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

COMPTE RENDU
PROCEEDINGS

CONGRES ANNUEL DE 1983
1983 ANNUAL CONFERENCE



Juin 1983 / June 1983

Université de la Colombie Britannique
University of British Columbia
Vancouver

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

COMPTE RENDU

PROCEEDINGS

CONGRES ANNUEL DE 1983

1983 ANNUAL CONFERENCE

Université de la Colombie Britannique

University of British Columbia

le 31 mai - 2 juin 1983

May 31 - June 2, 1983

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

September 20, 1983

The Members
The Canadian Academic Accounting Association

The 1983 Annual Conference of the Canadian Academic Accounting Association was held in Vancouver at the University of British Columbia. The program and papers presented at this meeting are enclosed in this volume for your information.

All papers submitted following the call for papers were reviewed by at least two referees not from the author's institution. Only about half of the submitted papers were accepted for the conference. The assistance of the many members who reviewed papers is gratefully acknowledged.

The conference program and the table of contents follow. Papers which are not included in this volume have been deleted at the request of the authors.

Publication of the Proceedings is made possible by the generosity of Charette, Fortier, Hawey/Touche Ross, Chartered Accountants. Their assistance is most appreciated.

Michael Gibbins

Michael Gibbins
University of British Columbia
1983 Program Chairman

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

le 20 septembre 1983

Aux membres de
L'Association Canadienne des Professeurs de Comptabilité

Le congrès annuel de 1983 de l'Association Canadienne des Professeurs de Comptabilité a eu lieu à l'Université de la Colombie-Britannique à Vancouver. Le programme du congrès et les mémoires présentés à ce congrès sont inclus dans le compte rendu ci-joint pour votre information.

Tous les mémoires qui ont été soumis à la suite de la demande de présentation ont été revus par au moins deux membres de l'Association qui ne provenaient pas de l'université de l'auteur. On n'a accepté que la moitié des mémoires soumis. L'aide des nombreux membres qui ont revu les mémoires est grandement appréciée.

Le programme du congrès et la table des matières sont inclus dans les pages suivantes. Certains mémoires présentés au congrès ont été exclus de ce compte rendu à la demande des auteurs.

Ce compte rendu a été publié grâce à la générosité du cabinet de comptables agréés Charette, Fortier, Hawey/Touche Ross et nous les en remercions vivement.

Michael Gibbins
Université de la Colombie-Britannique
Président du programme du congrès 1983

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CANADIAN ACADEMIC ACCOUNTING ASSOCIATION

1983 CONFERENCE

May 31 - June 2, 1983

UNIVERSITY OF BRITISH COLUMBIA

VANCOUVER, B.C.

TUESDAY, MAY 31

Until 10:00 p.m.	Registration (Student Union Building)
7:30 - 10:00 p.m.	Welcoming Reception (Ruth Blair Lounge, Gage Towers) Hosted by the Institute of Chartered Accountants of British Columbia

WEDNESDAY, JUNE 1

8:30 - 10:30 a.m.	Registration (Student Union Building)
8:15 - 8:30 a.m.	Plenary Session (Theatre 1, Woodward Instructional Resources Centre) Welcoming remarks by C.A.A.A. President John Brennan, University of Saskatchewan, and Dean Peter Lusztig, Faculty of Commerce and Business Administration, University of British Columbia.
8:30 - 10:00 a.m.	Plenary Session (Theatre 1, Woodward Instructional Resources Centre) "Current Research in Judgment Factors" Moderator: Gilles Chevalier Touche Ross & Co., Montreal (President-elect, C.A.A.A.) Presenters: Theodore J. Mock, University of Southern California "Current Research in Auditor Judgment" Jack L. Knetsch, Simon Fraser University "Empirical Disparities Between Decision Makers and Their Advisors in Measures of Loss"

10:00-10:15 a.m. Break

10:15-11:45 a.m. Three Concurrent Sessions

Session A (Woodward Theatre 1)

Moderator:
Peter C. Chant
Touche Ross & Co., Toronto

Presenters:
Howard M. Armitage, University of Waterloo
"Toward a More Complete Accounting Information System - An Application of the REA Data Model"

Stephen H. Spector, CGA-Canada, Vancouver, and Albert S. Dexter, McGill University
"The FASB Contention on Predictability of Cash Flows"

Session B (Woodward Theatre 5)

Moderator:
Yvon Houle, Université du Québec à Trois-Rivières

Presenters:
Ahmed Naciri, Université du Québec à Montréal
"Les politiques de protection et le cash-flow des Multinationales"

Daniel Zéghal, Université d'Ottawa
"Les facteurs qui déterminent le retard dans la production de l'information comptable"

Session C (Woodward Room B75-76)

Moderator:
A. William Smyth
Perrault, Smyth & Company, Vancouver

Presenters:
Richard Burke, University of Saskatchewan, and Nadi Chlala, Université du Québec à Montréal
"Connotative Meaning of Selected Accounting Concepts: A Cross Cultural Study"

S.K. Saha, Memorial University of Newfoundland, T. Shastri, University of Windsor and Y.P. Gupta, University of Manitoba
"Job Satisfaction of Accountants: Antecedents and Consequences"

12:00-1:45 p.m.

Luncheon
(Isabel MacInnes Lounge, Gage Towers)
Sponsored by Certified General Accountants' Association of Canada

Chairman:
Gerald Sinotte, Université du Québec à Trois-Rivières (President, CCGA Research Foundation)

12:45 p.m.

Presentation of two CAAA awards: L.S. Rosen Outstanding Accounting Educator Award and Best Paper Submitted Award. Chaired by John Brennan, University of Saskatchewan (CAAA President).

1:00 p.m.

Guest Speaker: Thomas R. Dyckman, Cornell University will speak on "Doctoral Education in Accounting: The Challenge Ahead".

2:00-3:30 p.m.

Two Concurrent Sessions

Session A (Woodward Theatre 1)

Moderator:
Robert J. Gayton, Peat Marwick Mitchell & Co., Coquitlam, B.C.

Presenters:
Kung H. Chen and Robert H. Raymond, University of Nebraska at Lincoln
"A Comparison of Historial Cost and Supplemental Measures Incorporating Price Changes"

Daniel B. Thornton, University of Toronto and Queen's University
"The Role of GAAP in Canadian Debt Covenants: An Agency Theory Approach" (a report on a CAAA-sponsored research study being conducted by Daniel Thornton and Murray Bryant, University of Toronto).

Session B (Woodward Theatre 5)

Moderator:
Donald G. Carter, School of Chartered Accountancy, Institute of Chartered Accountants of British Columbia.

Presenters:
Mohammad J. Abdolmohammadi, Boston University
"Bayesian Inference in Auditing: An Investigation of Cost Advantage"

Dan A. Simunic and Michael Stein, University of British Columbia
"Audit Risk in a Client Portfolio Context"

3:30-3:45 p.m. — Break

3:45-5:15 p.m. — Plenary Session
(Woodward Theatre 1)

"Current Research in Financial Accounting"

Moderator:
Derek Acland, Carleton University

Presenters:
A. Rashad Abdel-khalik, University of Alberta
"Voluntary Choice of Accounting Methods: The Case of the Switch to LIFO"

Gerald A. Feltham, University of British Columbia
"The Impact of Firm Specific Information in Capital Markets: A Theoretical Analysis"

5:30-7:00 p.m. — Reception
(Ruth Blair Lounge, Gage Towers)
Sponsored by Prentice-Hall of Canada Ltd.

THURSDAY, JUNE 2

8:45-10:15 p.m. — Plenary Session
(Woodward Theatre 1)

Annual Meeting of the Canadian Academic Accounting Association: elections, financial and other reports to members. Meeting of Canadian Region of American Accounting Association.

Chairman:
John Brennan, University of Saskatchewan: President, CAAA

Guest:
Theodore J. Mock, University of Southern California: Director of Research, AAA

10:15-10:30 a.m. — Break

10:30-12:00 noon — Two Concurrent Sessions

Session A (Woodward Theatre 1)

Moderator:
Howard M. Armitage, University of Waterloo

Presenters:
Morton Nelson, University of Windsor
"Cost/Benefit Analysis and Labour Negotiations in Canada"

Philip M.J. Reckers and Susan M. Stolt, Arizona State University
"A Social Psychological Investigation Into Attributions of Illegal Behavior"

Session B (Woodward Theatre 5)

Moderator:
Richard Mattessich, University of British Columbia

Presenters:
Ashton C. Bishop, James Madison University and Kelly F. Gheyara, McMaster University
"The AFUDA Earnings Component in the Electric Utilities Industry: An Information Content Approach"

Thomas R. Dyckman, Cornell University
"The Impact of FASB Statement #2 on Firms' Research and Development Decisions"

12:15-1:30 p.m. Informal Buffet Lunch
(Isabel MacInnes Lounge, Gage Towers)
Sponsored by The Society of Management Accountants of Canada

1:45-3:15 p.m. Two Concurrent Sessions

Two concurrent workshops on educational issues, sponsored by the CAAA Education Committee

Session A (Woodward Theatre 1)

"The Intermediate Course"

Moderator:
Daniel L. McDonald, Simon Fraser University

Panelists:
Lorne R. Bolton, Laventhol & Horwath, Vancouver, and Irene Gordon, Simon Fraser University.

Session B (Woodward Theatre 5)

"The First Auditing Course"

Moderator:
Ross A. Denham, University of Alberta

Panelists:
Rodney J. Anderson, Clarkson Gordon, Toronto,
J. Efrim Boritz, University of Waterloo and
W. Daryl Lindsay, University of Saskatchewan.

3:15-3:30 p.m. Break

3:30-5:00 p.m. Two Concurrent Sessions

Session A (Woodward Theatre 1)

Moderator:
Raymond D. King, University of Oregon

Presenters:
Patricia Hughes, University of British Columbia
"Disclosure, Risk Sharing, and Firm Value Under Asymmetric Information"

Ella Mae Matsumura, University of Wisconsin-Madison
"Optimal Allocation of Multidimensional Effort in Agency Settings: Theory and Applications"

Session B (Woodward Theatre 5)

Moderator:
Sam Digiando, Society of Management Accountants of British Columbia

Presenters:
Bernadette E. Lynn, McMaster University
"The Impact of Current Value Reporting on Internal Performance Measurement"

Donald C. MacCharles, University of New Brunswick
"Manufacturing Costs, Corporate Decision-Making and the Role of Management Accountants"

ASSOCIATION CANADIENNE DES PROFESSEURS DE COMPTABILITÉ

CONGRÈS DE 1983

31 MAI AU 2 JUIN 1983

UNIVERSITÉ DE LA COLOMBIE-BRITANNIQUE

VANCOUVER (C.-B.)

LE MARDI 31 MAI

Jusqu'à 22 h	Inscription (Student Union Building)
19 h 30 - 22 h	Soirée d'accueil (Salle Ruth Blair des résidences Gage Towers) Commanditée par l'Institute of Chartered Accountants of British Columbia.

