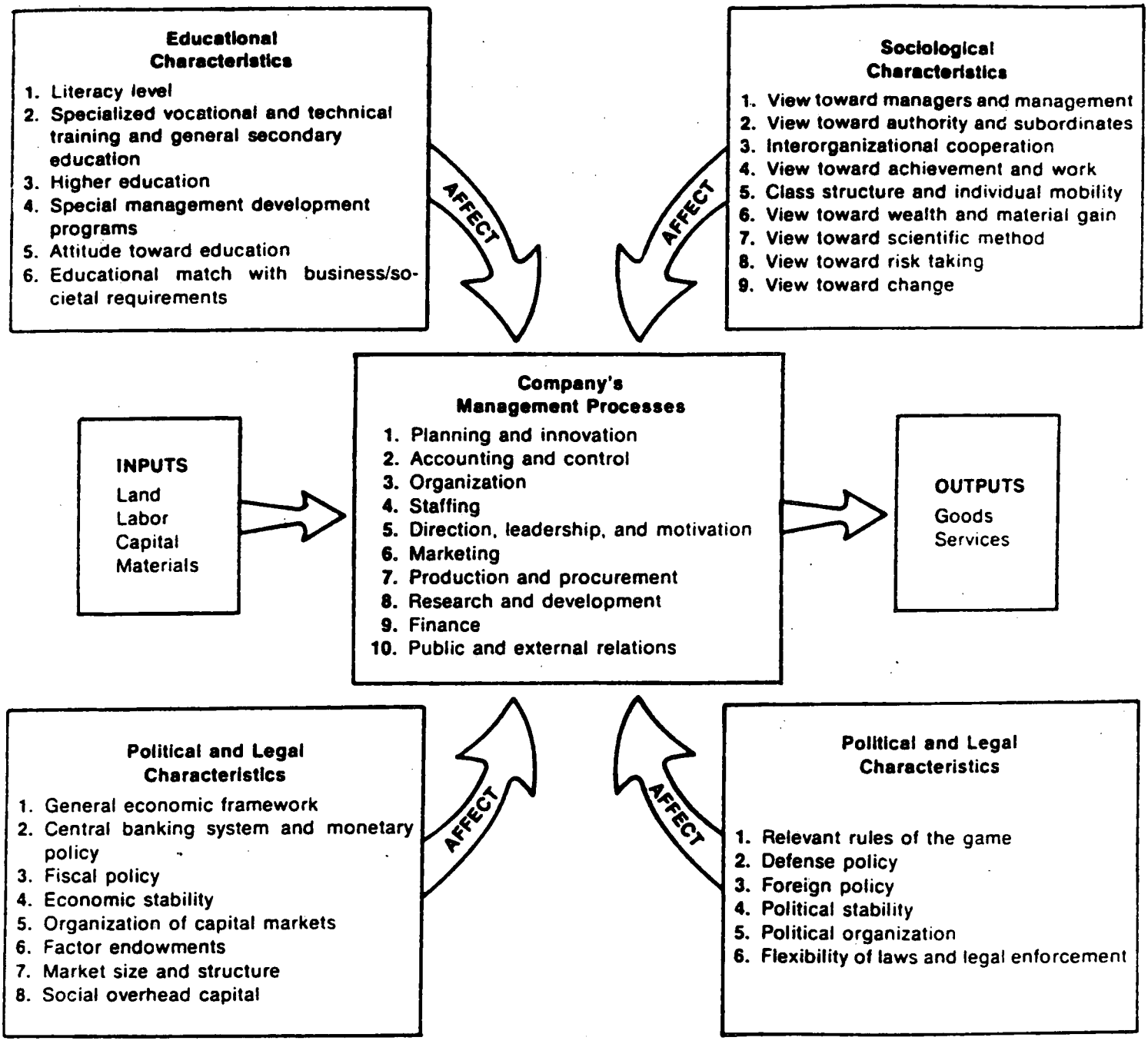
In summary, the more we know about the characteristics of a country, the more appropriate our teaching will be. See table 4 for the environmental influence on the management process including accounting and control.

This conceptual framework can also used to explain differences in the ways business activities are conducted in one country compared to another and more specifically the ways in which accounting principles and practices differ. There are many practices in other countries which appear from a Canadian viewpoint to be illogical and irrational. Yet when we understand the culture of these countries, these accounting practices appear quite rational.

The contribution by universities to accounting education are in two majors areas. The first is the development of appropriate courses in international accounting. Individual academicians have developed such courses in Canada. The international Section of the American Accounting Association has identified the development of from one to four international accounting courses at various universities.

The second contribution of accounting educators in the international area lies in research. Academicians in various countries have played an important role to pratitioners in their quest for generally accepted accounting standards. But, we have to think that the international accounting field is relatively new. However, the international financial and economic organizations and political units are bringing more pressure for a harmonization of international accounting practices. The educational component in this effort, both in teaching and research, is important.

Table 4*



SOURCE : **Environmental influence on the management process.** (Source: Adapted from R. Farmer and B. Richman, *International Business: An Operational Theory*, Bloomington, Indiana: Cedarwood Press, 1974.)

The main objectives of research in international accounting can be summarized as follows:

1) The identification of the major international accounting problems;

2) The ranking of these problems according to their importance;

3) The evaluation of the research methodology to be used to all the international accounting problems;

4) The publishing of the results in a way which can help the enterprises, the public accounting firms, the government agencies and the accounting researchers in their efforts to solve the international accounting problems.

The problems of accounting in developing countries are numerous and complex. Here is a global view of accounting in developing countries.

The problems of accounting be viewed from a global perspective, thus making possible a clearer, more effective approach to understanding the problems of accounting in developing countries. Such a view is presented in Table 5. Each of the four components is shown to have significant effects on the other three. Each component's effect in the system will be briefly discussed. We will use the interesting comments made by Chandler and Holzer (1989. pp. 453-465).

Table 5*

GLOBAL VIEW OF ACCOUNTING IN DEVELOPING COUNTRIES

	Enterprise	*Government*	*Profession*	*Education*
Enterprise	Poor internal management and control	Loss of staff	Poor accounting systems	Lack of standardized systems and standards for financial reporting
Government	Economic instability	Poor national financial management and control	Poor accounting systems	Lack of standards for systems training and development
Profession	Loss of staff	Loss of staff	Lack of professional body	Lack of standards
Education	Shortage of graduates and inappropriate curricula	Shortage of graduates and inappropriate curricula	Shortage of graduates and inappropriate curricula	Shortage of qualified staff and inappropriate curricula

* Source: Holzer, H. Peter, International Accounting, Harper and Row, Publishers, New York, 1989 p. 463.

"The enterprise component's main impact on the accounting establishment system is on the accounting profession. As a consequence of the profession's generally poorly designed and operated accounting systems, auditors are used ineffectively and wastefully. These poor accounting systems also provide little guidance to the educational systems as to an appopriate curriculum for developing-country accounting. Poor accounting systems in the enterprises seriously impair effective management because of the lack of internal management accounting data. Finally, to shore up what little qualified staff it has available, the enterprise component may draw staff away from the government by offering higher salaries... The governmental component, also affects the profession through its antiquated and unauditable systems... Because it does not maintain an effective national accounting system, the government has insufficient knowledge of the national financial situation. This is an important factor contributing to the generally uncertain economic environment of developing countries... The accounting profession creates problems for the other components of the accounting establisment mainly by siphoning off qualified personnel from both the enterprise and governmental components. The lack of effective indigenous professionnal organizations not only hurts the development of the profession itself...Finally, the accounting educational component is a focal point for the systemwide personnel shortage. Because of the current state of accounting education in developing countries, the graduates produced are deficient, both in number and applicability to the countries' needs. The educational system itself lacks qualified instructors and indigenous curricula... Thus, each of the four components of the accounting establishment affect and are affected by the other components of the system. One can easily see that many of the problems faced by an individual component are not under the control of that component".

I think that accountants of industrialized countries must accept the responsibility of helping the developing countries to increase their capability in the field of accounting. But the challenge is to remember that each developing country is unique, that it has its own language, and its own culture. All our research activities and suggestions must respect the unique characteristics of each of these countries.

When we transfer to the developing countries our education system and our research techniques we must avoid "education imperialism". For our universities, the experience of Canadian educators in foreign countries will be beneficial. As a matter of fact, these educators will transmit to their students this openness to the world.

BIBLIOGRAPHIE

Chu, K., "Accountancy Education in the Republic of China", International Journal of Accounting, Printemps 1969, pp. 75-91.

Holzer, Peter H., "International Accounting" Harper and Row, New York, 1989.

Joint Research Study, Shanghaï University of Finance and Economics People's Republic of China and Center for International of Accounting Development, The University of Texas at Dallas, Accounting and Auditing in the People's Republic of China, august 1987

Junkai, H., et Yining, Z., "University Students and Higher Education", Beijing Review, February 23, 1987, pp. 21-25.

Ministry of Finance of the People's Republic of China. The Accounting Regulation of the People's Republic of China for the Joint Ventures Using Chinese and Foreign Investment. 4 mars 1985.

Mueller, G.G., "L'Impérialisme Educationnel", CA, novembre 1988, pp. 72-76.

Shangquan, Gao, "Planification Economique: les Nouvelles Règles du Jeu", Beijing Information No. 15, 11 avril 1988, pp. 16-19.

Wayne, Donald A., et Baldwin, Bruce A., "University-Level Education of Accountants in the People's Republic of China", Issues in Accounting Education, vol. 3, no. 1, Spring 1988, pp. 21-25.

DETERMINANTS OF THE VALUE OF STOCK OPTIONS ISSUED BY CORPORATIONS*

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ABSTRACT

The research question addressed by this paper is to identify the factors which determine the level of stock option grants and to assess the systematic differences among companies which issue stock appreciation rights in tandem with stock options and those who do not.

The paper uses comparative descriptive analyses of t-tests, Mann-Whitney U tests, Chi-square analyses, Pearson product-moment correlation, and multiple regression analysis to determine the relative and joint effects of size and capital structure on the magnitude of stock option values. The Black-Scholes and the market-to-market methods were used to compute stock option values. The sample was drawn from the population of New York Stock Exchange firms with sales over $400 million. The sample was dichotomized into companies with stock options and stock appreciation rights and companies with stock options and no stock appreciation rights. The lobbying activity of the sample firms with FASB was also analyzed, in light of the agenda's attention to stock options.

The results were as hypothesized. Companies with SARs are significantly larger, have smaller debt-to-equity ratios, and have larger values of stock options outstanding. The lobbying activity was also consistent with the hypothesis that affected firms have a greater propensity to lobby.

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DETERMINANTS OF THE VALUE OF STOCK OPTIONS ISSUED BY CORPORATIONS

For the past five years, the Financial Accounting Standards Board (FASB) has been wrestling with the onerous burden of determining how stock compensation should be recognized and measured. While the Board has reached a consensus that employee stock options and similar plans result in compensation expense, great practical problems have had to be confronted in identifying a reliable measure of the value of an option. Among them has been the problem in choosing among the date of vesting, date of grant, and service expiration date as the measurement date.

Companies considering alternative forms of management compensation have been facing considerable uncertainty as to the likely long-term accounting treatment of stock options. Planned release of a proposed statement has been systematically pushed back in time, and recently the FASB has combined the issues of stock option valuation with the broader project of financial instruments, suggesting that the change in accounting for stock compensation would be delayed two or three years [Arthur Young, 1988]. Yet, since 1978, FASB Interpretation No. 28 has required that a compensation liability be accrued quarterly and that the income statement be charged for the difference in stock market value and stock appreciation rights' (SAR) stated value, with amortization permitted over the lesser of service or vesting period.

Since stock options and SARs are viewed as being economically similar and can serve as substitutes for one another within entities' compensation plans, research has attributed some change in SAR adoptions and their form to delays in reconciling the accounting treatment for these two instruments [Wallace, 1984]. The objective of this research is to identify determinants of the relative value of stock options which are issued by corporations. Specifically, are estimates of stock options' values greater or less for companies offering both stock options and SARs, as compared to those which only offer stock options? Do such values relate to the company's size, as measured in terms of sales or assets and/or the capital structure, in terms of the company's debt-to-equity ratio? Would the compensation expense implied for both stock options and SARS represent a significant effect on income of the issuing corporations? What percentage of outstanding stock is in the form of outstanding stock options and SARs? How active have the issuing corporations been in lobbying before the FASB, and are such actions influenced by the relative value of the options and SARs already issued?

The answers to such questions serve a number of purposes: 1) the consistency (or lack thereof) of observed cross-sectional variation in compensation plans with theoretical propositions will permit some evaluation of the relative importance of accounting considerations, incentive effects, and likely agency-related consequences in different company settings; 2) once such relative priorities are understood, compensation committees of boards of directors, and potential suppliers of capital will have a basis for designing and assessing the effectiveness of the compensation plan in place as it relates to options and SARs; 3) standard setters will be privy to quantitative information as to the likely effects of proposed changes, as well as the real effects observable from delays in standard setting; and 4) additional information on the incentives for lobbying activities will be garnered.

Theory and Hypotheses

The expressed intent of the FASB to eventually have compensation expense recorded for stock options will raise the costs of issuing such options, to the extent that accounting can have real effects. It is expected that the incentive to lobby to deter such actions should be greater for firms which have the greatest propensity to extend market-based compensation plans. The theoretical concepts that are illustrated in Figure 1 -- drawn from past research and theory development --produce the following hypotheses:

- H1 Companies which issue both stock options and SARs will be larger than companies which only issue stock options.
- H2 Companies which issue both stock options and SARs will have less debt than companies which only issue stock options.
- H3 Companies which issue both stock options and SARs will have a greater propensity to lobby than companies which only issue stock options.
- H4 Companies with a higher expected dollar effect of stock options and SARs in terms of recorded compensation expense will be larger, have less debt, and be more prone to lobby than companies with lower dollar exposure to an income effect.