LE MERCREDI 1er JUIN

8 h 30 - 10 h 30	Inscription (Student Union Building)
8 h 15 - 8 h 30	Séance plénière (Theatre 1, Woodward Instructional Resources Centre) Mots de bienvenue du président de l'A.C.P.C., John Brennan de l'Université de la Saskatchewan et de Peter Lusztig, doyen de la faculté de commerce et d'administration des affaires de l'Université de la Colombie-Britannique.

8 h 30 - 10 h

Séance plénière
(Theatre 1, Woodward Instructional Resources Centre)

"Current Research in Judgment Factors"

Animateur:
Gilles Chevalier
de Charette, Fortier, Hawey/Touche Ross à Montréal,
président élu de l'A.C.P.C.

Orateurs:
Theodore J. Mock de l'Université de la Californie du Sud
"Current Research in Auditor Judgment"

Jack L. Knetsch de l'Université Simon Fraser
"Empirical Disparities Between Decision Makers and their Advisors in Measures of Loss"

10 h - 10 h 15

Pause café

10 h 15 - 11 h 45

Trois séances parallèles

Séance A (Woodward Theatre 1)

Animateur:
Peter C. Chant
de Touche Ross & Co. à Toronto

Orateurs:
Howard M. Armitage de l'Université de Waterloo
"Toward a More Complete Accounting Information System - An Application of the REA Data Model"

Stephen H. Spector de l'A.C.G.L.C. à Vancouver et
Albert S. Dexter de l'Université McGill
"The FASB Contention on Predictability of Cash Flows"

Séance B (Woodward Theatre 5)

Animateur:
Yvon Houle de l'Université du Québec à Trois-Rivières

Orateurs:
Ahmed Naciri de l'Université du Québec à Montréal
"Les politiques de protection et le cash flow des multinationales"

Daniel Zéghal de l'Université d'Ottawa
"Les facteurs qui déterminent le retard dans la production de l'information comptable"

Séance C (Woodward Room B75-76)

Animateur:
A. William Smyth de Perreault, Smyth & Company à Vancouver

Orateurs:
Richard Burke de l'Université de la Saskatchewan et Nadi Chlala de l'Université du Québec à Montréal
"Connotative Meaning of Selected Accounting Concepts: A Cross Cultural Study"

S.K. Saha du Memorial University of Newfoundland, T. Shastri de l'Université de Windsor et Y.P. Gupta de l'Université du Manitoba
"Job Satisfaction of Acountants: Antecedents and Consequences"

12 h - 13 h 45

Déjeuner
(Salle Isabel MacInnes des résidences Gage Towers)
Commandité par l'Association des comptables généraux licenciés du Canada

Président:
Gérald Sinotte de l'Université du Québec à Trois-Rivières, président de la Fondation de recherche de l'A.C.G.L.C.

12 h 45

Deux prix seront décernés: tout d'abord le prix L.S. Rosen décerné à un éducateur exceptionnel et le prix pour le meilleur mémoire présenté au congrès. Cette présentation sera faite par le président de l'A.C.P.C., John Brennan de l'Université de la Saskatchewan.

13 h

L'orateur invité, Thomas R. Dyckman de l'Université Cornell nous entretiendra de: "Doctoral Education in Accounting: The Challenge Ahead".

14 h - 15 h 30

Deux séances parallèles

Séance A (Woodward Theatre 1)

Animateur:
Robert J. Gayton de Peat Marwick Mitchell & Cie à Coquitlam (C.-B.)

Orateurs:
Kung H. Chen et Robert H. Raymond de l'Université du Nebraska à Lincoln
"A comparison of Historical Cost and Supplemental Measures Incorporating Price Changes"

Daniel B. Thornton de l'Université de Toronto et de l'Université Queen's
"The Role of GAAP in Canadian Debt Covenants: An Agency Theory Approach"
(rapport sur une étude de recherche commanditée par l'A.C.P.C. et menée par Daniel Thornton et Murray Bryant de l'Université de Toronto)

Séance B (Woodward Theatre 5)

Animateur:
Donald G. Carter du School of Chartered Accountancy de l'Institute of Chartered Accountants of British Columbia

Orateurs:
Mohammad J. Abdolmohammadi de l'Université de Boston
"Bayesian Inference in Auditing: An Investigation of Cost Advantage"

Dan A. Simunic et Michael Stein de l'Université de la Colombie-Britannique
"Audit Risk in a Client Portofolio Context"

15 h 30 - 15 h 45

Pause café

15 h 45 - 17 h 15

Séance plénière (Woodward Theatre 1)

"Current Research in Financial Accounting"

Animateur:
Derek Acland de l'Université Carleton

Orateurs:
A. Rashad Abdel-khalik de l'Université de l'Alberta
"Voluntary Choice of Accounting Methods: The Case of the Switch to LIFO"

Gerald A. Feltham de l'Université de la Colombie-Britannique
"The Impact of Firm Specific Information in Capital Markets: A Theoretical Analysis".

17 h 30 - 19 h

Réception
(Salle Ruth Blair des résidences Gage Towers)
Commanditée par Prentice-Hall of Canada Ltd.

LE JEUDI 2 JUIN

8 h 45 - 10 h 15

Séance plénière
(Woodward Theatre 1)

Assemblée annuelle de l'Association canadienne des professeurs de comptabilité comportant la présentation de rapports financiers et d'autres types de rapports aux membres et aux candidats élus. Assemblée de la section canadienne de l'American Accounting Association.

Président:
John Brennan de l'Université de la Saskatchewan, président de l'A.C.P.C.

Orateur invité:
Theodore J. Mock de l'Université de la Californie du Sud, directeur de recherche de l'AAA

10 h 15 - 10 h 30

Pause café

10 h 30 - 12 h

Deux séances parallèles

Séance A (Woodward Theatre 1)

Animateur:
Howard M. Armitage de l'Université de Waterloo

Orateurs:
Morton Nelson de l'Université de Windsor
"Cost/Benefit Analysis and Labour Negotiations in Canada"

Philip M.J. Reckers et Susan M. Stolt de l'Université de l'État de l'Arizona
"A Social Psychological Investigation Into Attributions of Illegal Behavior"

Séance B (Woodward Theatre 5)

Animateur:
Richard Mattessich de l'Université de la Colombie-Britannique

Orateurs:
Ashton C. Bishop de l'Université James Madison et Kelly F. Gheyara de l'Université McMaster
"The AFUDC Earnings Component in the Electric Utilities Industry: An Information Content Approach"

Thomas R. Dyckman de l'Université Cornell
"The Impact of FASB Statement No. 2 on Firms' Research and Development Decisions"

12 h 15 - 13 h 30

Déjeuner buffet
(Salle Isabel MacInnes des résidences Gage Towers)
Commandité par la Société des comptables en management du Canada

13 h 45 - 15 h 15

Deux séances parallèles

Deux ateliers de travail parallèles commandités par le Comité d'enseignement de l'A.C.P.C.

Séance A (Woodward Theatre 1)

"The Intermediate Course"

Animateur:
Daniel L. McDonald de l'Université Simon Fraser

Participants:
Lorne R. Bolton de Laventhol & Horwath à Vancouver et Irene Gordon de l'Université Simon Fraser

Séance B (Woodward Theatre 5)

"The First Auditing Course"

Animateur:
Ross A. Denham de l'Université de l'Alberta

Participants:
Rodney J. Anderson de Clarkson Gordon à Toronto
J. Efrim Boritz de l'Université de Waterloo et W. Daryl Lindsay de l'Université de la Saskatchewan

15 h 15 - 15 h 30

Pause café

15 h 30 - 17 h

Deux séances parallèles

Séance A (Woodward Theatre 1)

Animateur:
Raymond D. King de l'Université de l'Oregon

Orateurs:
Patricia Hughes de l'Université de la Colombie-Britannique
"Disclosure, Risk Sharing and Firm Value under Asymmetric Information"

Ella Mae Matsumura de l'Université du Wisconsin à Madison
"Optimal Allocation of Multidimensional Effort in Agency Settings: Theory and Applications"

Séance B (Woodward Theatre 5)

Animateur:
Sam Digiando de la Society of Management Accountants of British Columbia

Orateurs:
Bernadette E. Lynn de l'Université McMaster
"The Impact of Current Value Reporting on Internal Performance Measurement"

Donald C. MacCharles de l'Université du Nouveau-Brunswick
"Manufacturing Costs, Corporate Decision-Making and the Role of Management Accountants"

ABSTRACTS OF THE 22 RESEARCH PAPERS PRESENTED AT THE CONFERENCE
(IN ORDER PRESENTED)

Theodore J. Mock
University of Southern
California

Current Research in Auditor Judgment

Auditor judgment is a topic that is receiving increasing attention from both academic and practice researchers. The most convincing evidence of this is probably the numerous academic conferences and symposia that deal either directly or indirectly with behavioral audit topics. Within the past 18 months such conferences have been conducted at the following universities: Kansas, North Carolina, Illinois, Southern California, and Georgia.

The purpose of this presentation is twofold. First, I shall summarize some current research into auditor judgment that I am currently involved in or that has recently been completed. Included is a pilot study of auditors' information search process in an internal control evaluation task (Olde Oak Case Revised) which has been implemented on a micro-computer. Also, I plan to report the initial results of a protocol study of expert auditors as they plan an analytical review and then evaluate the significance of the completed analytical review to subsequent audit procedures. Included in this study will be a comparison with auditors who take a statistical (primarily regression analysis) approach to the same task.

Time permitting, I will also summarize some of the key ideas from the D H & S / USC Audit Judgment Symposium held earlier this year. The approach will be based upon the model of the audit process and audit judgment presented by Paul Watkins at the Symposium.

Jack L. Knetsch
Simon Fraser University

EMPIRICAL DISPARITIES BETWEEN DECISION MAKERS AND THEIR ADVISORS IN MEASURES OF LOSS

Recent studies have revealed an unexpected disparity between willingness-to-pay and compensation-demanded measures of economic loss. Contrary to the usual presumptions of analysts, individuals have consistently been found to value foregone gains at a small fraction of their evaluation of actual losses. Further evidence of this difference is presented here, together with the results from a series of experiments indicating that advisors or agents acting on behalf of others evaluate entitlements differently than individuals acting on their own behalf. Surveys involving hypothetical questions and an experiment involving real money exchanges produced similar results. Given the wide array of decisions made by agents, a finding that they weigh losses differently from people they act for suggests that their choices may compromise welfare positions. Evidence of such differences may also be cause for concern among advisors.

Howard M. Armitage
University of Waterloo

TOWARD A MORE COMPLETE ACCOUNTING INFORMATION SYSTEM - AN APPLICATION OF THE REA DATA MODEL

Building on earlier research efforts in the area of disaggregate and multidimensional accounting information systems, this paper applies a generalized accounting data model, the REA (resources, events, agents) model, to a particular research setting in marketing and distribution. The REA framework is used (1) to identify and model the entities, relationships and attributes associated with individual views and (2) to develop an enterprise view of data which can be mapped to any existing database management system. While emphasis is on the modeling of data requirements, consideration is also given to procedural aspects.

Stephen H. Spector
CGA-Canada
Albert S. Dexter
McGill University

THE FASB CONTENTION ON PREDICTABILITY OF CASH FLOWS

This study assesses the contention that past reported accounting income (earnings) is a better predictor of future cash flows than are past cash flows. Moreover, it tries to determine what should constitute 'earnings' and 'cash flows'. The study also examines the issue of whether the relationship between income and cash flows, or cash flows and cash flows, is better served in nominal or real terms. The examination involves an empirical analysis utilizing regression techniques on twenty-eight Canadian firms.

Ahmed Naciri
University of Quebec in Montreal

Les politiques de protection et le cash-flow des Multinationales.

The adoption of the Statement No.8 (FAS #8) "Accounting for the Translation of Foreign Currency Financial Statement" in October 29, 1975, was criticized by many American Multinational Firms (AMF) which argued that this standard would result in violent changes in their reported earnings and would penalize their share prices. The modern financial theory, on the other hand, would argue that

a third situation may have occured i.e. the change in accounting standard may have changed the AMF's actions and creates situations in which their management undertakes smoothing policies (1) and/or sub-optimal strategies (2) which will reduce the market of the firm. This paper examines the hypothesis that investors will sort AMF by the level of their smoothing policies and sub-optimal strategies. AMF which don't undertake smoothing policies or sub-optimal strategies will not suffer an increase in their cost of raising funds. While AMF which undertakes them will be penalized by the market.

The conclusion of this paper is: The relationship between AMF's smoothing policies (and/or sub-optimal strategies) and market reaction is statistically significant.

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(1) We define by smoothing policy every operation taken by the firm, whose sole purpose is to offset the accounting impact of the FAS #8. See Evan et al (1977) for more detail about those operations.

(2) We define by sub-optimal strategy every investment strategy which doesn't respect the net present value criteria.

Daniel Zéghal
University of Ottawa

TIMELINESS OF ACCOUNTING INFORMATION AND ITS DETERMINANTS

Several factors related to information production, accounting practices and the nature of the firm and its operations may affect timeliness in the production and disclosure of accounting information.

According to the evidence reported in this article, there are significant differences concerning the delay taken by different firms in publishing their interim and annual financial statements. These differences may be explained by the four variables of industry, industrial concentration, firm size and risk.

Richard Burke
University of Saskatchewan
Nadi Chlala
University of Quebec at Montreal

CONNOTATIVE MEANING OF SELECTED ACCOUNTING CONCEPTS: A CROSS CULTURAL STUDY

This study examines the potential impact of culture, language and other regional differences in Canada on connotative meaning of selected accounting concepts. Semantic differential scales are used to measure the perceived meaning of two classes of concepts - financial statement terminology and traditional/non-traditional accounting concepts - for groups of Anglophone and Francophone practitioners and students. The results suggest that (1) a common

semantic structure may exist, and (2) substantial agreement prevails among all groups with respect to connotative meaning.

S.K. Saha
Memorial University
T. Shastri
University of Windsor
Y.P. Gupta
University of Manitoba

JOB SATISFACTION OF ACCOUNTANTS:

ANTECEDENTS AND CONSEQUENCES

This paper provides an integrative conceptual framework encompassing individual, job and organizational variables for the study of job satisfaction of accountants in public and private organizations. Certain antecedents and consequences of job satisfaction have been identified and discussed. Some exploratory data from the authors' continuing investigation of job satisfaction of Canadian accountants are also reported here. Multiple regression analysis of data revealed that job characteristics and certain organizational characteristics had significant influence on the job satisfaction of subjects under study. Implications of these findings are discussed.

Daniel B. Thornton
University of Toronto and Queen's University
Murray J. Bryant
University of Toronto

"THE ROLE OF GAAP IN CANADIAN DEBT COVENANTS:

AN AGENCY THEORY APPROACH"

Why do some bond indentures rely on GAAP, whereas others utilize tailor - made accounting rules? Hypotheses are developed from Agency Theory, assuming costly contracting (including negotiation, monitoring and enforcement) but efficient markets for both debt and equity capital. Data from prospectuses of Canadian lessees support the hypothesis that the choice between GAAP and other accounting systems depends on both firm - specific and insitutional factors. The presence of a leasing pronouncement, by itself, had no discernible effect.

Kung Chen
Robert Raymond
University of Nebraska-Lincoln

A COMPARISON OF HISTORICAL COST AND

SUPPLEMENTAL MEASURES INCORPORATING PRICE CHANGES

Bivariate product moment and multivariate canonical correlations are applied to examine the association between selected financial ratios computed based on historical cost data and the same ratios computed based on the supplemental data

incorporating price changes reported by 223 nonfinancial firms to comply with the requirement of the FAS 33. The results show the additional data required by FAS 33 contain some unique information which is not conveyed by the historical cost data. The amount of this information is, however, rather limited. For the firms examined in this study, almost all of the variations of constant dollar financial ratios are also represented by the historical cost ratios while three of the seven current cost financial ratios examined failed to be adequately represented by the historical cost ratio. These three ratios are depreciation expense to plant, property, and equipment, gross margin to sales, and selling and administrative expense to sales. Regardless of the type of measurement basis used to incorporate price changes into accounting data, the resultant measures of highly aggregated financial ratios such as net income to total assets and net income to sales are significantly associated with those of historical cost measures while substantially weaker associations are shown between price change incorporated financial ratios and historical cost ratio on less aggregated measures such as depreciation expense to plant, property, and equipment.

M.J. Abdolmohammadi
Boston University

BAYESIAN INFERENCE IN AUDITING:

AN INVESTIGATION OF COST ADVANTAGE

One hundred and twenty practicing auditors were divided into two experimental groups: classical and Bayesian. Both groups were trained and provided with a detailed internal control case study and were requested to make sample size desisions. The results of the study generally support the notion that use of Bayesian inference in auditing would result in cost savings. That is, Bayesian auditors planned smaller samples than those using the classical approach.

D.A. Simunic
M. Stein
University of British Columbia

AUDIT RISK IN A CLIENT

PORTFOLIO CONTEXT

When an auditor contracts with a client to perform an examination of financial statements, he faces an uncertain return from the engagement. The uncertainty arises because the financial statements can contain material errors or omissions which may not be detected during the audit but which may be revealed after an audit report has been issued. Such ex post revelation may lead to uninsured auditor losses. Since an auditor performs many audits during a period, he holds a portfolio of risky assets. This paper analyzes the determinants of audit risk using mean-variance portfolio theory. The usefulness of Beta, the systematic risk of a client's common shares, as a surrogate audit risk measure is tested by its association with audit fees paid by a sample of companies listed on the New York Stock Exchange.

A. Rashad Abdel-khalik
University of Alberta and
University of Florida

VOLUNTARY CHOICE OF ACCOUNTING METHODS

THE CASE OF SWITCH TO LIFO

The LIFO method of inventory valuation is accepted for tax purposes in the U.S. If chosen for tax purposes, however, LIFO must also be used for general purpose reporting. Under inflationary conditions, a stable or growing inventory levels, and a positive marginal tax rate, LIFO results in reporting a lower accounting income, but reduces the present value of tax payments. Hence, the economic value of the firm increases.

In 1974, a large number of U.S. corporations switched to LIFO, but many others maintained LIFO or average cost method. The research question of interest relates to investigating the motivation that underlies the adoption of LIFO by some companies and the lack of interest in saving taxes by others. This paper evaluates some of the factors that are consistent with the implications of agency theory. The results suggest a pattern which appears to support the proposition relating to minimization of political costs.

Gerald A. Feltham
University of British Columbia

THE IMPACT OF FIRM-SPECIFIC INFORMATION

IN CAPITAL MARKETS: A THEORETICAL ANALYSIS

In the past decade there have been a wide variety of theoretical analyses dealing with the impact of information in various multi-person settings, including capital markets. This paper draws together and extends the results of a number of these analyses, interpreting them in terms of firm-specific information within the context of an economy in which there is uncertainty with respect to both economy-wide and firm-specific events. Accounting reports are more likely to provide new information about firm-specific events than economy-wide events. Consequently, by adopting this focus we gain insights into the potential impact of accounting reports. Consideration is given to both the decision-facilitating and contract-facilitating role of firm-specific information. The paper focuses on public information, but some consideration is given to the incentives to privately acquire and publicly reveal firm-specific information.

Morton Nelson
University of Windsor

COST/BENEFIT ANALYSIS AND LABOUR NEGOTIATIONS

IN CANADA

Much has been written in the accounting literature about cost/benefit analysis and much has been written in the industrial relations literature about labour

negotiations. This paper brings these two topics together by reporting on the results of a survey to determine the extent to which cost/benefit analysis has been applied in labour negotiations.

Philip M.J. Reckers
Susan M.J. Stolt
Arizona State University

A SOCIAL PSYCHOLOGICAL INVESTIGATION

INTO ATTRIBUTIONS OF ILLEGAL BEHAVIOUR

The study was conducted to investigate the application of "attribution theory" to tax evasion behaviour, and to consider economic, equity and ethical factors as moderators in that application. Seventy-two senior undergraduate business students each read eight tax evasion cases and responded to questions concerning 1) the seriousness of the tax offense and 2) whether or not the subject would pursue a similar action if placed in the same situation. In four of the cases the factors manipulated were consistency (high/low) and need (high/low), and in the other cases the factors of consensus (high/low) and amount (high/low) were manipulated. Consistency and consensus are based in attribution theory: need and amount are economic based variables. Subjects responded also to questions concerning the perceived equity of the federal tax system, and regarding their personal moral posture.

Judgements about the seriousness of tax evasion are related to how consistently an individual evades taxes; the perceived need of the offender; the amount; and the perceived commonality of the tax evasion by the rest of the taxpayer community. Considered less serious are a one time tax evasion offense, tax evasion by a person perceived to have a greater financial need, or a common evasion scheme of a small amount. Judgments about anticipated personal behavior are related to the consistency of previous tax evasion behavior; the amount of the offense and the consensus of others in similar evasion schemes. Evasion behavior would be anticipated if previous attempts had been successful or if the dollar amount was low and others were regularly committing similar offenses. Neither the subject's equity or ethical perceptions were found to have an effect on their responses.

Ashton C. Bishop
James Madison University
Kelly F. Gheyara
McMaster University

THE AFUDC EARININGS COMPONENT IN THE ELECTRIC UTILITIES

INDUSTRY: AN INFORMATION CONTENT APPROACH

The Allowance for Funds Used During Construction (AFUDC) account is a non-cash earnings component, which is included by electric utility companies in their reported incomes and represents imputed interest on capital expenditures for plant construction. Its recovery is deferred until the plant becomes operational. The economic propriety of using this practice has been widely debated in the past. It can be hypothesized that if financial statement users, represented by market investors, consider the AFUDC model to be prudent, the

reported earnings would tend to have the highest association with security returns. This paper used a time series residual returns model to study three income measures and provided evidence that the AFUDC earnings were most consistent with information used in setting equilibrium stock prices.