Sample

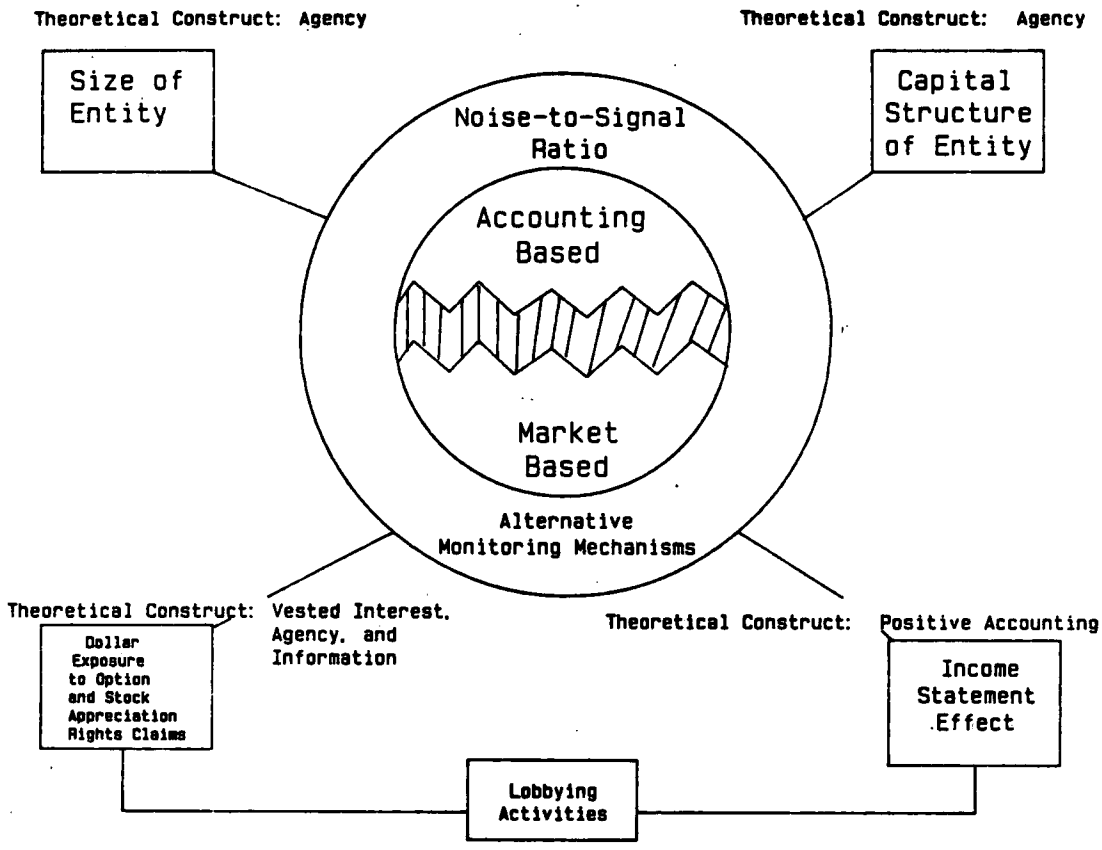
The sample of firms used to empirically test these hypotheses was identified through the use of the National Automated Accounting Research System (NAARS). Specifically, NAARS identified (1) those companies on the New York Stock Exchange with sales greater than $400,000,000 which have disclosed stock option plans in their annual report but have not disclosed SARs, as well as (2) those who met the same sales criteria and disclosed both stock option plans and SARs. Once the companies were identified, footnotes were accessed to obtain details on the plans. In addition, COMPUSTAT was accessed to measure companies' attributes as to size, debt, and shares outstanding. CRSP was used to access stock price information to compute a volatility measure for use in the Black-Scholes valuation. The result was a total of 228 companies with SARs and 235 without SARS, for a total overall sample of 463 companies.

The Valuation of Options and SARs

The FASB's Invitation to Comment, "Accounting for Compensation Plans Involving Certain Rights Granted to Employees" [May 31, 1984] contained a number of alternative valuation proposals. Among the proposals is the market-to-market approach which uses the current market price less the exercise price of the underlying stock, adjusted for the receipt of services previously recognized. In addition, the option pricing model is described. Pros and cons of each approach to valuation are described. To empirically address the hypotheses related to valuation of options, this study uses the market-to-market approach, as well as the Black and Scholes Option Pricing Model.

Brigham and Gapenski [1988] explain how the value of an option is a function of striking price, expiration date, volatility, interest rate, and

Figure 1: Theoretical Framework



cash dividends. The notes to the financial statements related to stock options and SARs were printed from NAARS to identify the exercise price, the expiration date, and the number of options and SARs outstanding. Specifically, the beginning balance in 1983 and for 1983, 1984, and 1985, the number of options and SARs granted, the largest exercise price that was noted, the number exercised, cancelled, or terminated, and the ending balance were collected. This permitted the application of a FIFO basis for calculation, whereby all exercised, cancelled, or terminated grants were presumed to come from the beginning balance as of 1983, before being offset against options or SARs granted in 1983, 1984, or 1985. The three years were used to facilitate a smoothing of single-year fluctuations and offer a bit of a longer term perspective.

The volatility measure was estimated from one-half year's data on the variance of prices, adjusted for dividends and splits. Any no-trade days were omitted. The risk-free rate used was the treasury bill rate for one year for the month of the corporation's year end. The days to maturity were specified as 365, in line with the typical one-year holding period (approximately 80 to 90 percent of the sample companies indicated a single year).

Descriptive Statistics

Exhibit 1 presents descriptive statistics concerning the sample,

Exhibit 1

A Profile of the Sample

MEAN (STD.DEV) Minimum [Maximum]	Stock Appreciation Rights and Stock Options n = 228 companies	Stock Options and No SARs n = 235 companies	Total Sample n =463 companies
Market-to-Market	12,961,092 (33,984,642) 0 [323,296,891]	8,760,652 (30,968,378) 0 [423,928,507]	10,838,094 (32,598,332) 0 [423,928,507]
Black-Scholes	7,868,927 (18,818,351) 0 [190,485,644]	5,063,734 (17,104,519) 0 [218,615,641]	7,121,940 (18,841,149) 0 [218,615,641]
Assets (1000s)	7,529 (15,365) 218 [99,087]	3,685 (12,366) 135 [173,597]	5,624 (14,107) 135 [173,597]
Sales (1000s)	5,897 (11,694) 406 [96,372]	2,356 (3,200) 296 [22,504]	4,142 (8,795) 296 [96,372]
Share Price	43 (23) 4 [156]	33 (20) 0 [134]	38 (22) 0 [156]
Shares Outstanding (100,000s)	64 (108) .001 [1069]	38 (40) 0 [296]	51 (82) 0 [1069]
Proportion of Companies who Lobbied	.19 (.39)	.08 (.27)	.13 (.34)

Note: For the total sample, total debt statistics are as follows: mean of $1,564, standard deviation of $2,421, a minimum value of $41 and a maximum value of $25,166 -- all in $1000s. The debt-to-equity ratio has a mean of .465 and a standard deviation of .151.

including subsamples formed in accordance with whether or not SARs have been issued. An examination of Exhibit 1 suggests that SAR and stock option plans produce larger valuations using both the market-to-market and the Black-Scholes approach to measuring options' compensation expense. The entities with SARs are larger in terms of assets and sales. By the same token, share prices are higher and the number of shares outstanding is greater.

The SAR-option plans result in grants over the three-year period which represent approximately one-and-a-half percent of the total outstanding shares. The sample is heterogeneous, representing a cross-section of 2-digit SIC codes. Manufacturing industries comprise the majority of the sample, although regulated industries, wholesale and retail, and financial services are also represented. With respect to lobbying activities, the SAR plans lobby to a far greater extent than those with options alone.

Mode of Analysis

While the descriptive statistics in Exhibit 1 are suggestive of patterns consistent with the theorized hypotheses, the tools applied for statistical evaluation purposes include: t-tests and their nonparametric counterpart of Mann-Whitney U tests; Chi-square analyses, with related statistics to represent the strength and direction of association, Pearson product-moment correlations; and multiple regression analysis. These tools are able to reflect the qualitative nature of several of the variables in the data set, with bivariate comparisons. Yet, the multivariate examination of the key dimensions expected to determine the dollar value of stock options and SARs is also important, given an interest in discerning relative and joint effects.

Results

Each of the hypotheses is supported. The differences observed in Exhibit 1 are statistically significant, based on both t-test and nonparametric Mann-Whitney analyses. Companies with SARs are significantly larger as measured by both sales and assets. The total debt attribute simply relates to size, but when a debt-to-equity analysis is performed, a lower ratio of debt to equity is observed for firms with larger values of options and SARs, based on the Black-Scholes valuation approach.

The market-to-market approach to valuing options does not produce a significant relationship to the presence of SARs, in contrast to the performance of the Black-Scholes model (the preferred theoretical approach based on the extant literature, e.g., Smith and Zimmerman [1976]). For the nonSAR subsample, the correlation of the market to market measure and the Black-Scholes valuation is only -.0078, virtually zero. Nonetheless, as Exhibit 2 depicts, the higher the Black-Scholes value, the higher the market-to-market value, producing a significant t-test and Mann-Whitney result.

The propensity to lobby is significantly greater when more dollar exposure exists under either the market-to-market or Black-Scholes approach to valuation. Given the qualitative nature of lobbying and the possible role of such attributes as industry effects, Chi-square tables were prepared

Exhibit 2
Correlations

Black-Scholes Valuation	1.0000
Assets	.2089**
Sales	.2205**
Long-term Debt	.1488*
Current Liabilities	.1291*
Total Debt	.1590*
Debt-to-Equity Ratio	-.1544*

Note: The sales and assets are correlated .6499**; the debt-to-equity ratio is correlated -.219** with assets and -.0169 (not significant) with sales.
* Significant at a .01 level.
** Significant at a .001 level.

and analyzed. The evidence suggests that some industry variation exists. Chi-square can identify the presence of an association but not its strength. The contingency coefficient and the Pearson's R (despite the parametric assumptions underlying the latter) were used for interpretation. As expected, a great deal of movement is not captured by the sole consideration of bivariate interaction of valuation with size, capital structure, SARs, and the lobbying activities of a firm. Manufacturing entities (SIC Codes 20 through 39) are far more prone toward SAR joint plans than any other industry. Wholesale and retail industries (SIC Codes 50 through 59) are far less likely to offer SARs in tandem with options than any other industry except services (SIC Codes 80 through 89).

The interval data available was subjected to a correlation analysis in Exhibit 2. The valuation of options using Black-Scholes has a significant association with each of the variables identified to be relevant to determining that value. Keep in mind that while total debt is dominated by size, the debt-to-equity ratio assumes an inverse relationship to total valuation using Black-Scholes. The reasons for this pattern include bondholders' concern over excessive incentives for managers to undertake risky investments and the availability of alternative monitoring mechanisms tied to credit arrangements.

Since some overlap in operational variables is apparent from the note appearing in Exhibit 2, a multivariate model of the association of size, capital structure, and lobby activities is an important step in discerning what appears dominant as a determinant of stock options' value. Exhibit 3 confirms that a great deal of unexplained association exists. Nonetheless, a systematic and statistically significant pattern emerges, prioritizing debt-to-equity as the dominant inverse factor for the Black-Scholes approach, and sales as a second key positive factor. The market-to-market approach is dominated by sales. The asset variable, SARs' inclusion, and lobbying activities contribute little to the assessment of the relative dollar value of options. This may well be due to the intercorrelation of assets and sales and the realization by those tracking FASB activities, that the relative importance of the choice between SARs and stock options from an

Exhibit 3

Regression Analysis

Dependent Variable is the Black-Scholes Value of the Stock Options and SARs

A Reduced Model Using Market-to-Market as the Dependent Variable

Variable	Regression Coefficient	t-value	significance
Assets	129.81836	.869	.3854
Sales	348.18241	2.479	.0136
	908.39858	5.256	.0000
Debt-to-Equity Ratio	-17550201.42	-2.620	.0092
	-16154935.6	-1.544	.1235
SARs included	-1514322.634	- .765	.4448
Lobbied With FASB	3303530.1435	1.140	.2550
Constant	13640830.202		
	13699857.122		

F-statistic for Model = 6.18509 with 5,366 degrees of freedom

15.16103 with 2,403 degrees of freedom

Significance of F-Statistic = .0000

.0000

R-Square Value .07791

.06998

Adjusted R-Square Value .06532

.06536

Note: An examination of the residuals indicates that only 5 observations exceed 3 standard deviations from the regression estimate. Moreover, the residuals appear normally distributed and random.

accounting perspective will diminish, once compensation expense treatments for the two similar instruments are reconciled.

The Importance of the Issue

In the early discussion of this paper's objectives, it was noted that an area of interest is the quantitative effect of proposed changes in the recording of compensation expenses on stock option plans. To address this issue, both the market-to-market and Black-Scholes valuations for the three years considered in tandem were compared to the reported net income of the sample companies (for companies with income information available on Compustat). The results of this analysis are as follows:

	Percentage of Net Income (Mean)	Standard Deviation	Number of Companies
SARs and Stock Option Plans			
Market-to-Market	21.74	164.325	199
Black-Scholes	15.619	101.0945	205
Stock Option Plans			
Market-to-Market	23.0433	103.3849	176
Black-Scholes	6.839	18.12240	166

A six to twenty-three percent depression of income is far from a nominal effect. The range of the percentages is substantial: for example, American Standard would have had an 85.107 percentage effect on its income under the market-to- market method, while a 55.573 percentage downturn would result from Black-Scholes. Similarly, Walt Disney would have an 88.628 and 44.482 percentage downturn, while IBM would experience a 2,275.692 percentage effect under the market-to-market method and a 1,205.451 percentage effect under the Black-Scholes algorithm. Airborne Freight, IU International, Xerox, Handy & Harman, Jamesway Corporation, and PSA, Inc. all exceed one hundred percent of net income effects for the compensation expense computed using the Black-Scholes and/or market-to-market approach.

Despite such extreme potential effects, corporations are likely to persist in offering stock options for the varied theoretical reasons explored herein and elsewhere in the literature and in practice. Indeed, the need for an effective linkage to the market is reflected in media coverage of how the crash affected companies' use of stock options. When the so-called market crash occurred in October 1987, companies reacted in the following ways [Journal of Accountancy, 1988]:

5% considered	8% considered
-moving the grant date forward	-moving the grant date forward
-canceling old/reissued new options	-canceled old/reissued new options
-other actions such as increasing the number of shares granted.	

Although 87 percentage of companies reportedly took no action, the statistics suggest that stock options are critical tools for certain enterprises.