J. Elliott
Cornell University
G. Richardson
University of British Columbia
T. Dyckman
Cornell University
R. Dukes
University of Washington

THE IMPACT OF SFAS NO. 2 ON FIRM EXPENDITURES ON RESEARCH AND DEVELOPMENT

This research directly examines firm expenditures on R & D over an eight-year period in an attempt to resolve recent conflicting results concerning the impact of mandated expensing under SFAS NO. 2. Our present research identifies significant relative declines in R & D expenditures for capitalizers, compared to firms that continually expensed R & D over time, both among listed and OTC firms. We also find evidence of a selective decline in R & D expenditures prior to the issuance of SFAS No. 2 in 1974. This finding and the willingness of prior capitalizers to switch to SFAS No. 2 rules prior to the mandatory date suggest the step from association to causation is not trivial.

In the process of arriving at our conclusions we develop an accounting choice model to assess the characteristics that differentiate firms by accounting choice on this issue. This leads to one potential explanation of our findings. The results are consistent with capitalizing firms being generally weaker on average and the decline in R & D expenditures for these firms is a function of this weakness coupled with generally unfavorable economic conditions during the period 1970-1977, including the recession of 1974 in the United States.

Patricia Hughes
University of British Columbia

DISCLOSURE, RISK SHARING, AND FIRM VALUE UNDER ASYMMETRIC INFORMATION

This paper develops a signaling model to resolve the informational asymmetry between the entrepreneur of a firm making a first public issue of common stock and the market. Two signals, ownership in the firm and direct disclosure, are used by the entrepreneur to communicate his information about the mean and variance of future cash flows. Both signals are credible because they are costly to the entrepreneur: firm ownership because it causes him to hold an undiversified portfolio, and direct disclosure because of costly verification by the underwriter.

Ella Mae Matsumura
University of Wisconsin-Madison

OPTIMAL ALLOCATION OF MULTIDIMENSIONAL EFFORT IN AGENCY SETTINGS: THEORY AND APPLICATIONS

Agency theory has been used to examine the problem of stewardship of an agent who makes decisions on behalf of a principal who cannot observe the agent's actual effort. Effort is assumed to be personally costly to expend. Therefore, if an agent acts in his or her own interests, there is a "moral hazard" problem; the agent may exert an amount of effort that is less than the agreed amount. This paper examines the agency problem when the agent's effort is multidimensional. Examples are situations where a manager controls several production processes or manages several divisions of a firm. Optimal compensation schemes are characterized, and the results suggest that certain compensation schemes that are widely advocated may not be optimal. The special case of additive effort (e.g., when effort is measured by time spent on a task) is examined in detail. The results have potential implications for a certain class of multiperiod agency problems.

Bernadette E. Lynn
McMaster University

THE IMPACT OF CURRENT VALUE REPORTING ON INTERNAL PERFORMANCE MEASUREMENT

How current value reporting (CVR) affects users of financial statements has been debated extensively. This article attempts to analyze the possible impact that CVR has on internal decisions, especially those involved with performace measurements. Some performance measures used internally by multidivisional firms are reviewed and analyzed in the context of CVR.

D.C. MacCharles
University of New Brunswick

MANUFACTURING COSTS, CORPORATE DECISION-MAKING AND THE ROLE OF MANAGEMENT ACCOUNTANTS

Unit manufacturing costs in Canada are higher than for foreign-based competitors because of greater product diversity, smaller scale and higher inflation. Accountants in Canada are not as fully informed on these issues as they need to be if they are to effectively advise management on cost-reducing strategies in an increasingly competitive world.

RESUMES DES 22 MEMOIRES DE RECHERCHE PRESENTES AU CONGRES (DANS L'ORDRE OU ILS ONT ETE PRESENTES)

Theodore J. Mock
University of Southern California

Recherche sur le jugement du vérificateur

Le jugement du vérificateur est un sujet qui recoit de plus en plus d'attention de la part des chercheurs du milieu universitaire et de la pratique. La meilleure preuve de cet intérêt est sans doute les nombreux séminaires et congrès qui abordent directement ou indirectement la prise de décision par le vérificateur. Ainsi, au cours des 18 derniers mois, des congrès traitant de ce sujet se sont tenus aux univeritès du Kansas, North Carolina, Illinois, Southern California, et Georgia.

L'objectif de cette présentation est double. Dans un premier temps, je vais résumer quelques projets de recherche sur lesquels je travaille présentement ou que j'ai terminés récemment. Ces projets de recherche comprennent une étude préliminaire utilisant un micro ordinateur pour étudier le processus de recherche de l'information par le vérificateur lors de l'évaluation du contrôle interne (Version revisée du cas Olde Oak). Je prévois aussi faire part des résultats préléminaire d'une recherche utilisant la méthode du "verbal protocol" pour déterminer comment les vérificateurs d'expérience planifient les procédés d'examen analytique et déterminent leur effets sur l'étendue du travail de vérification. Cette étude compare aussi les vérificateurs qui utilisent les méthodes statistiques (principalement l'analyse de régression) avec ceux qui utilisent une approche non statistique.

Si le temps le permet, je vais aussi donner un compte rendu des principaux points qui ont été abordé lors du DH&S/ USC Audit Judgment Symposium qui s'est tenu plus tôt cette année. Ce compte rendu sera basé sur le modéle du processus de vérification et de la prise de décision présenté par Paul Watkins a ce symposium.

Jack L. Knetsch

DIVERGENCES EMPIRIQUES ENTRE LES DÉCIDEURS ET LEURS CONSEILLERS EN CE QUI A TRAIT AUX CALCULS DES PERTES

De récentes études ont démontré un écart imprévu entre la volonté

de payer et le calcul des pertes économiques subies lors de l'établissement des salaires exigés. A l'inverse des hypothèses habituelles des analystes, les gains prévus sont toujours évalués à un faible pourcentage des pertes réelles. Une autre preuve de cet écart est présenté dans ce mémoire ainsi que les résultats d'une série d'expériences qui démontrent que les conseillers ou les mandataires d'autres personnes évaluent les droits différemment de ceux qui agissent en leur propre nom. Des enquêtes dans lesquelles des questions hypothétiques étaient formulées et une expérience mettant en jeu des échanges réels d'argent ont produit les mêmes résultats. Etant donné la grande diversité des décisions prises par les mandataires et le fait qu'ils ne considèrent pas les pertes de la même façon que les personnes pour lesquelles ils agissent, il s'ensuit que leurs choix peuvent compromettre les décisions relatives à la rémunération. La preuve de ces écarts peut également être cause de souci parmi les conseillers.

Howard M. Armitage
University of Waterloo

La mise au point d'un système d'information comptable plus complet grâce au modèle REA

Cet article, qui repose essentiellement sur des recherches effectuées précédemment dans le domaine des systèmes d'information comptable pris séparément mais qui comportent de multiples facettes, nous renseigne sur les applications du modèle REA (ressources, événements, agents) dans le contexte d'une recherche sur la mise en marché et la distribution. Le modèle REA sert non seulement à déterminer quel type de personnes peuvent avoir un point de vue particulier, quelles sont les caractéristiques de ces personnes et leurs relations avec les autres afin de réaliser un profil général, mais aussi à doter l'entreprise d'une conception des données qui puisse se refléter dans n'importe quel système de gestion de base des données. Bien que l'on porte un intérêt particulier à la détermination des exigences en matière de données, les questions de traitement n'ont pas été oubliées.

Stephen H. Spector
A.C.G.L.C.
Albert S. Dexter
Université McGill

L'AFFIRMATION DU FASB SUR LA PRÉVISION DES MOUVEMENTS DE TRÉSORERIE

Cette étude évalue l'affirmation selon laquelle le bénéfice comptable déclaré au cours des exercices antérieurs est un meilleur indice de prévision des mouvements de trésorerie que les flux de l'encaisse des exercices passés. De plus, on essaie de déterminer les éléments que devraient comprendre le "bénéfice" et les "mouvements de l'encaisse" et d'établir s'il est préférable d'indiquer le rapport entre le bénéfice et les mouvements de trésorerie en dollars d'origine ou en dollars réels. Cette étude a été menée dans vingt-huit entreprises canadiennes grâce à une analyse empirique et suivant des techniques de régression.

Ahmed Naciri
Université du Québec à Montréa
Montréal (Québec)

Les politiques de protection et le cash flow des multinationales

L'adoption, le 29 octobre 1975, de l'énoncé n°8 (FAS No. 8) intitulé "Accounting for the Translation of Foreign Currency Financial Statement" a été critiquée par de nombreuses multinationales américaines qui ont déclaré que cet énoncé entraînerait des modifications radicales dans le bénéfice déclaré et qu'il aurait une influence néfaste sur les prix par action. Par ailleurs, selon la théorie financière moderne, les investisseurs devraient être en mesure de distinguer les fluctuations reliées à la situation économique de l'entreprise. Dans cette étude, nous affirmons qu'une troisième situation peut se produire, c'est-à-dire que l'adoption d'une nouvelle norme comptable a modifié les mesures prises par les multinationales et créé des situations qui ont donné lieu à l'établissement d'opérations de lissage (1) par la direction ou de stratégies sous-optimales (2) qui réduisent la valeur marchande de l'entreprise. Nous étudions l'hypothèse que les investisseurs choisiront les multinationales selon le niveau de leurs opérations de lissage et de leurs stratégies sous-optimales. Les multinationales qui ne mettent pas en oeuvre ces opérations ou ces stratégies ne verront pas leur coût de financement s'accroître tandis que les autres seront pénalisées par le marché.

Ce mémoire conclut que le rapport entre les opérations de lissage des multinationales (ou les stratégies sous-optimales) et la réaction du marché est statistiquement important.

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1) Nous définissons l'opération de lissage comme toute opération fictive qui n'aurait pour but que d'essayer d'atténuer les effets comptables du FAS No. 8. Voir Evan et al (1977) pour des détails supplémentaires sur ces opérations.

2) Nous définissons une stratégie sous-optimale comme toute stratégie d'investissement qui ne respecterait pas les critères de la valeur actuelle nette.

Daniel Zéghal

LES FACTEURS QUI DÉTERMINENT LE RETARD DANS LA PRODUCTION DE L'INFORMATION COMPTABLE

Plusieurs facteurs reliés à la production de l'information, aux conventions comptables ainsi qu'à la nature de l'entreprise et de ses activités peuvent influer sur le délai de production et de présentation de l'information comptable.

Selon les faits probants mentionnés dans cet article, il existe plusieurs différences importantes concernant le délai de publication des états financiers annuels et périodiques dans différents cabinets. Ces différences s'expliquent par les quatre variables suivantes soit l'industrie, la concentration industrielle, la taille de l'entreprise et les risques liés à l'entreprise.

Richard Burke
Nadi Chlala

SIGNIFICATION DE CONCEPTS COMPTABLES CHOISIS: UNE ÉTUDE CONTRE-CULTURELLE

Les répercussions éventuelles des différences culturelles, langagières et régionales au Canada sur la signification de concepts comptables choisis sont analysées dans ce mémoire. Des échelles différentielles sémantiques servent à mesurer la signification donnée par des groupes de praticiens et d'étudiants anglophones et francophones à deux catégories de concepts, soit la terminologie des états financiers et les concepts comptables traditionnels et non traditionnels. Les résultats laissent entrevoir 1) l'existence possible d'une structure sémantique commune et 2) un accord presque unanime sur la signification dans tous les groupes.

S.K. Saha
T. Shastri
Y.P. Gupta

LA SATISFACTION AU TRAVAIL DES EXPERTS-COMPTABLES: ANTÉCÉDENTS ET CONSÉQUENCES

Ce mémoire fournit un cadre conceptuel englobant les variables individuelles, organisationnelles et relatives à l'emploi se rapportant à l'étude de la satisfaction au travail d'experts-comptables oeuvrant au sein de sociétés fermées et ouvertes. Certains antécédents et centaines conséquences de la satisfaction au travail ont été identifiés et discutés. Figurent également des données que les auteurs ont recueillies au cours de leur recherche continue sur la satisfaction au travail des experts-comptables canadiens. De nombreuses analyses de régression ont révélé que les caractéristiques de poste et des caractéristiques organisationnelles ont une influence déterminante sur la satisfaction au travail des sujets à l'étude. Les conséquences de ces résultats sont discutés dans le présent mémoire.

Daniel B. Thornton
Université Queen's et Université de Toronto

Murray J. Bryant
Université de Toronto

Le rôle des P.C.G.R. dans les clauses restrictives au Canada: selon la théorie des mandataires

Pourquoi certains actes de fiducie se fondent-ils sur les P.C.G.R., tandis que d'autres utilisent des règles comptables sur mesure? Les hypothèses formulées s'appuient sur la théorie des mandataires en supposant des coûts d'impartition élevés (y compris la négociation, le contrôle et la mise en application) mais des marchés de capitaux et de capital de risque efficients. Selon des données figurant dans les prospectus de locataires canadiens, il semble que le choix entre les P.C.G.R. et d'autres méthodes comptables soit

relié à des facteurs précis et institutionnels. L'existence d'un exposé-sondage sur les opérations de crédit-bail n'a aucun effet perceptible.

Kung Chen
Robert Raymond

Une comparaison du coût d'origine et des mesures supplémentaires comprenant les fluctuations de prix

Le moment du produit à deux variables et les corrélations à variables multiples sont appliqués pour examiner l'association entre des ratios financiers choisis calculés selon des données au coût d'origine et les mêmes ratios calculés selon les données supplémentaires comprenant les fluctuations de prix déclarées par 223 entreprises non financières et ce, afin de satisfaire aux exigences du FAS 33. Les résultats indiquent que les données supplémentaires requises par le FAS 33 renferment des renseignements uniques qui ne sont pas communiqués dans les données au coût d'origine. La somme de ces renseignements est, toutefois, plutôt limitée. En ce qui a trait aux entreprises ayant fait l'objet de l'étude, presque toutes les fluctuations des ratios financiers en dollars constants sont également représentées par les ratios au coût d'origine tandis que trois des sept ratios financiers au coût actuel examinés n'étaient pas représentés de façon appropriée par le ratio au coût d'origine. Ces trois ratios sont l'amortissement des immobilisations, la marge bénéficiaire brute ainsi que les frais de vente et d'administration. Sans tenir compte de la méthode de calcul utilisée pour inclure les fluctuations de prix dans les données comptables, les mesures qui résultent des ratios financiers hautement agrégés comme le rapport entre le bénéfice net et l'actif total et le rapport entre le bénéfice net et le chiffre d'affaires sont très étroitement associées aux mesures au coût d'origine tandis que les ratios financiers incorporant les fluctuations

sont plus faiblement associés au ratio au coût d'origine pour ce qui est des mesures modérément aggrégées comme le rapport entre l'amortissement et les immobilisations.

M.S. Abdolmohammadi

INFÉRENCE BAYÉSIENNE EN VÉRIFICATION

UNE ANALYSE COÛTS-AVANTAGES

Cent vingt vérificateurs praticiens ont été divisés en deux groupes d'essai: un groupe devant utiliser les méthodes pratiques et l'autre les méthodes bayésiennes. Les deux groupes ont reçu une formation; on leur a remis une étude de cas détaillée sur le contrôle interne et on leur a demandé de choisir la taille de l'échantillon. Les résultats de cette étude confirment en général la notion que l'inférence bayésienne en vérification entraînerait des économies de coût. Les vérificateurs utilisant la méthode bayésienne ont prévu des échantillons plus petits que ceux qui se sont servis de la méthode classique.

D.A. Simunic
M. Stein

Risque lié à la vérification de clients

Lorsqu'un vérificateur s'engage auprès d'un client à effectuer la vérification des états financiers, il ne peut connaître avec certitude les conséquences de sa mission. Cette incertitude découle du fait que les états financiers peuvent contenir des erreurs ou des omissions importantes qui n'ont pas été décelées au cours de la vérification mais qui peuvent l'être après l'émission du rapport des vérificateurs. Cette découverte ex post peut entraîner des pertes non assurées. Comme un vérificateur exécute plusieurs vérifications, il détient un portefeuille de risque. Ce mémoire analyse les

déterminants des risques liés à la vérification selon la théorie du portefeuille relative aux fluctuations des ressources. L'utilité de bêta, soit le risque systématique lié aux actions ordinaires d'un client, à titre de mesure de substitut du risque de vérification, est sondée en raison de l'association avec les honoraires de vérification versés par un échantillon de sociétés cotées à la Bourse de New York.

A. Rashad Abdel-khalik
Université de l'Alberta et Université de la Floride

CHOIX VOLONTAIRE DE MÉTHODES COMPTABLES: LE CAS DE L'ADOPTION DE LA MÉTHODE DE L'ÉPUISEMENT À REBOURS

La méthode de l'épuisement à rebours de l'évaluation des stocks est acceptée aux fins de l'impôt aux États-Unis. Si, toutefois, elle est choisie aux fins de l'impôt, elle doit également être utilisée pour la communication de l'information financière générale. Dans un contexte inflationniste, si le niveau des stocks est stable ou en hausse et en supposant un taux marginal d'impôt positif, l'utilisation de la méthode de l'épuisement à rebours entraîne la comptabilisation d'un produit comptable moins élevé et la réduction de la valeur actuelle des paiements d'impôt. Par conséquent, la valeur économique de l'entreprise s'accroît.

En 1974, de nombreuses sociétés américaines ont adopté la méthode de l'épuisement à rebours mais d'autres ont conservé la méthode de l'épuisement successif ou celle du coût moyen. Nous avons cherché à connaître la raison pour laquelle certaines sociétés ont adopté la méthode de l'épuisement à rebours, tandis que d'autres n'ont pas semblé intéressées par l'économie d'impôt. Ce mémoire évalue certains des facteurs reliés aux répercussions de la théorie des mandataires. Les résultats suggèrent un modèle qui appuie la proposition relative à la minimisation des coûts politiques.

Gerald A. Feltham

L'effet de l'information propre à l'entreprise sur les marchés financiers: une analyse théorique

Au cours de la dernière décennie, d'innombrables analyses théoriques ayant trait à l'effet de l'information dans divers contextes, y compris les

marchés financiers, ont été menées. Ce mémoire réunit les résultats de certaines de ces analyses et les interprète en termes de l'information propre à l'entreprise dans le contexte d'une situation économique incertaine sur le plan général et sur le plan des événements susceptibles de se produire dans l'entreprise. Les rapports comptables fourniront vraisemblablement plus de nouveaux renseignements sur les événements propres à l'entreprise que sur ceux d'ordre général. Par conséquent, en insistant sur ce point, nous pouvons mieux comprendre l'effet éventuel des rapports comptables. On prend en considération le fait que l'information particulière à l'entreprise facilite la prise de décisions et la passation de contrats. Le mémoire met l'accent sur l'information divulguée au grand public mais étudie également, dans une certaine mesure, les encouragements visant à obtenir en privé l'information propre à l'entreprise qui sera divulguée ultérieurement.

Morton Nelson
Université de Windsor

ANALYSE COÛTS-AVANTAGES ET RELATIONS DE TRAVAIL AU CANADA

De nombreux ouvrages comptables ont abordé l'analyse coûts-avantages et le sujet des relations de travail a largement été débattu dans les volumes de relations industrielles. Ce mémoire réunit les deux sujets et indique les résultats d'une enquête visant à déterminer la mesure dans laquelle l'analyse coûts-avantages a été appliquée aux relations de travail.

Philip M.J. Reckers
Susan M.J. Stolt
Université de l'Etat de l'Arizona,

UNE ÉTUDE PSYCHOSOCIALE DES ATTRIBUTIONS D'UN COMPORTEMENT ILLICITE

L'étude a été menée afin d'examiner l'application de la théorie des attributions à l'évasion fiscale et de considérer les facteurs économiques, d'équité et d'ordre moral comme les modérateurs de cette application. Soixante-douze

étudiants du premier cycle en administration ont chacun lu huit cas d'évasion fiscale et ont répondu aux questions suivantes: 1) la gravité du délit fiscal et 2) le sujet agirait-il de la même façon dans des conditions analogues? Dans quatre des cas, les facteurs qui entraient en ligne de compte étaient la convergence (élevée/faible) et le besoin (élevé/faible) et dans les autres cas, le consensus (élevé/faible) et le montant du délit (élevé/faible). La convergence et le consensus se fondent sur la théorie des attributions tandis que le besoin et le montant sont des variables économiques. Les sujets ont également répondu aux questions sur l'équité du régime fiscal fédéral et sur leur point de vue moral personnel.

Les jugements sur la gravité de l'évasion fiscale s'appuient sur le nombre de fois qu'un particulier s'est soustrait à l'impôt, sur ses besoins financiers et sur le montant des revenus dissimulés. On considère également si l'auteur du délit est perçu par les autres contribuables comme une personne ordinaire. Un délit est jugé moins grave s'il ne s'est produit qu'une fois, si l'auteur est perçu comme ayant été dans une situation financière pénible ou si le montant d'une évasion fiscale habituelle est minime. Les jugements sur le comportement personnel prévisible sont reliés à la convergence des comportements antérieurs, au montant du délit et au consensus dans des cas d'évasion fiscale semblables. Un particulier serait susceptible de répéter cet acte illicite s'il a réussi dans ses tentatives antérieures, si le montant était négligeable ou si le délit est commis régulièrement. Les perceptions sur l'équité ou sur la conduite morale du sujet n'ont aucunement influé sur la réponse des étudiants.