Summary and Implications

This research provides evidence that stock options and stock appreciation rights (SARs) are elements of the executive compensation plan of larger corporations which cross-sectionally experience lower debt-to-equity levels. Since SARs already create an accounting effect and yet remain in use, there must be compelling benefits that offset whatever costs are related to the compensation accounting treatment. The existence of a difference in accounting for SARs and options provides a unique opportunity to infer the relative importance of size and debt factors that influence compensation: the ability to compare (1) SAR and stock option joint plans to (2) stock option only plans.

As FASB moves ahead on its proposal to record compensation expense, the costs of market-based incentive arrangements will increase. Active lobbying by those most affected by the proposed changes has already occurred. Given the substantial effects on income which can be expected, the sentiments of the media concerning post-employment benefits will likely spillover to the issue of compensation plans as the FASB agenda moves forward.

Further inquiry should encompass the wider variety of valuation techniques to determine if the preliminary insights gained in this analysis are upheld. A special case study of those companies which have permitted their exposure to stock compensation expense to reach an inordinately high level, assuming FASB's proposals were adopted, may provide insights. Such a study might explore why this action has been taken, how the income effects might be curbed if FASB initiated the compensation expense approach, and what type of rules standard-setters might prescribe to address such potentially large measurement effects.

This research on stock options could eventually be blended into cash compensation and bonus plans for a more complete consideration of management remuneration. However, this has been a first step in isolating plausible reasons for choices from among the various modes of available executive compensation, with a focus on comparisons of companies using only stock options and those using both stock options and stock appreciation rights.

References

-Arthur Young, Financial Reporting & Accounting, 1988 Update.

-Brigham, Eugene F. and Louis C. Gapenski, Financial Management: Theory and Practice (fifth edition) (Chicago: The Dryden Press, 1988) [Also Intermediate Financial Management (2nd edition, Appendix 15A by same authors.]

-Journal of Accountancy, "Stock Options After the Crash" (July 1988), p. 16.

-Smith, C. W., Jr. and J. L. Zimmerman, "Valuing Employee Stock Option Plans Using Option Pricing Models," Journal of Accounting Research (Autumn 1976), pp. 357-364.

-Wallace, Wanda A., "The Effects of Delays by Accounting Policy-Setters in Reconciling the Accounting Treatment of Stock Options and Stock Appreciation Rights," The Accounting Review (April 1984), pp. 325-341.

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Incremental Information in Current Cost Disclosures: Canadian Evidence on Relative Input Price Sensitivity[1]

Abstract: We examine the theoretical and empirical properties of Canadian firms' "relative input price sensitivity" (RIPS) during the three years 1983-85. Computation of RIPS requires reliable estimates of firms' financing adjustments based on total holding gains, which were disclosed in Canada but not the United States. The paper demonstrates that RIPS cannot be estimated accurately from externally reported data; moreover, RIPS differs significantly, both over time for given firms and across firms in the sample at a given time. Thus, the measure should be incrementally informative, both to management and to external readers of firms' financial statements. These findings provide justification for continuing interest by academics and practitioners in non-historic cost financial information, despite its lack of acceptance by the business community and by financial statement readers.

1. INTRODUCTION

This study examines the theoretical and empirical properties of a novel financial construct termed, "relative input price sensitivity" (RIPS). This item, computed from Canadian firms' current cost (CC) disclosures during the three year period 1983-85, is the ratio F/G. The numerator of the ratio, F measures a firm's total holding gains on assets financed with debt. The denominator, G represents the purchasing power gain on that same debt, computed using an economy-wide rate of inflation. RIPS indicates the sensitivity of the firm's specific input prices, relative to general inflation. The objectives of the paper are to provide an interpretation of the ratio and describe its behavior over time and across industries.

Motivation for the research stems from several observations. First, though U.S. research abounds[2], relatively little analysis has been performed on Canadian CC disclosures. Second, the computation of F and G evidently requires information on asset holdings, capital structure, and price changes that is available only to management. Consequently, disclosure of the components of the ratio has the potential to reveal new information to readers of financial statements. Finally, firms' "financing adjustments", disclosed in Canada but not in the U.S., are needed to compute RIPS. Financing adjustments have not been subjected to empirical scrutiny in the literature to date.

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[1]The authors are grateful to Grace Lew and the Canadian Institute of Chartered Accountants for helpful discussions and for access to the CICA library of annual reports by Canadian corporations.

[2]DeBerg and Shriver (1987) review recent empirical studies; Vasarhelyi, et al. (1984) provide a bibliography of earlier work.

Usefulness of CC data

Normative accounting theorists (e.g., Bell 1986) have long advocated the supply of CC data, claiming that they are indispensable for managing business firms. Demand for public disclosure of CC data has been weak, however. Managers have been not eager to use them internally (Rosenzweig 1985) or to provide them for public consumption (Thornton 1986). Responding to this lack of enthusiasm, Statement of Financial Accounting Standards No. 89 (FASB 1986) made disclosure of CC data, which had been mandatory for the prior five years, voluntary in the United States. Current cost disclosures in the U.S. virtually ceased in the wake of that statement. Firms in Canada, where disclosure had been voluntary since 1983 under Section 4510 of the CICA Handbook, quickly followed suit: only eight firms disclosed CC data in 1986, whereas 64 had disclosed in 1983[3].

What accounts for the public's cool reception of CC disclosures? First, financial statement users, preparers and auditors of the data, as well as empirical accounting researchers, charge that the data are irrelevant (Berliner 1983; Beaver and Landsman 1983; Skousen and Albrecht 1984). They also maintain that the costs of disclosing CC data exceed the benefits. The data are alleged to be unreliable, owing to measurement errors and managerial incentives to bias the data (Ijiri 1967; Madison and Radig 1983; Sunder 1978; Sunder and Waymire 1982; Beaver and Landsman 1983; Drummond 1986; Lim and Sunder 1986, 1987; Shriver 1986, 1987). Moreover, inflation in Western countries has abated recently, and there is a widely held view on the part of disclosers and analysts that CC data are less meaningful when inflation is more moderate (Hanna 1989).

Despite their inauspicious debut, there are indications in the literature that CC data, properly interpreted, are capable of providing useful performance measures for investors and other users of financial statements. Norby (1983) advocated the computation of an "inflation-flow-through" parameter, which may be used by analysts to gauge the ability of firms to carry inflation through from selling prices to earnings. He maintained that "...flow through results and prospects for any company are a very important and volatile element of investment value" (p. 37). Bartley and Boardman (1983, 1984) found that CC data were useful instruments for predicting takeover targets in the United States. Thornton (1987) found plausible but surprising incidences of income taxes on Canadian CC income numbers. Thornton (1988) also computed Tobin's Q which, according to economic theory, is an important indicator of corporate performance. His findings suggest that Canadian CC values were measured with random error but not bias; consequently, for portfolios of firms the measurement error should be diversified away and provide useful performance measures for the corporate sector. Thus there appears to be scope for further research into performance measures based on CC data. The present paper focuses on a ratio that we call, relative input price sensitivity (RIPS).

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[3]Disclosers in 1983, 1984 and 1985 are profiled in section 3 of the paper. Since only eight firms disclosed in 1986, they were not considered in the analysis.

2. THE RELATIVE INPUT PRICE SENSITIVITY (RIPS) RATIO

Let G represent a firm's purchasing power gain on liabilities. It is well known that, under inflation, nominal interest includes an implicit return of principal to lenders[4]. G, a proxy for that implicit return, is computed by multiplying average net monetary liabilities during a period (i.e., net of monetary assets such as cash and receivables) times the average rate of inflation for the period. In principle, the purchasing power gain should be computed continuously, by multiplying the rate of inflation at each moment times the market value of net monetary liabilities at that moment, and summing the products for the year. Thus, if f(t) represents the inflation rate at time t, and D(t) the balance of net monetary liabilities at t, then the purchasing gain for the year is the integral, $G = \int f(t)D(t)dt$.

In practice, the costs of procuring the data to perform such a computation might be too high to justify its being performed. A pragmatic approximation can be arrived at, however, by interpreting D(t) as the time-weighted average amount of debt outstanding over a subperiod, such as a week, a month or a quarter of a year; and f(t) as the rate of inflation (assumed constant) over that subperiod. The products, D(t)f(t) are then summed over the subperiods[5]. In a subsequent section of the paper we show that inside information, available only to management, is required to perform even the approximate calculation. We view the purchasing power gains disclosed in financial statements as the results of such calculations. Moreover, we interpret G as follows. Let f be the percentage change in general prices (due to inflation) for the entire year and D be the time-weighted average amount of debt outstanding for the year. Then:

$$G = f \times D \tag{1}$$

Let F be a firm's so-called "financing adjustment based on total holding gains" (CICA s. 4510). Though the economic significance financing adjustments is open to interpretation[6], their definition by the CICA is clear:

$$F = (D/A) \times THG \tag{2}$$

THG is the firm's total holding gains for a period on inventory and fixed assets, computed continuously over that period; D/A is its time-weighted

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[4]See Modigliani and Cohn (1979). There can also be a surprise component, which represents an uncompensated wealth transfer from lenders to equity, rather than a return of capital to lenders.

[5]This amounts to a trapezoidal approximation to the integral. A sophisticated, computerized accounting system should, in principle, be able to produce a very accurate approximation.

[6]Mattessich (1980) discusses the financing adjustment and its potential shortcomings at some length.

average debt to assets ratio[7], measured at current cost book value. Proponents of financing adjustments maintain that F, the proportion of total holding gains financed by lenders, need not be deducted from income accruing to shareholders. A firm's only obligation to lenders, they say, is to pay principal and interest on its liabilities. In other words, the lenders' portion of total holding gains can allegedly be distributed to shareholders, then replenished by new borrowing.

Prior studies[8] prove that if the only component of asset price changes were inflation, then the financing adjustment based on total holding gains would be equal to the purchasing power gain on net monetary liabilities. To see this, consider a highly simplified situation, in which a firm's balance sheet does not change for an entire year. Let A be average total assets and D average, net monetary liabilities for an accounting period. Let p (which can be positive or negative) be the percentage change in specific prices of assets included in A. Then from equation (2) (and by definition in CICA s. 4510.15(i)), a financing adjustment based on total holding gains is given by:

$$F = p \times A \times (D/A) \qquad (3)$$

We interpret D/A as a firm's time-weighted average debt to assets ratio for the year. Consequently,

$$F = p \times D \qquad (4)$$

and

$$p = f \text{ implies } F = G \text{ and vice-versa}$$

If a firm's asset values have increased at precisely the general rate of inflation, the financing adjustment based on total holding gains equals the inflationary component of the interest bill.

The additional insight provided by the present paper is as follows: We maintain that comparing F and G provides information concerning the relative input price sensitivity (RIPS) of the firm's shareholders to inflation. We define RIPS as the ratio, F/G, an estimate of p/f, which can be computed from section 4510 disclosures. This ratio could not be computed on the basis of publicly available data in Canada until section 4510 was mandated in 1983. U.S. firms have never disclosed sufficient information to compute RIPS.

Interpretations of RIPS

If RIPS is less than 1 (i.e., $F < G$), the firm can be said to have faced price increases that were less than the rate of inflation in the economy. If RIPS exceeds 1, the reverse is apparently true. The ratio indicates the sensitivity of the firm's operations to price changes, compared with a hypothetical firm with RIPS = 1, whose specific prices mirror general

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[7]For purposes of the computation, deferred income tax credits on firms' balance sheets are specifically excluded from DEBT under CICA recommendations (CICA s. 4510.47).

[8]e.g., Mattessich (1980); Thornton (1980).

inflationary conditions. Management may be able to use this insight to aid in forecasting cash resource needs; boards of directors may be able to use it to help plan future financing and evaluate how well purchasing managers have responded to input price changes. Knowing that industries vary in their effective exposures to inflation may aid public policy makers in considering equitable taxation and investment incentives. Thus it appears that RIPS has the potential to provide interested readers with important financial information. The following section of the paper outlines in more detail how the components of RIPS are computed in practice.

Handbook procedures

The appendices to Section 4510 of the CICA Handbook give examples of how current cost information might be calculated and presented. The following operational definitions are induced from the Handbook example:

THG: Total holding gains: the increase during the year in the current cost of inventory and property, plant and equipment

F: Financing adjustment based on THG: THG multiplied by the ratio of average net monetary liabilities measured at historic cost to the total of this same figure plus average owners' equity measured at current cost; the opening owners' equity is as originally reported rather than the figure which has been restated into the current end-of-period dollars

G: Purchasing power gain: opening net monetary liabilities, plus or minus the changes to the opening balance during the year, compared to the ending net monetary liability balance; each balance or change is restated in average or end-of-year purchasing power as measured by the Consumer Price Index for Canada published by Statistics Canada.

Incremental information in RIPS

As indicated above, the computation of F and G, the components of RIPS, generally requires information available only to management--information that cannot be gleaned by analysts from publicly available financial statements. There are several reasons for this. First, balance sheet items are often grouped in categories containing both monetary and non-monetary items. Inventory is often carried at the lower of cost and market, and is said by contemporary accountants to be non-monetary if carried at cost but monetary if at market. Second, in theory holding gains and purchasing power gains are computed continuously. A simple approximation by an analyst, who has access only to year end balances in annual reports, is accurate only in the unlikely event that rates of change are even throughout the year and the rate of inflation constant over the year. Last, exposure to inflation is dependent on, among other things, the timing of transactions. Though operating transactions in non-seasonal businesses may occur reasonably evenly throughout the year, investing and financing transactions happen during short, virtually discrete intervals. If the times of such activities are not disclosed, a purchasing power gain calculated from information in annual reports will be much less

precise than that disclosed by management. The effect of these factors is illustrated below by a sample calculation, based on data disclosed by Canadian Worldwide Energy.