Ashton C. Bishop
Université James Madison

Kelly F. Cheyara
Université McMaster

L'ÉLÉMENT BÉNÉFICE DE LA PROVISION POUR LES FONDS UTILISÉS PENDANT LA CONSTRUCTION DANS L'INDUSTRIE ÉLECTRIQUE: UNE MÉTHODE VISANT À RENSEIGNER

La provision pour les fonds utilisés pendant la construction (P.F.U.C.) est un poste hors caisse que les entreprises de services publics en électricité incluent dans leur bénéfice déclaré et qui représente des intérêts implicites sur des dépenses en capital relatives à la construction d'installations. Le recouvrement de ces intérêts est reporté jusqu'à ce que l'usine entre en service. Les aspects économiques de l'utilisation de cette méthode ont été grandement débattus dans le passé. On peut présumer que si les utilisateurs d'états financiers que constituent les investisseurs considèrent le modèle de la P.F.U.C. comme prudent, le bénéfice déclaré serait dans une grande mesure lié au rendement des titres. Ce mémoire se fonde sur un modèle chronologique de rendements résiduels afin d'étudier trois mesures de bénéfice et a fourni la preuve que le bénéfice de la P.F.U.C. était des plus conformes à l'information utilisée pour l'ajustement des prix des actions.

Elliott
Richardson
Dyckman
Dukes

Les répercussions de SFAS No. 2 sur les frais de recherche et de développement des sociétés

Cette recherche examine directement les frais de recherche et de développement de sociétés sur une période de huit ans en vue d'essayer de résoudre les résultats conflictuels au sujet des répercussions des frais prévus selon le SFAS No. 2. Notre recherche actuelle identifie des chutes relatives importantes des frais de recherche et de développement pour les investisseurs, comparativement aux entreprises qui ont continuellement porté aux dépenses la recherche et le développement, tant pour ce qui est des entreprises cotées en bourse que des autres sociétés. Nous avons également observé une baisse des frais de R.D. avant l'émission du SFAS No. 2 en 1974. Cette constatation et le désir des investisseurs d'observer les règles du SFAS Nº 2 avant la date obligatoire suggèrent que l'étape de l'association d'idée à la cause n'est pas sans importance.

Afin de parvenir à nos conclusions, nous avons mis au point un modèle

de choix comptable afin d'évaluer les caractéristiques qui différencient les entreprises selon la méthode comptable qu'elles ont choisie. Nous pouvons ainsi trouver une explication possible à nos constatations. Les résultats correspondent au fait que les entreprises qui investissent dans la recherche et le développement sont en moyenne plus faibles et que la chute des frais de R.D. est fonction de cette faiblesse jumelée à une situation économique défavorable au cours de la période 1970-1977, compte tenu de la récession qui a sévi en 1974 aux États-Unis.

Patricia Hughes

Présentation de l'information financière, partage des risques et asymétrie de l'information servant à l'évaluation de l'entreprise

Ce mémoire met au point un modèle visant à combler l'asymétrie de l'information fournie par le propriétaire exploitant qui fait une première émission d'actions ordinaires et le marché. Le propriétaire exploitant divulgue ses titres de participation dans l'entreprise et fournit des renseignements qui permettront de juger de ses futures ressources financières. Ces renseignements sont fiables car ils coûtent cher au propriétaire de l'entreprise qui doit détenir à frais élevés un portefeuille non diversifié et faire vérifier l'information financière par les preneurs fermes.

Ella Mae Matsumura

Attribution optimale de l'effort multidimensionnel des mandataires: théorie et applications

La théorie des mandataires a été utilisée pour étudier le problème lié aux décisions prises par un mandataire au nom d'un mandant qui ne peut observer les efforts réels déployés par le mandataire. On présume qu'un effort est personnellement coûteux. Par conséquent, si un mandataire agit en son propre intérêt, il existe un risque d'ordre moral, car il peut consacrer une somme d'effort inférieure à ce qui avait été convenu. Ce mémoire étudie les problèmes des mandataires lorsque leur effort est multidimensionnel. On donne l'exemple d'un

directeur qui contrôle plusieurs procédés de production ou gère plusieurs divisions d'une société. Les schémas de rémunération optimale sont indiqués et les résultats révèlent que certains schémas largement défendus ne sont peut-être pas optimaux. Le cas spécial de l'effort additionnel (c.-à-d. lorsque l'effort est mesuré par le nombre d'heures consacré à une tâche) est étudié en détail. Les résultats ont des répercussions éventuelles pour certains types de problèmes de mandataires survenant au cours de diverses périodes.

Bernadette E. Lynn
Université McMaster

L'effet de la comptabilisation de l'information comptable à la valeur actuelle sur la mesure du rendement interne

Les conséquences de la comptabilité à la valeur actuelle sur les utilisateurs des états financiers ont largement été débattues. Cet article analyse l'effet possible de la communication de l'information financière à la valeur actuelle sur les décisions internes, spécialement celles reliées au calcul du rendement. Certaines mesures de rendement utilisées au sein d'entreprises comprenant de multiples divisions sont revues et analysées à la lumière de la comptabilité à la valeur actuelle.

D.C. MacCharles
Université du Novueau-Brunswick

COÛTS DE FABRICATION, PRISE DE DÉCISIONS DE LA SOCIÉTÉ ET RÔLE DES COMPTABLES EN MANAGEMENT[1]

Les coûts de fabrication unitaires au Canada sont plus élevés que ceux des concurrents étrangers en raison d'une plus grande diversité de produits, d'une échelle réduite et d'un taux d'inflation plus élevé. Les experts-comptables canadiens ne sont pas assez bien informés sur ces questions pour être en mesure de conseiller judicieusement la direction de l'entreprise sur les stratégies de réduction des coûts dans un environnement de plus en plus compétitif.

CAAA 1983 Conference
University of British Columbia
Vancouver, Canada

Stephen H. Spector
CGA-Canada
Albert S. Dexter
McGill University

THE FASB CONTENTION ON PREDICTABILITY OF CASH FLOWS

ABSTRACT

This study assesses the contention that past reported accounting income (earnings) is a better predictor of future cash flows than are past cash flows. Moreover, it tries to determine what should constitute 'earnings' and 'cash flows'. The study also examines the issue of whether the relationship between income and cash flows, or cash flows and cash flows, is better served in nominal or real terms. The examination involves an empirical analysis utilizing regression techniques on twenty-eight Canadian firms.

INTRODUCTION

The Trueblood Report [AICPA, 1973] initiated a substantial expansion of the horizons of the accounting profession, and much of the literature of the last ten years has concerned itself with the issues raised by this Report[1]. One of the first tasks faced by the Financial Accounting Standards Board (FASB) was the implementation of the recommendations of the Trueblood Report. A prime concern of the Report was to direct financial statements to the interests of investors and creditors, and one of their main concerns was the ability to predict future cash flows.

The Statement of Financial Accounting Concepts No. 1 [FASB, 1978] integrated Trueblood's emphasis on cash flows into its objectives, without providing any direction for effecting such predictions. The FASB also assumed that past historical, reported earnings figures are better predictors of future cash flows than are past cash flows.

The Reporting Earnings Discussion Memorandum [FASB, 1979] clarified the issue [p. 3]:

> ...a study on earnings needs to consider the relationship between reports of information on earnings and assessments of cash flows. The relationship may be identified in a two-stage process for the assessment of future cash flows:
>
> i. Reports of past earnings are used as a basis for assessments of future earnings.
>
> ii. An adjustment is then made to the assessment of future earnings to derive an assessment of future cash flows.

The Board proceeded to define earnings [para. 11] as:

> ...the increase in net assets or owners' equity from all transactions and other events and circumstances affecting the enterprise during the period, excluding the effects of certain transactions with owners...

As usual, the Board 'hedged' its position: it seemed to be leaning toward the all-inclusive concept of income. While there was no explicit statement to that effect, Chapter 7 of the Reporting Earnings Discussion Memorandum clearly favoured a multi-step income statement, with the obvious hope that all components of income would be shown -- in essence, the all-inclusive concept. The FASB then left the prediction issue 'on hold': no mechanism was given for determining cash flows. Further indication of the Board's intentions were found in Chapter 9 of the Reporting Earnings Discussion Memorandum: examples for cash flow reconciliation explained the net change in cash over the year. Another possible explanation was that the Board preferred to see the Statement of Changes in Financial Position calculated on a cash basis rather than on a working capital basis, so as to provide data for cash flow predictions.

In fact, the Funds Flows Discussion Memorandum [FASB, 1980] clarified the Board's intentions: Chapter 4 presents a 'direct' and an 'indirect' method of reporting funds flows. The Board does not choose one method over the other, but it does report [para. 106] that virtually all respondents to the 1979 Accounting Trends and Techniques employed the indirect method. Moreover, the Board indicated that the usefulness of each method depends on the approach adopted by users for assessing future cash flows.

Therefore, the objective of this paper is to examine the contention that past reported accounting earnings are indeed a better predictor of future cash flows than are past cash flows. In addition, the issue of whether measurement (of the variables) should be in nominal or real terms will be examined.

This paper will present the issues in the following manner: a discussion of previous research and examination of FASB position vis-a-vis earnings and cash-flows will be provided. A model for testing predictive ability of both earnings and cash-flows, as well as the basis for their derivation will then be proposed. The presentation will focus on a discussion of the time series models, their econometric properties, and the results of the study.

Previous Studies on Cash Flows

The literature of the late 1960's and early 1970's saw fairly extensive research into the ability to predict cash flows for investors' use. Ball and Brown [1968], Beaver [1970], Brooks and Buckmaster [1976], and Lookabill [1976] were primarily concerned with returns to investors. These researchers concentrated on earnings and predictions in a finance context, primarily as evidence of the Efficient Markets Hypothesis. Revsine [1970, 1971, 1973] concentrated on predicting resource flows, but in the context of replacement costs, using Edwards and Bell's current operating profit.[2] Many of the studies

[e.g., Foster, 1977] dealt with quarterly data, rather than annual figures. Those studies using annual data [Ball and Watts, 1972, Lookabill, 1976, Beaver, 1970] moreover, examined the time-series properties of earnings on a cross-sectional basis.[3] Albrecht, Lookabill and McKeown [1977, p. 227] report that:

> ...the major conclusions of these cross-sectional studies have been that nondeflated earnings appear to follow either a random walk or a random walk with a drift pattern, while deflated earnings can best be characterized by a moving average or mean-reverting type model ... most of those studies ... of time-series characteristics on an individual-firm basis ... have found evidence for both interfirm and inter-industry difference.

A more recent study by Lawson [1980] concentrated on cash returns to investors, but not on the prediction of cash flows in general. Ijiri [1978] argued in favour of cash-based financial statements. Beaver [1981] attempted to synthesize many viewpoints concerning earnings, cash flows, and predictions thereof, into a 'financial reporting revolution'.

In general, few studies have considered using earnings as a predictor of future cash flows. The main exceptions are Revsine [1971, 1973] and Greenball [1968a, 1968b], but these studies were intended to examine 'current-value concepts' rather than predict cash flows. A simulation by Simmons and Gray [1969] concluded that prediction models based on historical income yielded somewhat smaller forecast errors than did models based on current income, where 'current income' is the current value income of Edwards and Bell. However, the same shortcoming existed -- the model was predicting future earnings, not future cash flow.

It fell to Trueblood to specifically restrict flows to cash, while at the same time expanding the boundaries of application: creditors, as well as investors were deemed interested in these flows. The Objectives Study Group recognized that it was not feasible to directly measure future cash flows, but the Report did maintain that "[t]he primary and continuing goal of every commercial enterprise is to increase its monetary wealth so that over time, it can return the maximum amount of cash to its owners." [AICPA, 1973: p. 21].

The Reporting Earnings Discussion Memorandum [FASB, 1979] further emphasized the indirect method, given that the Board acknowledged the fact that there are lags and leads between recognition in the income statement and timing of cash flows. Thus, any attempt at direct assessment of future cash flows based on past cash flows would tend to be suspect.[4]

METHODOLOGY - Model for Testing

Johnson [1966] and Corcoran and Kwang [1965] both provide detailed and explicit mathematical treatment of funds flow equations. Corcoran and Kwang used set notation to represent changes in assets and liabilities. Johnson on the other hand, used an algebraic model, so it would not be necessary to reclassify/regroup net changes in order to derive the funds statement. Furthermore, Johnson's model also provided a system for cash flow analysis. The main drawback to both studies was the implicit assumption that sufficient detail was available for incorporation into the model.

Using the equations of Johnson[1966] as a starting point, and the more recent work by Lawson [1980, pp. 11-16], it is possible to derive a model to be utilized for testing based in part on funds flow equations and partly on the resulting analysis of changes in financial statement elements and accounts. It is possible to test which flow -- income or cash -- is a better predictor of future cash flows: a proxy for cash flow from operations can be derived from the Statement of Changes in Financial Position for the period.

i. To income, add back depreciation and other non-cash items.

ii. Adjust for changes in current assets and liabilities, except cash itself.

The resulting figure can be used as an approximation of cash flow from regular earnings. From the Income Statement we can find 'net income before extra-ordinary items', as well as 'net income after extraordinary items'. It is necessary to utilize both measures of income, since we do not know where the impact of extraordinary items will be felt. We can present the change in cash (as reported on the Balance Sheet) in the following identity:

Change in Cash = amounts arising from dealings with owners (investors)

+ amounts arising from dealings with long-term creditors

+ amounts arising from dealings in long-term assets

+ amounts arising from operations.

The question of articulation is not at issue here; it can be shown that the figures derived for 'cash flow' will articulate with a figure derived as follows:

i. Using the actual change in cash, add back dividends, and either add reduction in share capital, or deduct increases in share capital. This resultant figure represents the cash flow 'pool' available before investor transactions.

ii. From the figure derived in (i) above, subtract the net change in long-term debt. This amount is the cash flow 'pool' before transactions with both investors and creditors.

iii. Take the figure from (ii), and account for changes in fixed and other long-term assets. This figure then, should articulate with the amount designated as 'cash flow from operations' by means of the working capital adjustment method.

As mentioned earlier, the major issue is which cash flow(s) should be predicted? Are we primarily concerned with the investor group? If so, then the figure from (i) would be the appropriate surrogate. On the other hand, it has been argued that we wish to examine the cash flow to both creditors and investors (Trueblood Report), and so the figure derived in (ii) should be used. Finally, the FASB seems to favour a term -- without definition -- cash flow from regular operations, which might be considered as (iii) above.

It is less difficult to decide what earnings figure should be used: there are only two basic figures of interest: earnings before extraordinary items, and earnings after extraordinary items. Moreover, it is clear that the latter figure is the proverbial 'bottom line', and represents the amount available to the investors. However, for predicting cash flows to groups other than investors, earnings before extraordinary items would appear to be a more appropriate variable.

Variable Specification

One major difficulty in evaluating the FASB contention lies in the formulation of the variables. Moreover, the form of the model itself is unclear: there is no official pronouncement as to what the model should be. The FASB implies that earnings, based on accrual accounting, will be a 'better' predictor of future cash flows than past cash flows.[5] But the Board does not state how to prepare this forecast, nor is (as previously stated) one even shown how to make this transition from earnings to cash flow.

Although we attempt to isolate the impact of operations to satisfy the FASB's emphasis on 'regular earnings', it can be argued that cash inflows and outflows for the purchase of long-lived assets should be part of 'regular earnings' cash flows. In general, these items contribute to the generation of earnings from operations, and thus should be included. Also, the exclusion of cash raised through long-term financing may be questioned: these funds are used for purposes that may contribute to earnings from operations, and in any case, the cost of debt service is an operating charge.

Another shortcoming is the estimator for cash flow.[6] We are trying to estimate three different cash flows, starting with the disclosure of cash balances in the financial statements. But many companies do not disclose 'Cash and only Cash' as a separate line item. Furthermore, there is no easy way (if any) to determine whether the impact of extraordinary items is isolated in the proper cash flow figure, and even more basic, if we have the 'correct' value for our desired cash flow. Consequently, estimates for these desired cash flows will be needed.

Nominal or Constant Dollars

Another issue to be resolved is whether measurement of the variables should be in nominal dollars or constant dollars. Since cash is a monetary item, it would seem logical to examine the data in constant terms. In this context, the Gross National Expenditure [GNE] implicit price deflator will be used.

However, when a business decision is made, the potential investor or creditor may not always look at constant dollars, but at the amount to be received in the future. Furthermore the expectation of continued inflation wil lead to expectation of larger nominal amounts of cash being received: inflation fuels itself, so to speak, and fuels the expectations of continually-increasing cash flows. In essence, the historical cost model implies dollars of constant scale, and a time preference rate of zero. Inasmuch as reported figures are in nominal, and not real, terms, this would also support a contention of zero time preference rate. Consequently, the predictive ability of reported earnings will be examined in both real and nominal terms.

The Models

There were three 'cash flows'[7] to be tested; moreover, there were two versions of each model, as it was necessary to determine which dollar would be 'used' -- literal (nominal) dollars, or uniform (constant) dollars.

1. Test net income before extraordinary items:

   i. against the cash flow pool available to investors, including the effects of extraordinary items on cash flows:
      a) in real terms
      b) in nominal terms.

   ii. against the cash flow pool available to investors and creditors, including the effects of extraordinary items on cash flows:
      a) in real terms
      b) in nominal terms.

   iii. against the all-inclusive cash basis of net income, which represents cash flow from operations
      a) in real terms
      b) in nominal terms.

2. Test net income after extraordinary items:

   i. against the cash flow pool available to investors, including the effects of extraordinary items on cash flows:
      a) in real terms
      b) in nominal terms.

   ii. against the cash flow pool available to investors and creditors, including the effects of extraordinary items on cash flows:
      a) in real terms
      b) in nominal terms.

   iii. against the all-inclusive cash basis of net income, which represents cash flow from operations:
      a) in real terms
      b) in nominal terms.

3. Test past cash flows available to investors, which includes the impact of extraordinary items, against the cash flow pool available to investors, including the effects of extraordinary items on cash flows:
   a) in real terms
   b) in nominal terms

4. Test past cash flows available to both investors and creditors, which includes the impact of extraordinary items, against the cash flow pool available to investors and creditors, including the effects of extraordinary items on cash flows:
   a) in real terms
   b) in nominal terms.

5. Test past cash flows from operations, representing the all-inclusive cash basis of income, against the all-inclusive cash basis of net income, which represents cash flow from operations:
   a) in real terms
   b) in nominal terms.

The two basic hypotheses are as follows:

H_0: There will be no statistical difference between the predictions made using past accounting income, and those made using past cash flows.

H_1: There will be statistical difference between the predictions made using past accounting income, and those made using past cash flows.

H_0: There will be no statistical difference between the results obtained using nominal figures, and those obtained from models stated in real terms.

H_1: There will be statistical difference between the results obtained using nominal figures, and those obtained from models stated in real terms.

The alternate hypothesis for both tests is two-tailed; we have no a priori expectations concerning the alternative hypotheses.

Sample Size

The last question to be resolved was one of sample size. The sample size was severely limited by the inability to obtain published financial statements -- annual reports -- that covered a long enough time period. A minimum of twenty observations for each company was desired so that sufficient degrees of freedom remained after lagging operations. For this project, data from twenty-eight companies was utilized, with each company contributing on average thirty observations. There was one company [Inco Limited] for which forty-five observations were available, and one [Cominco Ltd.] where seventy observations were obtained. The sample itself is not strictly random, as firms whose time-series did not extend at least twenty years were excluded. Nonetheless, the sample examines most types of firms, with the main exception being the retail merchandising industry. Manufacturing, mining, oil and gas, forestry, and regulated (pipelines) industries were available. As to the extent of the sample -- twenty-eight companies -- it was decided that such a number was sufficient for purposes of this study.

THE TIME-SERIES MODELS

The same basic form -- a linear regression model -- was used for all testing. The models were tested using an ordinary least squares [OLS] procedure, and no correction was attempted for serial correlation. This 'omission' was deliberate, and deemed necessary, to maintain consistency in the examination process. Moreover, such action allowed comparability between results obtained from the models using lagged, independent variables, and

the set of lagged endogenous models. Correcting for serial correlation is not appropriate: the equations are no longer specified in terms of past income when corrected using generalized least squares, but are transformed into a function of past income and past cash flows. We have in effect changed the models, and thus cannot compare the results of ordinary least squares and the corrections made using generalized least squares. In addition, there is evidence that some firms[8] follow an autocorrelation pattern that is higher than first-order. The first-order autocorrelation co-efficient may be significant, but the Durbin-Watson statistic test is meant only for first-order detection.

One reason that autocorrelation can be present in results obtained from a regression model is the failure to correctly specify that model. If the model omits a variable, or it is not correctly specified, then the results may exhibit serial correlation. The variables being treated as dependent variables -- cash flows -- are not known with certainty. They are endogenously determined in the context of the models, and there is no 'true' value against which they can be compared.

The existence of multicollinearity in a regression model is not as damaging as that of serial correlation. The results from the regression equations were sampled, and it is likely that any multicollinearity that exists is not consistent. There are cases where multicollinearity is not present, and there are instances where the presence of multicollinearity is strongly indicated.

However, the implications of multicollinearity for this study are minimal. This is a forecasting model, and no inferences are being drawn from the individual parameters. Although the standard errors, and the co-efficients themselves change when the bounds of the regressions are altered, the extent of this change is not substantial. Finally, it is expected that if multicollinearity does exist, then the pattern will continue into the future, and forecasting will impound this condition. As well, there is no way to correct for multicollinearity in the context of this study. We cannot get additional data elements; we cannot add another independent variable without changing the structural form, and we cannot transform the variables, since there is no readily apparent form to utilize.

OBSERVATIONS AND RESULTS

Each cash flow was tested in the fashion outlined previously. The equation that gave the smallest standard error of the estimate was chosen as the 'best' for each alternative. That is, each comparison was made in nominal terms, and in real terms, as well as for both alternatives: once with past cash flows as the independent variable, and secondly, with past accounting income as the independent variable. These results were then compared 'cash flow' to 'cash flow' to determine which alternative is a 'better' predictor.

Consider the twelve (six nominal, six constant terms) equations using past reported accounting income as the independent variable. An examination of the 168 results, shows that there is no readily discernable pattern as to which equation performed as the 'best' predictor, when accounting income served as the independent variable.