Sample calculation: Canadian Worldwide Energy

To demonstrate the principles involved in the calculation of RIPS and to show that a precise computation requires information in addition to that disclosed in annual reports, the financial statements of Canadian Worldwide Energy Limited were scrutinized. The following Consumer Price Indices were gleaned from Statistics Canada publications:

March 1985	125.7
June 1985	127.2
September 1985	128.0
December 1985	129.5
Average 1985	127.2
December 1984	124.1

Based on the company's annual report, net monetary liabilities at December 31 were as follows (Canadian dollar figures in thousands):

	1985	1984
Accounts receivable	$12,517	$10,404
Bank indebtedness	(469)	(381)
Accounts payable and accrued liabilities	(13,677)	(7,660)
Long-term debt	(53,455)	(49,640)
Senior Preferred Shares, Series 1	(11,418)	-
Preferred Shares, Series A	(13,147)	(13,147)
Total net monetary liabilities	(79,649)	(60,424)

The debt/assets ratio is computed as average net monetary liabilities (70,037 = [79,649 + 60,424] / 2) divided by A, where A is $70,037 plus average owners' equity on a current cost basis. As originally reported, average owners' equity at current cost was ($43,068 + $64,597)/2 = $53,833. Thus, the weighted average debt/assets ratio is estimated to be .565. Multiplying this by the reported total holding gain, $6,832, results in an estimated financing adjustment of $3,860. Canadian Worldwide Energy actually reported a financing adjustment of $3,497. Thus our estimated financing adjustment exceeds the reported figure by about 10%.

The purchasing power gain, G for the company is estimated by accounting for increments and decrements to opening net monetary liabilities, expressed in average 1985 dollars, and subtracting actual year-end net monetary liabilities, also expressed in average 1985 dollars, as follows (Canadian dollar figures in thousands; brackets represent credits to cash):

Opening net monetary liabilities	
60,424 x 127.2/124.1	($61,933)
Add cash flow from operations	
19,531 x 127.2/127.2	19,531
Add proceeds from issue of common shares	
7,305 x 127.2/125.7	7,392
Deduct quarterly dividends	
539.75 x 127.2/125.7	
539.75 x 127.2/127.2	
539.75 x 127.2/128.0	
539.75 x 127.2/129.5	(2,153)
Deduct capital expenditures	
43,121 x 127.2/127.2	(43,121)
	(80,284)
Deduct ending net monetary liabilities as reported	
79,649 x 127.2/129.5	(78,234)
Purchasing power gain, as estimated	2,050
Purchasing power gain, as disclosed	2,402

The estimated figure is about 17% less than that computed by management.

Based on the published amounts for the financing adjustment and the purchasing power gain, the 1985 RIPS for Canadian Worldwide Energy Limited was 1.46; however, RIPS as estimated, without access to management's disclosures of F and G, was 3,860/2,050 = 1.9. Thus, assuming management's figures are correct, the estimated ratio would err by about 30%, since the numerator was overestimated and the denominator underestimated in this case. This illustrates the point that because F and G, the numerator and denominator of RIPS, are best calculated on the basis of information available only to insiders, RIPS has the potential to convey incremental information to financial statement readers. Further evidence that RIPS provides incremental information, provided in the next section of the paper, comes from the fact that RIPS differs significantly, both across industry groupings and over time.

3. DATA AND STATISTICAL TESTS

Data for all of the Canadian CC disclosers were gleaned from hard copy financial statements available at various university libraries and at the offices of The Canadian Institute of Chartered Accountants. Table 1 profiles the firms that disclosed enough information to compute RIPS for 1983 (59 firms), 1984 (48 firms) and 1985 (39 firms). The table shows reasonably good representation by industry groupings and substantial volatility of RIPS, both across firms and over time for each firm. Also presented in the table are RIPS ratios for the 36 firms that disclosed enough information to allow the computation of RIPS in all three years.

By definition, inflation is computed as a weighted average of all price changes in the economy. Thus, if the firms in the sample represent a random drawing from the economy, the average RIPS should be about one in the long run. In 1983, RIPS indeed averaged about 1. In 1984 and 1985, however, RIPS averaged less than one for the firms in the sample. It is reasonable for RIPS not to average one each and every year. In fact, if a firm's purchasing

department and financial management are effective in dealing with inflation, RIPS may be less than one indefinitely. For example, management may borrow a lot when inflation is low, then reap huge purchasing power gains when inflation is higher. This will increase the denominator of RIPS. In tandem with this strategy, management may make forward commitments to purchase the firm's inputs at favorable prices, which may then appear small in comparison with general price increases. This will decrease the numerator of RIPS.

Table 2 shows that measures of RIPS over time are significantly, but far from perfectly, correlated. Spearman rank correlation coefficients for the measures between years are all significantly positive, but less than .5. In each of the three years, a one-way analysis of variance by industry shows that there are substantial differences among industry groupings in the sensitivity of firms to relative as compared with general price changes, though the differences are not statistically significant in the conventional sense.

4. CONCLUSIONS

The paper demonstrates that firms' relative input price sensitivities (RIPS) cannot be estimated reliably from externally reported data, and that RIPS differs significantly, both over time for given firms and across time for a sample of firms. Thus, the measure should be informative to both management and external readers of firms' financial statements.

An important issue not addressed by the research is the effectiveness of managers' response to RIPS in providing shareholders with satisfactory returns. If the firm's output prices were to increase at the rate of inflation, there would be a negative correlation between RIPS and earnings, since low input prices would be transmitted directly into high profits. If, however, owing to monopoly power, management is able to pass the changes in its input prices through to the consumers of its products, then there is not necessarily a correlation between RIPS and successful corporate performance.

On the other hand, knowing RIPS can be an important indicator of a) the kinds of managerial skills in purchasing and financing required to pilot firms through rounds of significant price increases and b) the likely impact of inflation on the input prices of firms in various industries. We believe that the findings are encouraging, and that they provide justification for continuing interest by academics and practitioners in non-historic cost financial information, despite its lack of acceptance to date by the business community and by financial statement readers.

Table 1
Sample firms and Values of RIPS = F/G, by industry

All firms in the sample

SIC Code	Company	1983	1984	1985
Resource firms				
1021	Placer Development Ltd.	0.6364	0.2137	N/A
1041	Campbell Red Lake Mines Ltd.	0.6316	N/A	N/A
1041	Campbell Resources Inc.	N/A	0.3641	0.4431
1041	Dome Mines Limited	0.8190	N/A	N/A
1061	Canada Tungsten Mining Co. Ltd	0.3571	N/A	N/A
1061	Falconbridge Limited	1.2500	-0.4000	N/A
1061	Inco Ltd.	0.4386	-0.8475	0.8302
1111	McIntyre Mines Ltd.	0.5000	N/A	N/A
1311	Canadian Occidental Petroleum	1.3582	1.8924	1.2878
1311	Canadian Worldwide Energy Ltd.	N/A	0.7892	1.4583
1311	Dome Petroleum Ltd.	0.2997	0.3086	-0.3993
1311	North Canadian Oils Ltd.	3.5967	0.7847	1.0094
1311	Numac Oil & Gas Ltd.	-2.1587	N/A	N/A
1311	Ranger Oil Limited	1.6347	-1.3158	N/A
Manufacturers				
2011	Maple Leaf Mills	0.7447	N/A	N/A
2082	John Labatt Ltd.	0.8155	1.1129	1.6467
2082	Molson Companies Ltd.	4.2441	N/A	N/A
2085	Seagram Company Limited	0.2500	-0.0250	0.0244
2621	Barbecon Inc.	0.7143	N/A	N/A
2621	Consolidated-Bathurst Inc.	0.4828	1.0714	N/A
2621	Rolland Inc.	0.9074	1.5882	-0.4915
2711	Quebecor Inc.	0.7460	1.0683	0.0764
2761	Moore Corporation Limited	0.7816	N/A	N/A
2813	Union Carbide Canada Ltd.	0.3615	0.8484	N/A
2819	C-I-L Inc.	0.8224	1.1690	1.0241
2891	Genstar Corporation	0.7940	2.7202	-0.6586
2911	Asamera Inc.	0.9777	0.5302	0.5240
2911	Gulf Canada Ltd.	1.7000	1.4667	N/A
2911	Imperial Oil Limited	0.9583	0.3333	1.2609
2911	Petro-Canada	2.5159	0.7246	0.9417
2911	Shell Canada Limited	-0.2692	0.6122	0.8642
2911	Suncor Inc.	0.1667	1.0385	0.5000
2911	Total Petroleum (N.A.) Ltd	-0.0575	-0.4336	0.1476
3211	Indusmin Limited	N/A	N/A	N/A
3221	CB Pak Inc.	N/A	1.6667	N/A
3331	Hudson Bay Mining & Smelting	1.0458	N/A	N/A
3334	Alcan Aluminium Limited	1.0806	0.5849	0.4310
3334	Aluminum Company of Canada Ltd	1.4828	-0.4412	0.0625
3441	AMCA International Limited	0.8293	N/A	N/A
3520	Massey-Ferguson Ltd. (Varity)	1.2266	0.9525	1.1585
3661	Mitel Corporation Ltd.	1.1174	1.1190	1.5610

Table 1 (cont'd) - Values of RIPS = F/G

SIC Code	Company	1983	1984	1985
3661	Northern Telecom Ltd.	0.1290	0.1351	0.4091
3700	Magna International Inc.	N/A	N/A	3.3039
3711	Ford Motor Co of Canada Ltd.	0.5082	N/A	N/A
3714	Hayes-Dana Inc.	0.4118	0.3627	0.8819
Regulated utilities and transportation firms				
4011	Canadian National RR System	1.4710	1.1479	1.0909
4011	Canadian Pacific Limited	0.7938	0.9319	0.9131
4200	Laidlaw Transportation Limited	1.8223	2.0744	4.8206
4213	Federal Industries Limited	2.6170	0.5756	0.2056
4811	Bell Canada Enterprises Inc.	0.8610	-0.4411	0.2788
4811	Bell Canada Ltd.	1.0737	N/A	N/A
4811	British Columbia Telephone Ltd	2.8894	2.4265	3.0891
4811	Island Telephone Co. Ltd.	0.7786	-1.4052	0.7429
4811	Maritime Tel & Tel Co. Ltd.	0.6937	-0.1700	1.4483
4811	New Brunswick Telephone Ltd.	0.3010	-0.2210	N/A
4811	Newfoundland Telephone Co. Ltd	0.3299	1.1511	-0.3603
4911	Maritime Electric Co. Ltd.	0.4652	N/A	N/A
4911	Newfoundland Light & Power Co.	0.7191	0.4405	0.6827
4922	Westcoast Transmission Co. Ltd	0.1348	0.2691	0.2077
4923	Inter-City Gas Corporation Ltd	1.6228	1.8971	0.8694
4924	Consumers Gas Co. Ltd.	0.6497	1.2319	0.8724
Retail and other				
5311	Sears Canada	0.5701	0.4114	N/A
5411	George Weston Ltd.	0.1760	0.1439	0.7149
6711	Canadian Pacific Enterprises L	0.4578	0.7368	N/A
	Means for those that reported	.9030	.6499	.8685
	(number of firms)	(59)	(48)	(39)
	Standard deviation	.92	.87	1.04
	Minimum	-2.16	-1.41	-.66
	Maximum	4.24	2.72	4.82

Table 1 (cont'd) - Values of RIPS = F/G

Companies in the sample with sufficient data to compute RIPS for all three years:

SIC	Company	1983	1984	1985
1061	Inco Ltd.	0.4386	-0.8475	0.8302
1311	Canadian Occidental Petroleum	1.3582	1.8924	1.2878
1311	Dome Petroleum Ltd.	0.2997	0.3086	-0.3993
1311	North Canadian Oils Ltd.	3.5967	0.7847	1.0094
2082	John Labatt Ltd.	0.8155	1.1129	1.6467
2085	Seagram Company Limited	0.2500	-0.0250	0.0244
2621	Rolland Inc.	0.9074	1.5882	-0.4915
2711	Quebecor Inc.	0.7460	1.0683	0.0764
2819	C-I-L Inc.	0.8224	1.1690	1.0241
2891	Genstar Corporation	0.7940	2.7202	-0.6586
2911	Asamera Inc.	0.9777	0.5302	0.5240
2911	Imperial Oil Limited	0.9583	0.3333	1.2609
2911	Petro-Canada	2.5159	0.7246	0.9417
2911	Shell Canada Limited	-0.2692	0.6122	0.8642
2911	Suncor Inc.	0.1667	1.0385	0.5000
2911	Total Petroleum (N.A.) Ltd	-0.0575	-0.4336	0.1476
3334	Alcan Aluminium Limited	1.0806	0.5849	0.4310
3334	Aluminum Company of Canada Ltd	1.4828	-0.4412	0.0625
3520	Massey-Ferguson Ltd. (Varity)	1.2266	0.9525	1.1585
3661	Mitel Corporation Ltd.	1.1174	1.1190	1.5610
3661	Northern Telecom Ltd.	0.1290	0.1351	0.4091
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4011	Canadian National RR System	1.4710	1.1479	1.0909
4011	Canadian Pacific Limited	0.7938	0.9319	0.9131
4200	Laidlaw Transportation Limited	1.8223	2.0744	4.8206
4213	Federal Industries Limited	2.6170	0.5756	0.2056
4811	Bell Canada Enterprises Inc.	0.8610	-0.4411	0.2788
4811	British Columbia Telephone Ltd	2.8894	2.4265	3.0891
4811	Island Telephone Co. Ltd.	0.7786	-1.4052	0.7429
4811	Maritime Tel & Tel Co. Ltd.	0.6937	-0.1700	1.4483
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4924	Consumers Gas Co. Ltd.	0.6497	1.2319	0.8724
5411	George Weston Ltd.	0.1760	0.1439	0.7149
Means (36 companies)		.9813	0.7101	0.7963

Table 2 - Statistical Tests

Correlations among inflation sensitivity measures, 1983-85

a) Pearson product moment correlations

	r83	r84	r85
r83	1.00000		
r84	.35282	1.00000	
r85	.40019	.30908	1.00000

b) Spearman rank correlation coefficients

	r83	r84	r85
r83	1.00000		
r84	.43535	1.00000	
r85	.43702	.31343	1.00000

Critical values (.05 level) for both: 1-tail = +/- .27881; 2-tail +/- .32860
N = 36 (There were 28 cases for which data to compute the inflation sensitivity ratio were missing for one year or more.)

II. One-way analysis of variance by industry:

	1983		1984		1985	
Industry group	Mean	N	Mean	N	Mean	N
Resource	.780	12	.199	9	.772	6
Manufacturing	.910	28	.828	22	.719	19
Utilities	1.076	16	.708	14	1.143	13
Other	.401	3	.431	3	.715	1
Grand means	.903	59	.650	48	.869	39
F ratio	.540		1.208		.441	
Probability	.657		.318		.725	

Bibliography

Bartley, J. and C. Boardman, "The Use of SFAS 33 Data to Identify Investment and Takeover Targets" (Working Paper, University of Utah 1983)

_____, "The Replacement-Cost Adjusted Valuation Ratio as a Discriminator Among Takeover Target and Nontarget Firms" (Working Paper, University of Utah 1984)

Beaver, W. and W. Landsman, "The Incremental Information Content of FAS 33 Disclosures," Research Report (Financial Accounting Standards Board: Stamford, CT. 1983

Bell, P., Current Cost/Constant Dollar Accounting and its Uses in the Managerial Decision-Making Process, University of Arkansas-Fayetteville McQueen Accounting Monograph Series, Vol. 3 (1986)

Berliner, R. "Do Analysts Use Inflation-Adjusted Information? Results of a Survey," Financial Analysts Journal (March/April 1983), pp. 65-72

CICA Handbook (Canadian Institute of Chartered Accountants: Toronto, Canada, updated periodically)

Deburg, C. and K. Shriver "The Relevance of Current Cost Accounting: A Review and Analysis of Recent Studies," Journal of Accounting Literature (1987), pp. 55-87

Drummond, C.S.R., "Current Cost Accounting: Has the 'Great Experiment' Failed?", CA Magazine (February 1986) pp. 36-40

FASB, Financial Reporting and Changing Prices (Financial Accounting Standards Board, Statement of Financial Accounting Standards No. 33: Stamford, Conn. 1979)

____, Status Report No. 166 (American Institute of Certified Public Accountants: New York 1985)

Hanna, J. A Review of the Section 4510 Experience. Canadian Institute of Chartered Accountants: Toronto 1989 (in process)

Ijiri, Y., The Foundations of Accounting Measurement (Prentice Hall Inc.: Englewood Cliffs, N.J. 1967)

Lim, S. and S. Sunder, "Optimum Asset Valuation Rules Undedr Price Movement and Measurement Errors: A Linear Aggregation Approach," Working Paper, University of Minnesota 1986

_____, "Accuracy of Linear Valuation Rules in Industry Segmented Environments: Industry vs. Economy Weighted Indexes," Working Paper, University of Minnesota 1987

Madison, R., and W. Radig, "SFAS No. 33 in Trouble: Senior Financial Management Responds," The Woman CPA (July 1983), pp. 7-12

Mattessich, R. "The Canadian Current Cost Accounting Exposure Draft: A Flawed Approach - Why Not Follow the American Way?" CAmagazine (November 1980), pp. 48-51

Modigliani, F. and R. Cohn "Inflation, Rational Valuation and the Market," Financial Analysts Journal (March-April 1979), pp. 24-44

Norby, W. "Applications of Inflation-Adjusted Accounting Data," Financial Analysts Journal (March-April 1983), pp. 33-39

Pindyck, R.S. and D.L. Rubinfeld, Econometric Models and Economic Forecasts (McGraw-Hill: New York 1981)

Rosenzweig, K., "Companies are not Using FAS 33 Data," Management Accounting (April 1985), pp. 51-57

SEC, Accounting Series Release No. 190 (Securities and Exchange Commission: Washington 1976)

Shriver, K., "Further Evidence on the Marginal Gains in Accuracy of Alternative Levels of Specificity of the Producer Price Indexes,:" Journal of Accounting Research (Spring 1986), pp. 151-165

_____, "An Empirical Examination of the Potential Measurement Error in Current Cost Data," Accounting Review (January 1987), pp. 79-96

Skousen, K. and W Albrecht, Auditor Reviews of Changing Price Disclosures (American Institute of Certified Public Accountants Auditing Research Monograph: New York 1984)

Sunder, S. "Accuracy of Exchange Valuation Rules," Journal of Accounting Research (Autumn 1978), pp. 341-367

_____ and G. Waymire, "Marginal Gains in Accuracy of Valuation from Increasingly Specific Price Indexes: Empirical Evidence for the U.S. Economy," Journal of Accounting Research (Autumn 1982), pp. 565-580

Thornton, D.B., "Current Cost Disclosers and Non-disclosers: Theory and Canadian Evidence," Contemporary Accounting Research (December 1986) pp. 1-34

_____, "Inflation, Accounting and the Canadian Corporate Tax Base," Canadian Journal of Administrative Sciences (March 1987) pp. 66-96

_____, "Values in Use vs. Replacement Costs: Theory and Canadian Evidence," Contemporary Accounting Research (Fall 1988), pp. 212-247

Vasarhelyi, M., A. Phillips and D. Yang FASB Statement 33 Data Bank User's Manual: Version II (Financial Accounting Standards Board: Stamford, Ct. 1983)

ACCOUNTING WITH INTEREST — A PRESENT VALUE EXPECTATIONS FRAMEWORK FOR FINANCIAL ACCOUNTING

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Abstract

The paper reviews the basic premise underlying the CICA Research Study *Incorporating The Time Value Of Money In Financial Accounting* and its proposed general implications for financial accounting. The basic premise is that rational present value expectations should be presumed to underlie all forms of assets and liabilities of business enterprises. These expectations are readily evident in the financial marketplace, and are presumed in a rich body of economics-finance literature on interest rates. Under reasonably efficient market conditions, which may be assumed to exist for certain bond markets, interest rate expectations (inter-temporal prices) for various terms to maturity and risks can be derived from bond market prices.

The general proposition is put forward that, for financial accounting purposes, all forms of business assets (and liabilities) should be presumed to be acquired with the expectation of realizing future cash-equivalent flows equal to their cost plus a return on investment that is commensurate with the interest rates then obtainable in the financial marketplace for monetary investments of equivalent risks and durations.

It is proposed that these present value expectations presumptions have immense implications for financial accounting, reasoning within either cost-based accrual or current market value models.

The paper illustrates how the accepted definitions of assets and liabilities in financial accounting could be expanded to embody present value expectations and, using a very simple loan example, how certain principles of accounting may be derived within the proposed present value expectations framework.

Introduction

The research study *Incorporating The Time Value of Money Within Financial Accounting* (Milburn, 1988) was commissioned with the purpose of assessing the prospects for developing a common basis for incorporating present value (discounting) concepts within financial accounting. It was borne out of the perception that existing generally accepted accounting principles comprise an inconsistent mixture of discounted present value and non discounted measurements and interperiod allocations. For example, pension costs are determined on a present value basis, while fixed asset depreciation and deferred income taxes generally are not. Some items, for example leases and loans, are accounted for up to a point, or in some aspects, on a present value basis.

In commissioning the study the CICA Accounting Standards Committee recognized a concern that financial accounting have a rational and explainable basis for determining when, if ever, it is appropriate, and when, if ever, it is not appropriate, for financial accounting measurements and interperiod allocations to reflect present value (discounting) principles.

The CICA Research Study proposes a comprehensive present value framework for financial accounting. The framework is put forward as a natural extension of the cost-based accrual principles that underlie existing generally accepted accounting principles.

The study is reasoned from stated presumptions as to present value investment expectations that are evident in the financial marketplace. The objective of this paper is to review the basic present value expectations premise, and its proposed general implications for financial accounting. It will then illustrate, using a very simple example, certain starting point principles for financial accounting that may be derived from presumed present value expectations.

Premise: Rational Present Value Expectations

Let us begin by envisaging an investment in terms of the basic present value equation at Exhibit 1. An investment value (or cost at the transaction date) is defined as ${}_0PV_n$ and the expected future economic benefits to result from the investment are the stream of flows $C_1 ... C_n$. The underlying presumption is that investments can be defined as expected or probable future economic benefits to result from the past event or transaction (which is measured at the transaction date by the economic sacrifice or cost outlay). This is, in fact, how "assets" are defined in financial accounting (see CICA Handbook, par. 1000.25-27; and FASB 1985, par. 25). The present value equation presumes a certain systematic relationship between the present investment value ${}_0PV_n$ and the timing and amounts of expected future economic benefits that are the object of the investment. It presumes that an investor invests (forgoes other uses of an amount of funds) in the expectation of achieving in the future the return *of* the investment (capital) and a return *on* the investment (income). The present value equation presumes that a rational investor will expect a rate of return on investment as a reward for forgoing the use of the funds for the period of the investment and for accepting certain risks related to various uncertainties as to future outcomes.

The present value formula defines the expected return on investment as per-period "interest" rates ($r_1 ... r_n$ in Exhibit 1). The array of per-period interest rates may be best envisaged as the "inter-temporal prices" that equate the expected future economic benefits with the amount or value of an investment now[1]. In other words, within the present value equation an investment cost is defined as the expected future economic benefits to result from the investment discounted at the expected per-period rate(s) of interest implicit in that transaction.

There is a rich body of economics-finance literature and market evidence dealing with the structure and determinants of inter-temporal prices (interest rates)[2]. This body of literature is premised upon the present value expectations investment model. This literature and financial markets evidence indicate that under reasonably efficient market conditions financial investments will be valued by discounting probable future economic benefits (defined as cash or cash-equivalent flows) using the array of per-period interest rates that, at the time, are obtainable in the financial marketplace for investments of equivalent terms to maturity and equivalent risk. This is a

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1 Beaver (1981), for example, conceives of interest rates as inter-temporal prices because (1) this better reflects how interest rates are derived ("the price of a bond is observable and the implied interest rate is derived from the price") and (2) it permits "the market for inter-temporal claims to be characterized in the same way as other markets, such as the market for commodities..." (Beaver 1981, p. 61).

2 Excellent reviews of basic economic theories and empirical research on interest rates may be found in Van Horne 1984 and McEnally 1987.

vitally important economic fact that, it is proposed, has profound implications for financial accounting. It indicates that under reasonable open market equilibrium conditions, arrays of inter-temporal prices (interest rates) exist for equating probable future cash flows of various timings and risks with present investment market values. These prices can be observed for certain types of traded financial securities for which (1) the timing and amounts of future cash flows are specified in the underlying investment contracts, and (2) any probable deviations from the contracted payment terms are susceptible of reasonable estimate. In particular, at any given time, one can determine within limits the average per-period minimum risk interest rates being obtained for minimum risk cash flows of various durations. In Canada, these can be determined from Government of Canada bond prices.

Economics-finance theories and empirical evidence on interest rates are concerned with the general and specific risk factors and their effects on interest rates. It is generally accepted that the array of interest rates applicable to a specific investment at a particular time will be a function of general and specific risk conditions, and will be comprised of the following components:

- The array of minimum risk rates — which is presumed to be the real riskless rate plus a premium for expected future inflation. As well, liquidity preferences and future expectations (such as, for example, an expected increasing future inflation rate) can be expected to lead to different average per-period interest rates for different terms to maturity. This is known as the "term structure" of interest rates, and is readily observable in the financial marketplace[3].

- Specific risk premium — common sense and financial security market prices indicate that rational investors demand a higher expected rate of return the more risky the investment.

The investment community has become increasingly sophisticated in recent years in applying the present value equation and increasingly knowledgeable about interest rates and their term structure and risk factors. This knowledge is being used in analyzing and pricing securities and in designing a widening variety of financial instruments to fit particular investment strategies and in managing risk exposures (see, for example, McEnally 1987).

Financial accounting implications

The starting point presumption underlying the present value concept of an investment (or obligation) is, as noted earlier, that investments are probable future economic benefits to result from past events or transactions. This, as also noted earlier, is fully consistent with the accepted definitions of "assets" (and "liabilities") in financial accounting. The CICA Handbook states that "assets" "embody a future benefit...to contribute to...future cash flows" as a result of "past transactions or events" (par. 1000.25-26). In the United States, FASB Statement of Financial Accounting Concepts No. 6 (1985) defines "assets" in these terms:

> "Probable future economic benefits obtained or controlled by a particular entity as a result of past transactions or events" (par. 25).

Thus, it seems to be accepted in authoritative FASB and CICA definitions that the financial accounting concept of "assets" of business enterprises presumes a relationship between future economic benefits (ultimately cash or cash-equivalent flows) and past events or transactions (which may be the economic sacrifice or cost paid to obtain the rights to the probable future economic benefits).

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[3] As an example, Government of Canada bonds which were identical in all respect except for their terms to maturity had the following average annual interest rates for the following maturities as of May 22, 1985: 2-1/2 years - 10.61%, 6 years - 11.00%, 10 years - 11.29% and 25 years - 11.59%.

The rational present value expectations presumed in the economics-finance literature on interest rates, and as evident in the financial marketplace, establishes the nature of the relationship between the probable future economic benefits (defined in terms of the probable timings and amounts of future cash or cash-equivalent flows) and investment values. Furthermore, as observed earlier, the marketplace provides evidence as to the arrays of inter-temporal prices (interest rates) that equate expected future cash flows with present market values for certain monetary securities.

If it is presumed that there is some reasonable interchangeability between forms of investment in the marketplace (that is, that investors can be expected to obtain the same expected rates of return on investment for investments of equivalent term and risk no matter what their form) then one may conclude that the inter-temporal prices that are observable in the bond market are also applicable to investments of other forms. If this presumption of interchangeability is accepted, then it may be proposed that all business enterprise assets, regardless of their form (whether they be debt or equity investment portfolios, real estate, oil or mineral resources, or operating assets) must have been acquired with the same per-period rate of return expectations as could have been obtained for marketable bonds of equivalent risk and terms to maturity[4]. Likewise all liabilities of business enterprises recognized in financial accounting may be presumed to be defined in the same present value expectations terms.

It is proposed that this general present value expectations "proposition" has immense implications for financial accounting — that it leads to the conclusion that all forms of business assets should be presumed to be acquired with the expectation of realizing future-cash equivalent flows to be generated by their sale or use in amounts sufficient to achieve per-period rates of return on investment commensurate with rates of interest that could be obtained in the financial marketplace on traded monetary investments of equivalent terms and risk. This, in turn, would lead to expanding the existing accepted concepts of "assets" (and "liabilities") to define them in present value/cash flow terms. For example, the FASB definition of "assets" would, it is proposed, be modified as follows:

> "Assets are the present values of probable future cash equivalent inflows obtained or controlled by a particular entity as a result of past transactions or events."

This definition replaces the term "economic benefits" with "cash-equivalent flows," in order to more precisely define the economic measurement attribute of interest — the presumed ultimate objective of investment. The incorporation of the present value dimension simply brings the concept of business assets within the accepted financial markets interpretation of investments. In so doing, it eliminates so-called asset measurement alternatives that are not rational, that is, that are inconsistent with the basic economic presumption that future expected economic benefits (ultimately cash flows) cannot be rationally defined in non-discounted terms[5].

The CICA Research Study

The objective of the CICA research study was to explore just how far it may be feasible (conceptually and practically) to apply this rational present value expectations model within financial accounting. The question of interest is whether the present value model is applicable to all

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[4] The difficulty in applying this expectation in practice lies in finding marketable bonds that are of equivalent risks and durations to those of other forms of business assets (and liabilities). The risks will be affected by the specific circumstances and the implicit cash-generating expectations of the underlying business assets — for example whether a particular asset is a "fixed rate" or "floating rate" investment (see Milburn 1988 pp. 79-88, and 127-133).

[5] This is not a new idea. See, for example, Keane 1978 and Staubus 1973.

forms of assets and obligations that are the subject of financial accounting, or only some forms. If it is applicable to only some forms, what is it that distinguishes those with respect to which it is applicable from those with respect to which it is not? The study attempts to identify, and explicitly reason forward from, stated objectives, premises and assumptions underlying the current accounting model, within the stated present value expectations framework — and to see how far this process of analysis and synthesis can take us. In embarking on the study, it was thought that, if nothing else, this process could be helpful in understanding exactly where the model runs up against unknowables.

Results of this analysis are, it is proposed, very encouraging. They indicate that incorporating present value expectations within either an historical cost-accrual or a current (market equivalent) value model can provide a powerful framework for re-examining basic measurement and interperiod allocation issues that have long been regarded by many as impossible of rational solution. The implications of the present value framework to accounting are pervasive, affecting virtually every asset (other than cash itself) and every liability, and resulting revenues and expenses. Present value expectations accounting is, in fact, being applied now in some important areas of financial accounting — notably accounting for defined benefit pension plans.

A simple illustration

The CICA research study first examines the simplest possible investment — a loan contract consisting of a single future cash flow of known timing and amount. It examines the exchange value of such a loan (i.e. its cost) in present value expectation terms, and then examines the assumptions that must be made to account for it during the periods through to its maturity. It examines and compares an historical cost-based accrual interpretation with a current value accounting interpretation — and it proposes certain basic principles of accounting within these two models. Then, step by step, real world complexities, uncertainties and ambiguities are added as the basis for the developing the framework and applying it to account for typical forms of investments and obligations of business enterprises.

To illustrate something of this analysis and its potential implications let us take a very simple two period loan example. Let us assume a contract under which A loans B a sum of money at time 0 in return for a promise by B to repay A $1,254 in exactly two years. What amount would A be willing to loan B for this promise, assuming no other rights or privileges are exchanged in this transaction? Reasoning within rational present value expectations evident in the financial marketplace, it may be assumed that A will want an interest return for forgoing the use of funds for two years at least equal to the average annual rate that could be obtained in the financial marketplace on a note or bond of equivalent term and risk. If the market for loans is reasonably efficient, then A will not be able to demand more than this rate, because it may be assumed that B would then go elsewhere for the loan. If this average annual rate is 12%, then A will loan B $1,000 (the present value of $1,254 for two periods at 12%). Assume that this loan is negotiated, and that it is probable that B will repay the $1,254 in accordance with the contract at the end of year 2.

How would this loan be accounted for during its term — more specifically what value should it be given in A's balance sheet at the end of year 1? Under existing cost-based accrual principles, one would accrue interest at the 12% average annual rate implicit in the investment with the following results:

Cost	$1,000
End of year 1: interest accrued at 12%	120
Balance, end of year 1	1,120
End of year 2: interest accrued at 12%	134
Balance, end of year 2	$1,254

The key assumption in this accounting is that the interest rate implicit in the investment is the same in year 1 as in year 2, that is, 12%. This has been condemned as a wholly arbitrary assumption (see, for example, Thomas, 1974, p.17). As observed earlier, if we look to financial market evidence, we will find that the average annual interest rate for money to be paid or received two years hence is generally different (usually higher) than the rate for money to be paid or received in one year. The question for accountants attempting to apply the cost-based accrual model in accounting for this loan is — what is the array of per-period interest rates implicit in this loan investment? Can the rates applicable to years 1 and 2 be unequivocally determined by reference to the term structure of interest rates as at the date of the loan, or can the conventional constant return on investment assumption be justified? The research study analyzes this issue in some depth with reference to economic-finance theories as to how the term structure of interest rates may be determined (Milburn, 1988, chapter 5).

If we can determine the interest rate(s) implicit in this loan transaction, then we can account for it on a cost-based accrual ("effective interest") basis — by simply accruing interest at the rate implicit in the investment transaction appropriate to each year. Within the present value context, the accrued value of the A:B loan in cost-based accrual terms will then always be equal to the present value of probable future cash flows discounted at the rate(s) of interest for the remaining period of the loan that is (are) implicit in the investment transaction. To illustrate this, assume that it is determined that the interest rates implicit in the A:B loan are 12% in each of years 1 and 2. At the end of year 1, the accrued value of $1,120 is equal to the present value of $1,254 to be received at the end of year 2 discounted at the interest rate implicit in the investment for year 2 (that is, 12%).

We might then tentatively put forward this cost-based accrual principle:

> At any time during the period of a loan, the asset value should be equal to the present value of the probable future cash flows discounted at the rate(s) of interest implicit in the loan transaction[6].

Current value interpretation

This cost-based accrual interpretation may be contrasted with a current value interpretation. The fair (market) value of the A:B loan at any time during its term will reflect the market's evaluation of the probable timing and amount of its future cash flow discounted at the specific risk-adjusted rate of interest appropriate to the loan as at the measurement date. This rate will differ from the historical cost rate implicit in the loan transaction if the general level of interest rates has changed or if the specific riskiness of this loan is perceived by the market to have changed. To

[6] See Milburn 1988, chapters 5 and 6, for discussion of the defensibility of this principle within the cost-based accrual accounting model and, in particular, its application to situations where the underlying future cash flows are not considered to be fully collectible in accordance with the terms of the loan contract.

illustrate, if at the end of year 1, the current risk-adjusted interest rate appropriate to the A:B loan is 8%, then the current value of the loan would be $1,161 (as compared with the above $1,120 cost-based accrual value).

A problem in applying the current value interpretation is that, failing a specific representative market for the A:B loan contract, it may be difficult to determine the appropriate specific risk premium component of the interest rate as at a measurement date subsequent to the loan transaction. One can determine from Government of Canada bond prices what the current minimum risk rates of return are for given maturities. However, the assessment of the specific riskiness of a non-traded note (like the A:B loan) will require subjective evaluation of its particular risk conditions.

The essential conceptual difference, then, between a cost-based accrual and current value determination of a loan's value at any time during its term is the basis for determining the interest rate(s) appropriate to discounting the probable future cash flows. It is reasoned that the cost-based accrual model is, in logic, based on the rate(s) of return implicit in the investment transaction, whereas the current value interpretation is based on discounting the probable future cash flows at the risk-adjusted rate as of the measurement date. Both these interpretations fit within the present value definition of assets proposed earlier in this paper, that is, both may be said to represent the present value of probable future cash inflows obtained or controlled by the entity as a result of past transactions or events.

The A:B loan illustrates a present value expectation application within the simplest of possible settings — and even in it, we have identified some potentially troublesome issues with respect to the application of both the cost-based accrual and market value models.

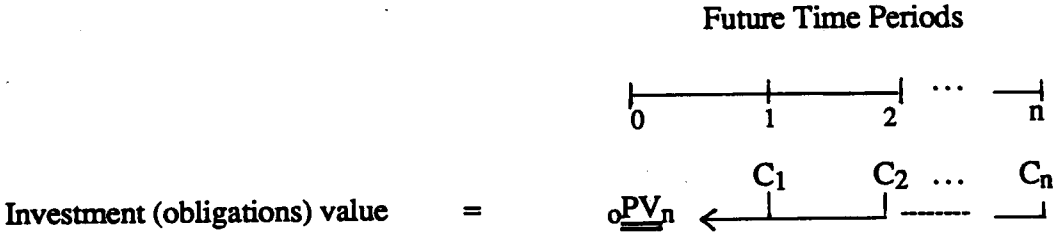
The research study develops the basic present value expectation perspective illustrated in the simple A:B loan example and extends it to typical more complex forms of assets and liabilities. In particular, the following areas are addressed:

- loan loss situations
- floating rate loans
- loan transactions which also involve the exchange of other rights or privileges
- loan contracts with repayment options
- productive assets (fixed assets and intangible assets), including bases of depreciation and impairment tests
- interest capitalization theories
- future cost obligations (including pensions)
- discounting deferred taxes
- some considerations with respect to interpreting accounting results under inflationary conditions.

It is to be hoped that at least some readers will be sufficiently intrigued by the ideas put forward here to delve into the study. What is needed now is an informed debate of the ideas and their implications.

EXHIBIT 1

PRESENT VALUE INVESTMENT (OBLIGATION) FORM



$$_oPV_n = \frac{C_1}{(1 + r_1)} + \frac{C_2}{(1 + r_1)(1 + r_2)} .. + \frac{C_n}{(1 + r_1)(1 + r_2) \ldots (1 + r_n)}$$

This is simply the conventional expression for equating present values with related future cash flows, where:

$0 \ldots n$	represent the number of time periods.
$C_1 \ldots C_n$	represent the expected cash flows to be received or paid at each of the times $1 \ldots n$.
$r_1 \ldots r_n$	represent the discount (interest) rate in each period. (Note that the rate may be different from period to period, that is, the formula does not require a constant per-period discount rate.)
$_oPV_n$	is then the present value at time 0 of $C_1 \ldots C_n$ at discount rates $r_1 \ldots r_n$.

References

Beaver, William H. Financial Reporting: An Accounting Revolution. Englewood Cliffs, N.J.: Prentice Hall, 1981.

Canadian Institute of Chartered Accountants. CICA Handbook. Toronto: CICA. "Financial Statement Concepts," Section 1000.

Financial Accounting Standards Board. Elements of Financial Statements. Statement of Financial Accounting Concepts No. 6. Stamford, Conn.: FASB, 1985.

Keane, Simon M. "The Present Value Concept in Financial Reporting: A Comment." Journal of Business Finance and Accounting (England), Autumn 1978, pp. 381-87.

McEnally, Richard W. "The Term Structure of Interest Rates." The Handbook of Fixed Income Securities, pp. 1111-50. 2nd ed. Edited by Frank J. Fabozzi and Irving M. Pollack. Homewood, Ill.: Dow Jones-Irwin, 1987.

Milburn, J. Alex. Incorporating The Time Value Of Money Within Financial Accounting. Toronto: Canadian Institute of Chartered Accountants, 1988.

Staubus, George J. "The Measurement of Assets and Liabilities." Accounting and Business Research, Autumn 1973, pp. 243-62.

Thomas, Arthur L. The Allocation Problem: Part Two. Studies in Accounting Research No. 9. American Accounting Association, 1974.

Van Horne, James C. Financial Market Rate and Flows. 2nd ed. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1984

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ACCOUNTING FOR CONTINGENCIES: A COMPARISON OF U.S. AND CANADIAN TERMINOLOGY

1. INTRODUCTION

Accounting normally involves the measurement, recording, and communicating of financial events that have already taken place. However, the possible occurrence or nonoccurrence of events may not always be obvious and the consequences of events may not always be always be readily determinable. Such uncertain and contingent events must somehow be reflected in the financial records of the business. Both Canadian and American accounting standard setting bodies have set guidelines to be followed to make the accounting for contingencies more uniform within their respective jurisdictions.

The decision on how and if to disclose events is of critical importance in accounting as this type of decision directly affects the signal being provided by the financial statements. Users of financial statements expect that disclosure practices are comparable across companies. However, if the disclosure guidelines provided are ambiguous, comparability of the financial statements of different companies will be impaired.

The definitions of contingencies used in both countries are virtually identical, defining contingencies as uncertain events. In the U.S., Statement of Financial Accounting Standards No. 5 (FAS 5) "Accounting for Contingencies" was issued by the Financial Accounting Standards Board to provide standards for the accounting and reporting of contingencies. A contingency is defined to be "an existing condition, situation, or set of circumstances involving uncertainty..." [p. 1034]. In Canada, the Handbook issued by the Canadian Institute of Chartered Accountants (CICA) defines contingencies as "an existing condition or situation involving uncertainty..." [Section 3290.02].

FAS 5 establishes three levels of event uncertainties: (1) if the likelihood of an event is "probable" and the amount of the loss can be reasonably estimated, the event must be disclosed by an accrual in the financial statements; (2) if either or both of the conditions requiring disclosure are not met, the event must still be disclosed by a note if "there is at least a reasonable possibility that a loss..." [p. 1035] will occur; (3) if the likelihood of an event is "remote," no disclosure is required.

The CICA Handbook also prescribes three types of disclosure but specifies only two levels of uncertainty: (1) a contingent loss should be accrued if it is "likely," described as the chance of the occurrence of the event is "high" and the amount of the loss can be reasonably estimated; (2) footnote disclosure is required if the occurrence is likely but the amount cannot be reasonably estimated, or if there exists an exposure to loss in excess of the amount accrued, or if the "chance of the occurrence" of the confirming event is "not determinable"; (3) no disclosure is implied if the loss is "unlikely," described as an event whose chance of occurrence is "slight" unless the contingent loss would have a significant adverse effect, in which case footnote disclosure is also required.

The purposes of this paper are (1) to determine if the words used in the guidelines for the evaluation of uncertainties provide sufficient guidance for consistent reporting practices and (2) to compare the meanings of the words used in the two countries. The second section of this paper contains a discussion of uncertainty followed by a discussion of the measurement issues in the third section. The results of an empirical test undertaken to explore the meanings of the terms used in the standards to differentiate the levels of uncertainty (remote, probable, and reasonably possible; likely and unlikely) are reported in the fourth section. The final section provides a summary and conclusions.

2. UNCERTAINTY

As indicated, both the FASB and CICA standards define contingencies in terms of uncertainty or chance of occurrence. Uncertainty has been defined as "an individual's perceived inability to predict something accurately" [Milliken, 1987, p. 136]. All three definitions include the central issue, the inability to know what will happen in the future. Milliken's definition implies that three central issues must be considered in any consideration of uncertainty: (1) uncertainty deals with perceptions and is not a phenomenon that is capable of being measured unambiguously, (2) these perceptions are those of individuals, and (3) use of the phrase "inability to predict something accurately" appears to imply that estimates may be possible, but that a range may be more appropriate.

The central problem involved is the relative amount of uncertainty. The basic principle of both sets of disclosure requirements is very reasonable: an accounting entry is required if the probability of the event is high enough ("probable" or "likely") and can be reasonably estimated, and is not required if the probability of occurrence is low enough ("remote" or "unlikely"). If the probability is somewhere between these two extremes ("reasonably possible" in FAS 5) or if the probability of occurrence is unknown, then footnote disclosure is required. However, the operationalization of this principle is not straightforward.

The problem of uncertainties is of course not unique to accounting issues. Thompson [1967] calls uncertainty the "fundamental problem for complex organizations, and coping with uncertainty, the essence of the administrative process" [p. 159] and discusses three types of uncertainty faced by organizations that are differentiated in that each has a different cause: (1) generalized uncertainty, or lack of cause/effect understanding in the culture at large, (2) contingency, in which the outcomes of organizational action are affected by events that are external to the organization, and (3) interdependence of components, in which the sequencing of actions that would produce the outcomes intended is difficult to determine. Thompson's second type of uncertainty is the main type that appears to be addressed in the accounting standards, but all three types can lead to accounting disclosure dilemmas.

Milliken [1987] takes a slightly different view and states that these different causes result in three different types of uncertainty: (1) uncertainty about the state of the environment in that one does not understand how components of the environment are changing, (2) uncertainty about the impact of environmental events or changes on the organization, and (3) uncertainty associated with attempts to understand what response options are available to the organization, what the value or utility of each might be, and the inability to predict the likely consequences of a response choice. The difficulties involved in dealing with these uncertainties are compounded in that the three types of uncertainty act sequentially. The uncertain environment has an uncertain impact on the organization and the consequences of actions that might be taken to deal with the impact are also uncertain. Management must attempt to anticipate what the future events might be, what effects these future events might have on the organization, and what the specific dollar value of these effects might be.

The task expected of accountants is to measure the expected likelihood of occurrence of each of the three levels of uncertainty involved and to combine them into one estimated probability that must be compared to the guidelines provided to determine how the uncertain event should be disclosed. However, the measurement issues involved are not straightforward.

3. TYPES OF MEASUREMENT SCALES

The disclosure requirements of the standards require a comparison of the summary perception of the estimated probability of occurrence with the prescribed levels of probability to decide which of the prescribed levels best describes the estimated chance of occurrence of the contingent event. This type of task has been encountered fairly frequently in the social sciences, especially when the task includes the use of questionnaires [Howard, 1981]. Questionnaires often include certain predetermined response categories that are quite similar to the levels of uncertainty specified by the standards. Response categories both in questionnaires and in the accounting guidelines must be selected so that the responder is capable of discriminating among the levels and types of reactions invoked by the stimuli presented. These reaction types are quite few. Coombs [1964] states that people have the following abilities: (1) to determine the psychological distance of a stimulus from some "ideal" concept of that stimulus, (2) to detect if differences between two points are greater or less than differences between another two points, (3) to detect if a point is "near" an ideal point or not, which he calls "proximity," and (4) to determine which of two stimuli has more of a given attribute.

These abilities lead to only two general types of response methods that can be used: (1) categorical, where either a judgment about the stimulus itself or the subject's response to the stimulus is sorted into groups or categories, based on some perceived conception of similarities and differences, and (2) comparative, where two or more stimuli are compared and are ranked according to judgments about the relative amounts of some attribute possessed by the stimuli or relative responses to the stimuli [Torgerson, 1958].

These responses are "measured" (numbers are assigned to them according to a set of rules) by the set of response categories defined by the researcher in any one of four types of measurement scales: (1) nominal, where the responses are grouped with respect to some attribute or property, (2) ordinal, where the responder is ranking different degrees of an attribute or property of the stimulus, (3) interval, where the responder can distinguish not only among different amounts of the property in objects but can also discern equal differences among the stimuli, and (4) ratio, where the responder can also distinguish a zero point that indicates the total absence of the attribute being measured [Glass and Stanley, 1970].

Accountants who are attempting to adhere to the requirements of the standards are subject to these cognitive limitations. The standards have been drafted with the apparent expectation that accountants will use their innate ability to detect if their assessment of the summary likelihood of occurrence of the contingent event is "near" any of the terms used in the standards, using their ability to discern proximity. The standards appear to expect that the accountants should respond with a categorical grouping of the assessed likelihoods into groups specified by the frequency terms prescribed in the standards. The assessed likelihoods must be grouped into nominal scales by the accountants.

The standards specify the response categories using words and phrases that are to be used to differentiate among the different levels of uncertainty. These words and phrases presumably were chosen for their ability to convey different amounts of uncertainty unambiguously.

However, no evidence is provided to indicate that the terms prescribed (remote, reasonably possible, and probable; likely and unlikely) are optimal for this purpose. Chesley [1979] states that there are two different methods

of communicating uncertainty: word scales and probability scales. Word scales use commonly understood language to communicate the varying levels of uncertainty, but are appropriate only if there exists general agreement on the meanings conveyed by the words. Probability or numeric scales avoid the ambiguity inherent in word scales but are not commonly used. The standards have both used word scales to describe the different amounts of uncertainty.

Researchers have studied both the ability of subjects to quantify different types of concepts and the meanings of terms used in accounting by asking subjects to quantify qualitative stimuli [Felix, 1976]. These studies usually ask subjects to specify the probability numbers they believe are implied by the frequency terms presented to them (for example see Chesley [1979]). Generally these studies have found that subjects are able to specify a number they believe to be associated with the words presented, but relatively little agreement is found among different subjects.

No discussion was found in the published literature of the attributes that an "ideal" set of uncertainty terms should have. In the accounting context, it appears that the terms should clearly convey amounts of certainty or uncertainty that are (1) different, (2) unambiguous, and, to be most useful, (3) of a similar distance between terms to achieve an interval scale rather than a nominal or ordinal scale.

Whether the terms used meet these desired attributes is an empirical question that can be tested by asking subjects to convert the words used in the two standards to numeric quantities. Since each person will have a different perception of the probability numbers expressed by the various terms that imply uncertainty, their different perceptions should form distributions of numbers. To be different, the means of the distributions should not be the same. To be unambiguous, the distributions should not overlap. To be of a similar distance between terms, the differences between the means of the terms should be approximately equal. In other words, the terms selected should be of "nearly" interval measurement, not just ordinal [Labovitz, 1970]. Whether or not these terms do convey these attributes is an empirical question that was tested using subjects in both Canada and the U.S., using both "naive" subjects (undergraduate students) and "sophisticated" subjects (American C.P.A.'s).

4. EMPIRICAL TEST OF THE MEANINGS OF THE TERMS

Howard [1981] discusses three different types of testing procedures or approaches that can be used to provide measures of perceptions. (1) If a response scale is provided that has already been divided into intervals that appear to be equal, a "partition measure" has been used. Howard points out that the data thus obtained are only ordinal as the spacing of categories used is established arbitrarily and may not have been based on some underlying theory. (2) "Confusion measures" involve asking subjects to identify the point at which they are able to distinguish between two different stimuli. Howard states that the same point will not always be identified for the same two stimuli, but that the points identified will form a normal distribution. This distribution can be used to achieve an interval scale by using the mean as the scale value and the standard deviation as the unit of measure. (3) If the subjects are asked to indicate the magnitude of stimuli relative to some reference point, a "magnitude measure" is being used and a ratio scale has been achieved.

The Canadian and American standards have both used "partition measures" in that the relevant scale has been arbitrarily divided into partitions by using the terms "probable," "reasonably possible," and "remote" in the U.S.

and "likely" and "unlikely" in Canada. No evidence was provided in the standards to show that these terms form the optimal partitions of the uncertainty scale. However, several studies have been reported previously that could be adapted to test the suitability of the terms.

Lichtenstein and Newman [1967] report the results of a test in which they asked 188 non-accounting subjects "to give the probability number from .01 to .99 which most clearly reflected the degree of probability implied by each word or phrase" [p. 563]. Subjects responded to 41 different terms. Several results were noted that are interesting:

(1) Subjects are able to provide probability numbers for the terms.

(2) Symmetrical phrases did not have symmetrical responses. For example "quite likely" and "quite unlikely" scored means of .79 and .11, which are not equidistant from .50.

(3) Mean responses were quite close to median responses, indicating symmetrical distributions of answers (except for the terms near the ends of the range of probability numbers such as "barely possible" and "faintly possible" which had highly skewed distributions).

(4) Perhaps the most interesting finding was that their results were not consistent with previous similar studies that used identical terms. The explanation advanced for this finding was that previous studies used the terms in specific sentences, and that the meaning of the terms is highly context dependent. If this explanation is accurate, the implication is that general approaches such as that used in the standards are pointless as any specific terms prescribed will have different meanings depending on the context in which the term is being used. However, this result of context dependency was not found in the Bass et al. study described below.

(5) Of the three terms used in FAS 5, only one was included in the Lichtenstein and Newman study. "Probable" had a mean of .71 with a standard deviation of .17. Both terms used in the Canadian standard were included. "Likely" had a mean of .72 with a standard deviation of .11. "Unlikely" had a mean of .18 with a standard deviation of .10.

Bass et al. [1974] undertook a similar study but used a "magnitude measure" approach. They asked student subjects to assign a probability number to the word "sometimes," then, using this point as a reference number, to assign probability numbers to 38 other terms (none of which were the terms used in the standards). These terms were all presented in the context of various topics. Subjects were also asked to rate the importance of each topic to them. The results were that no relationship was found between the value of the probability numbers assigned and the ratings of importance of the topic. This result appears to be contrary to the explanation advanced by Lichtenstein and Newman that context does affect perception.

Budescu and Wallsten [1985] attempted to determine if the variability of responses was caused by differences in the concepts of the numbers that people assign to the words used. They tested this possibility by ranking terms by the probability numbers assigned and compared the variability of the rank orderings. Four replications of the task were made, using the same 32 psychology faculty and graduate student subjects. Four rank orderings were made by each subject. They found that the subjects did rank the terms consistently, but that each subject produced a different ranking. One of the conclusions made is that the "understandings of probability phrases are more appropriately investigated at the level of individuals than of groups" as "mean probability estimates may correctly represent only a fraction of the subjects" [p. 401]. This conclusion is not helpful for present purposes as the intent of the accounting standards is to prescribe general guidelines that will be applied by individuals that will result in similar accounting practice.

Ashton [1984] suggested that a test adapted from Lichtenstein and Newman [1967] can be used to study the meaning of various probability terms used in accounting and auditing, such as the terms in the standards. These terms can be included with the 15 words and phrases suggested by Ashton. One problem with using this approach was indicated by Felix [1976] in that people have difficulties in assigning quantities to express their beliefs, but they can be taught to improve their ability to do so. However, Lichtenstein and Newman [1967] did find that subjects could express their concepts by probability numbers, as indicated above.

The test suggested by Ashton [1984] was administered to three groups of subjects, 275 undergraduate accounting students at a large American university, 56 auditors with Big Eight audit firms in the United States, and 172 undergraduate accounting students at a large Canadian university. Results of the tests are given in Table 1.

TABLE 1: RESULTS OF THE TEST (Ranked by frequency, in %)

PHRASE	-U.S. STUDENTS- MEAN	STANDARD DEVIATION	-U.S. AUDITORS- MEAN	STANDARD DEVIATION	-CDN STUDENTS- MEAN	STANDARD DEVIATION
Always	95.6	10.0	98.3	1.7	95.1	10.4
Highly probable	86.9	10.0	86.8	7.3	84.5	11.1
High probability	86.9	10.4	86.4	7.7	83.6	11.2
Excellent chance	86.5	11.1	84.8	10.7	86.7	9.8
Very likely	84.1	12.1	85.2	7.2	83.7	12.0
Often	71.6	13.9	74.9	10.7	72.2	12.3
Likely	69.6	14.6	73.2	10.4	72.4	12.5
Probable	67.8	16.3	72.8	10.8	66.7	14.4
Reasonably possible	63.6	15.4	61.3	11.1	60.6	16.6
Possible	48.8	18.3	50.7	13.2	50.7	16.4
Sometimes	43.5	15.9	45.8	11.2	44.2	14.3
Not often	25.1	13.0	23.7	8.5	25.9	14.1
Minimal Likelihood	21.8	18.1	20.4	12.4	19.5	16.6
Unlikely	20.3	13.0	19.5	8.3	21.3	13.4
Low probability	19.3	10.7	23.3	10.2	21.0	13.4
Slight	16.9	12.5	15.3	8.1	19.8	13.8
Rarely	15.5	12.2	13.7	7.0	17.3	12.6
Remote	14.9	13.8	10.0	6.5	16.1	13.8
Very unlikely	12.2	10.7	11.7	7.4	12.6	11.7
Extremely doubtful	8.7	9.5	7.8	5.1	10.0	11.5
Never	1.9	2.7	1.6	1.8	1.8	3.0

Several general observations are obvious from these results. (1) All three groups of subjects have means that are reasonably similar for each term. Only three of the 21 terms have differences that exceed four percentage points ("probable" with a spread of 6.1, "remote" with 6.1, and "slight" with 4.5). However, these three terms are all used in the standards. (2) The subjects do not exhibit close agreement on the meanings of the terms as indicated by the fairly large standard deviations, especially for the terms that do not convey the highest or lowest probabilities. (3) The auditors appear to exhibit closer agreement on the meanings of terms in that their standard deviations are lower than both groups of students for every term except one ("excellent chance"). This result may be consistent with the conclusion noted by Felix [1976] that the ability of subjects to assign probability numbers appears to improve with training.

The results for the terms used in the two sets of standards are summarized in Table 2.

TABLE 2: TERMS USED IN THE STANDARDS

(1) Terms used in FAS 5

PHRASE	-U.S. STUDENTS- MEAN	STANDARD DEVIATION	-U.S. AUDITORS- MEAN	STANDARD DEVIATION	-CDN STUDENTS- MEAN	STANDARD DEVIATION
Probable	67.8	16.3	72.8	10.8	66.8	14.4
Reasonably possible	63.6	15.4	61.3	11.1	60.6	16.6
Remote	14.9	13.8	10.0	6.6	16.1	13.8
(2) Terms used in CICA Handbook						
Likely	69.6	14.6	73.3	10.4	72.4	12.5
Unlikely	20.3	13.0	19.5	8.3	21.3	13.4
Slight	16.9	12.5	15.2	8.1	19.8	13.8

Several interesting observations may be made about these results. The students have mean probabilities for these three phrases that are somewhat different from the means for the auditors. For the FAS 5 terms, the means for the auditors are farther apart than the students and the auditors show more agreement around the means than the students in that their standard deviations are consistently smaller. For the CICA terms, since there are only two terms used in the standard, the problem of equal distances between the terms does not arise. However, the two terms do not have means that are equidistant from .50. The word "slight" is used in the explanation of "unlikely," but "slight" has a lower mean probability than "unlikely."

Perhaps the most interesting question involves the actual probabilities indicated by the various terms. Did the standard setters intend to prescribe that an event with a probability of occurrence of 66%-72% in the U. S. (or 69%-73% for the CICA) should be recorded while an event with a probability of occurrence of 10%-16% in the U. S. (or 19%-21% for the CICA) need not be recorded?

These terms may not be the optimal set that would serve to provide a clarification of the different levels of uncertainty. The Financial Accounting Standards Board did not indicate the criteria they used to select the terms used in FAS 5. However, as indicated above, such criteria might include the requirements that the terms should convey degrees of certainty that are (1) different, (2) unambiguous, and (3) of similar distance between the terms.

The means of the various terms used in FAS 5 are different, but not substantially. A z-test for differences of the means for "probable" and "reasonably possible" gives a probability of .001 that they came from the same distribution. Whether the difference between them is large enough to be recognized cognitively as well as statistically is an interesting question.

The distances between the means of the terms are quite different for both students and auditors, with the U.S. students having greater differences. The differences for the students are 4.20 percentage points between "Probable" and "Reasonably possible" (67.80 less 63.60), and 48.67 between "Reasonably possible" and "Remote" (63.60 less 14.93). The differences for the auditors are 11.54 and 51.26 respectively. The terms used in FAS 5 do not appear to be of "nearly" interval measurement.

Figure 1 summarizes the responses for all three groups of subjects for the words used in FAS 5. Substantial overlap is apparent for two of the words used: "Reasonably possible" and "Probable." These figures indicate that there is no significant overlap for the term "Remote" with either of these two terms. This visual presentation shows that the terms are not unambiguous.

FIGURE 1: ALL SUBJECTS, FASB WORDS

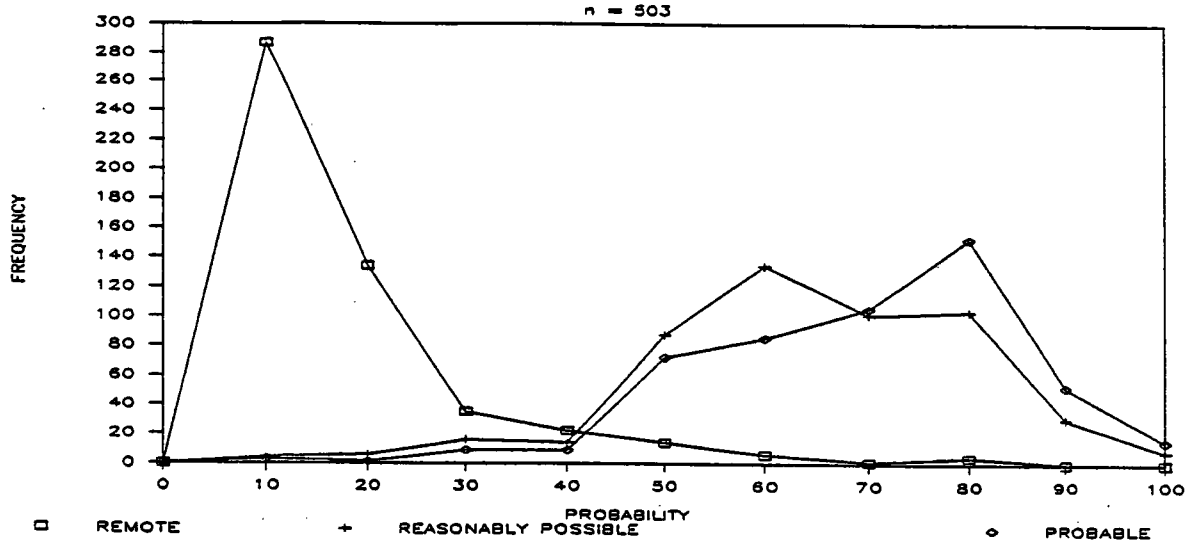
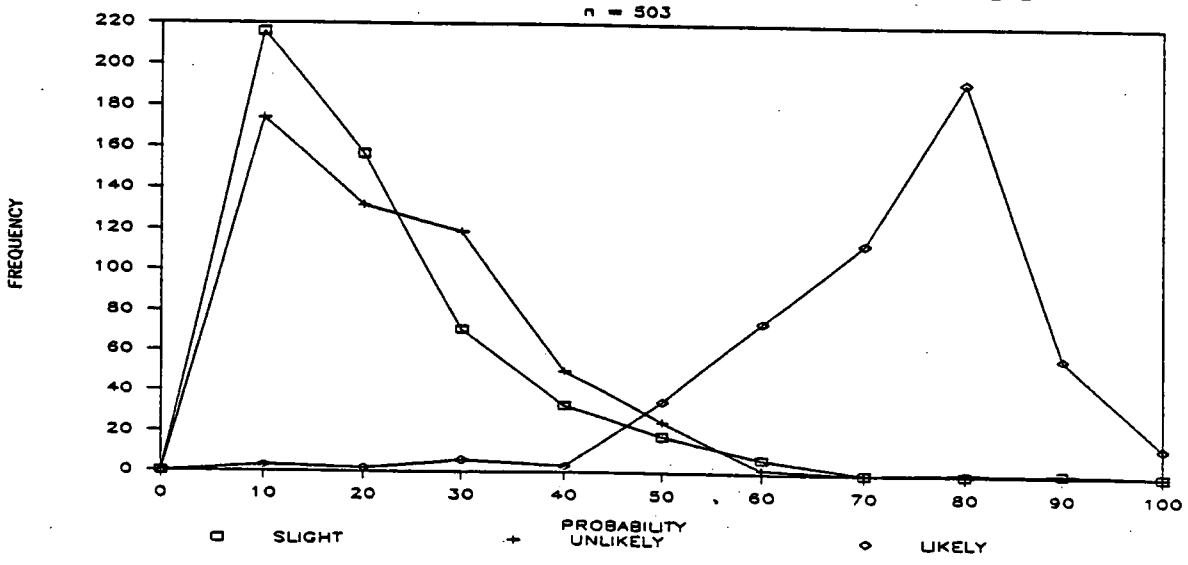


Figure 2 indicates that the words used in the CICA standard do not have the same overlap problem as the FAS terms. The word "Slight" that is used to explain the meaning of the term "Unlikely" appears to be appropriate in that the distributions of probability responses are fairly similar. There is some overlap, but only in the area of 50%.

FIGURE 2: ALL SUBJECTS, CICA WORDS



5. SUMMARY AND CONCLUSIONS

The purposes of this paper were to discuss the concept of uncertainty, to explore the meanings of the terms used in Canada and the U.S. to differentiate degrees of certainty of contingent events as prescribed in FAS 5 and the CICA Handbook, and to provide a general discussion of the measurement issues involved. An empirical test of the meanings of the terms used in the two standards appears to indicate that the terms specified in FAS 5 may not be the optimal set. The terms were not found to be very different, unambiguous or "nearly" interval. This means that the guidelines to be followed for disclosing uncertain events may still not be clear. The problem appears to be with the use of the terms "Reasonably possible" and "Probable."

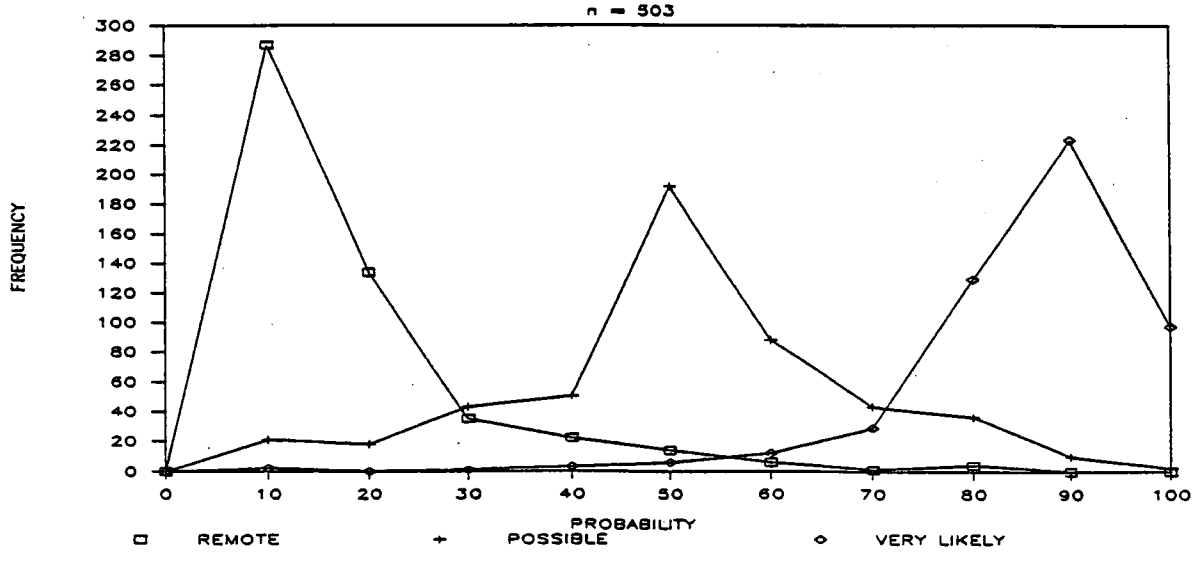
This problem of overlap was also noted by Budescu and Wallsten [1985, p. 402] when they recommended the use of probability numbers instead of words:

> The practical implications of the present results are quite clear--probability phrases may lead to ordinal confusion in usual communication. Furthermore, it must be true that use of numbers rather than phrases will eliminate this particular problem.

Several possible solutions to this continuing problem can be found. For example, the guidelines could use numeric probability levels rather than probability words. However, it would still be difficult to express the likelihood of events as a probability number. It may also be possible to train accountants and users what these words mean. This possibility is obviously not very practical because of the large number of people involved.

The most practical solution would be to use a better set of words in FAS 5 that would be chosen for their perceived meanings. For example, Figure 3 shows the distribution of the terms "Remote," "Possible," and "Very likely." These terms show very little overlap. Other sets of words could also be chosen from among a large number that convey uncertainty.

FIGURE 3: ALL SUBJECTS, SUGGESTED FASB



This study has several limitations. (1) The effect of the context in which uncertainty words are used has yet to be explored fully. Conflicting results were found in different studies. (2) The effect of materiality on the perception of uncertainty has yet to be studied. Jiambalvo and Wilner [1985] suggest that materiality may affect uncertainty perceptions. (3) Another potential problem is that the results for the students may not be generalizable as the subjects used were not selected randomly. Because of the importance of the problem of uncertainty, it is hoped that additional studies will be undertaken to contribute to the knowledge of the problems being encountered in this area.

REFERENCES

Ashton, R. H., "Integrating Research and Teaching in Auditing: Fifteen Cases on Judgment and Decisions Making," The Accounting Review (January 1984) pp. 78-97

Bass, B. M., W. F. Cascio, and E. J. O'Connor, "Magnitude Estimations of Expressions of Frequency and Amount," Journal of Applied Psychology (Vol. 59, No. 3, 1974) pp. 313-320

Budescu, D. V. and T. S. Wallsten, "Consistency in Interpretation of Probabilistic Phrases," Organizational Behavior and Human Performance (Vol. 36, 1985) pp. 391-405

Coombs, C. H., A Theory of Data (John Wiley & Sons Inc., New York, 1964)

Canadian Institute of Chartered Accountants, CICA Handbook, Vol. 1

Chesley, G. R., "Procedures for the Communication of Uncertainty in Auditor's Working Papers," Behavioral Experiments in Accounting II (Edited by T.J. Burns, 1979, Ohio State University Publishers) pp. 113-173

Felix, W. L., Jr., "Evidence on Alternative Means of Assessing Prior Probability Distributions for Audit Decision Making," The Accounting Review (Vol. LI, No. 4, October 1976) pp. 800-807

Financial Accounting Standards Board, Accounting Standards, Original Pronouncements (1986/87 Edition, McGraw-Hill Book Company, New York, 1986)

Glass, G. V. and J. C. Stanley, Statistical Methods in Education and Psychology (Prentice-Hall Inc., Englewood Cliffs, N.J., 1970)

Howard, T. P., "Attitude Measurement: Some Further Considerations," The Accounting Review (Vol LVI, No. 3, July 1981) pp. 613-621

Jiambalvo, J. and N. Wilner, "Auditor Evaluation of Contingent Claims," Auditing: A Journal of Practice & Theory (Vol. 5, No. 1, Fall, 1985) pp. 1-11

Labovitz, S., "The Assignment of Numbers to Rank Order Categories," American Sociological Review (Vol. 35, 1970) pp. 515-524

Lichtenstein, S. and J. Newman, "Empirical Scaling of Common Verbal Phrases Associated with Numerical Probabilities," Psychonomic Science (December 1967) pp. 563-564

Milliken, F. J., "Three Types of Perceived Uncertainty About the Environment: State, Effect, and Response Uncertainty," Academy of Management Review (Vol. 12, No. 1, 1985) pp. 133-143

Thompson, J. D., Organizations in Action (McGraw-Hill Book Company, New York, 1967)

Torgerson, W. S., Theory and Methods of Scaling (John Wiley & Sons Inc., New York, 1958)