Now consider the six equations wherein past cash flows served as the independent variable. There is no artificial distinction between 'income before extraordinary items' and 'income after extraordinary items', since we cannot tell where the impact of those extraordinary items will be felt. We cannot determine which cash flow is affected, and so cash flow is always after extraordinary items. Moreover, a trend variable is required in 125 of the 168 equations, or 74.41% of the time.

If we now consider the results for both alternatives, we find that although we cannot draw many conclusions as to which form of the model is 'best', there is evidence that certain of the cash flows are more readily forecasted using a regression model, namely cash flow from operations.

Using the normal approximation to the binomial theorem, we can develop a test statistic. To examine the first of the two hypotheses, we are testing a contention that there will be no difference between results obtained utilizing past accounting income as the independent variable, and past cash flows as the independent variable. Given that 120 of the 168 paired comparisons have future cash flows better predicted by past reported accounting income, than by past cash flows, the 'Z-value' so calculated is 5.55. Thus, with this 'Z-value', we reject the null hypothesis, and conclude that past reported accounting income is indeed a better predictor of future cash flows than are past cash flows.

Following the format for the first hypothesis, we can also determine whether there is any difference in real or nominal term specification. We observe that 144 of the 168 pairs obtained 'better' results when nominal terms were specified. Thus we obtain a 'Z-value' of 9.26 which means there is virtually no probability of observing 144 successes in 168 trials, given that we assume the probability of success is one-half. Therefore, we reject the null hypothesis, and conclude that variable specification should be in nominal rather than real terms.

It is more difficult to draw inferences from the fact that the models seem able to forecast cash flow from operations with consistency. We did not a priori expect that any one cash flow would be easier to predict, or that any one cash flow would be predicted 'best' most often. However, it is clear that the success of the model in predicting cash flow from operations is non-random, since 73 of 112 cases, or 65.18% of the total, provides 'best' results for cash flow from operations.

SUMMARY

This paper has presented a brief introduction to the issues surrounding the FASB contention concerning the predictability of future cash flows. It has reviewed some of the relevant empirical research and presented a model for the testing of the FASB contention. Finally, it has given some of the results obtained, and concluded that cash flows are best predicted in nominal terms by past reported accounting income.

Notes

[1]For a historical perspective presenting the background data of this paper, see Stephen H. Spector, "An Assessment of the FASB Contention Concerning the Predictability of Cash Flows," Masters Thesis, Simon Fraser University, 1981.

[2]Current operating profit ... indicates whether or not the current proceeds from the sale of product are sufficient to cover the current cost of the factors of production used in producing that product ... Current operating profit, therefore, is essentially the long-run profit associated with the existing process of production carried on under existing conditions. [Revsine, 1973: p. 72] . See also Edwards and Bell, Measurement of Business Income, University of California Press, 1961: pp. 98-99.

[3]See Albrecht, Lookabill, and McKeown, 1977 for further citations.

[4]Since space prohibits an elaboration of the cash flows, earnings, and funds flows, see Spector 1981, pp. 16-20.

[5]FASB 1978, paragraph 43.

[6]First differences provides a measure of the change in cash from year to year: i.e., cash flow.

[7]There are, in fact, six relationships and twelve models, inasmuch as both earnings vs. cash flow, and cash flow vs. cash flow will be examined for predictive ability, in real and nominal terms.

[8]TransCanada PipeLines Limited and Interprovincial Pipe Lines Limited seem to follow a higher than first-order serial correlation pattern, in that correction via generalized least squares specifying second order serial correlation [GLS Auto 2] improves the results obtained from the ordinary least squares procedure, by reducing the standard error of the estimate.

REFERENCES

Albrecht, W. Steve, Larry L. Lookabill, and James C. McKeown, "The Time-Series Properties of Annual Earnings", The Journal of Accounting Research, Volume 15, No. 2: Autumn 1977: pages 226-244.

American Institute of Certified Public Accountants, Report of the Study Group on the Objectives of Financial Statements: The Trueblood Report, AICPA, New York, N.Y., 1973.

Ball, Ray, and Philip Brown, "An Empirical Evaluation of Accounting Income Numbers", The Journal of Accounting Research, Volume 6, No. 2: Autumn 1968: pages 159-178.

Beaver, William H., "The Time Series Behaviour of Earnings", in Empirical Research in Accounting: Selected Studies 1970, Supplement to The Journal of Accounting Research, Volume 8: 1970: pages 62-99.

_____, Financial Reporting: An Accounting Revolution, Englewood Cliffs, N.J.; Prentice-Hall Inc., 1981.

Brooks, LeRoy D., and Dale A. Buckmaster, "Further Evidence of the Time Series Properties of Accounting Income", The Journal of Finance, Volume XXXI, No. 5: December 1976: pages 1359-1373.

Chambers, R.J., "The Functions of Published Financial Statements", Accounting and Business Research, Number 22: Spring 1976: pages 83-94.

Corcoran, A. Wayne, and Ching-wen Kwang, "A Set Theory Approach to Funds-Flow Analysis", The Journal of Accounting Research, Volume 3, No. 2: Autumn 1965: pages 206-217.

Financial Accounting Standards Board, Statement of Financial Accounting Concepts No. 1: Objectives of Financial Reporting by Business Enterprises, Stamford, Conn.: FASB November 1978.

_____, Discussion Memorandum: An analysis of issues related to Reporting earnings, Stamford, Conn.: FASB July 1979.

_____, Discussion Memorandum: Reporting Funds Flows, Liquidity, and Financial Flexibility, Stamford, Conn.: FASB December 1980.

Foster, George, "Quarterly Accounting Data: Time-Series Properties and Predictive-Ability Results", The Accounting Review, Volume LII, No. 1: Pages 1-21.

Greenball, Melvin N., "The Accuracy of Different Methods of Accounting for Earnings - A Simulation Approach", The Journal of Accounting Research, Volume 6, No. 1: Spring 1968a: pages 114-129.

_____, "Evaluation of the Usefulness to Investors of Different Accounting Estimators of Earnings: A Simulation Approach", in Empirical Research in Accounting: Selected Studies 1968, Supplement to The Journal of Accounting Research, Volume 6: 1968b: pages 27-49.

Hendriksen, Eldon S., Accounting Theory, Irwin-Dorsey Limited, Georgetown, Ontario, 3rd Edition, 1977.

Ijiri, Yuji, "Cash Flow Accounting and Its Structure", Journal of Accounting, Auditing and Finance, Volume 1, No. 4: Summer 1978: pages 331-348.

Johnson, Glenn L., "Funds-Flow Equations", The Accounting Review, Volume XLI, No. 3: July 1966: pages 510-517.

Lawson, G.H., "The Measurement of Corporate Profitability on a Cash-Flow Basis", The International Journal of Accounting Education and Research, Volume 16, No. 1: Fall 1980: pages 11-46.

Lev, Baruch, Financial Statement Analysis: A New Approach, Englewood Cliffs, N.J.; Prentice-Hall Inc., 1974.

Lookabill, Larry L., "Some Additional Evidence on the Time Series Properties of Accounting Earnings", The Accounting Review, Volume LI, No. 4: October 1976: pages 724-738.

Revsine, Lawrence, "On the Correspondence Between Replacement Cost Income and Economic Income", The Accounting Review, Volume XLV, No. 3: July 1970: pages 513-523.

_____, "Predictive Ability, Market Prices, and Operating Flows", The Accounting Review, Volume XLVI, No. 3: July 1971: pages 480-489.

_____, Replacement Cost Accounting, Englewood Cliffs, New Jersey: Prentice-Hall, Inc.: 1973.

Simmons, John K., and Jack Gray, "An Investigation of the Effects of Differing Accounting Frameworks on the Prediction of Net Income". The Accounting Review, Volume XLIV, No. 4: October 1969: pages 757-776.

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Université de British Columbia
Vancouver

A. Naciri
Université du Québec à Montréal
Montréal, (Québec)

Les politiques de protection et le cash-flow des Multinationales

La réglementation américaine en matière de change étranger d'octobre 1975 (FAS #8) a eu pour principales exigences: (i) L'imposition de la méthode temporelle comme unique méthode comptable de conversion des états financiers des filiales à l'étranger des Multinationales américaines. (ii) La reconnaissance immédiate dans le compte des revenus de la période de tous les gains et pertes sur change. Elle a suscité en même temps deux questions importantes: Premièrement, l'accroissement de la volatilité des bénéfices comptables que pourrait causer la reconnaissance immédiate des gains et perte de change[1] affectera-t-elle la valeur boursière des Multinationales? Deuxièmement, les actions entreprises par ces firmes afin d'atténuer cette volatilité[2], affecteront-t-elles leur cash-flow? En ce qui concerne le premier point, les résultats obtenus par Naciri (1982) indiquent que les Multinationales ne semblent pas avoir souffert au niveau de leur valeur marchande, à cause de l'augmentation de la volatilité de leurs bénéfices comptables provoquée par le FAS #8. La réponse au second point, fera l'objet du présent travail. La section qui suit présentera nos hypothèses; la deuxième échantillon et la méthodologie; la troisième nos résultats empiriques, la quatrième sera finalement consacrée à notre conclusion.

I. Les effets de la réglementation de change sur les cash-flows des Multinationales

La plupart des auteurs qui se sont préoccupés des politiques de protection des Multinationales, face aux effets comptables du FAS #8, Stanley et Block (1977), Peat, Marwick et Mitchel (1977), Massaro (1978) et Evans, Folks et Jelling (1978), étaient incapables de démontrer si ces politiques de protection avaient un effet quelconque sur le cash-flow des firmes qui les ont entreprises. Ces auteurs ont, plutôt, pris l'habitude d'affirmer que même si certaines Multinationales avaient pu, à l'occasion de leurs po-

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(1) Voir Scott et Walker (1977)

(2) Evans et al (1978) font état de toutes les opérations entreprises par les Multinationales afin de contrer les effets du FAS #8 sur leurs bénéfices reportés.

litiques de protection, soit reconsidérer une politique de stockage, d'endettement ou de dividende, soit abondonner quelques investissements acceptables, ce que nous qualifierons, dans le premier cas, d'opération de lissage(3) et dans le second, de stratégies sous-optimales(4), il n'en demeure pas moins, que leur comportement a été, en général, rationnel. Nous pensons qu'un tel raisonnement permet d'éviter le problème mais fournit, malheureusement, peu d'explication du phénomène de protection, au-delà de la simple explication de la rationalité des firmes en général. Nous pensons, plutôt, que les politiques de protection des Multinationales peuvent avoir un effet sur leurs cash-flows. L'importance de cet effet dépend, cependant, de l'ampleur des opérations de protection entreprises et des effets compensatoire, qu'elles peuvent avoir entre-elles. D'après Naciri (1983). Le cash-flow d'une Multinationale ayant entrepris des opérations de protection est toujours inférieur, d'un montant D, à celui d'une firme similaire qui n'a pas entrepris de telles opérations.

$$D = CP\ (1 - Tc)\ (5) \qquad \text{(Equation 1)}$$

ou CP = Coût des opération de protection
Tc = Taux de l'impôts sur les bénéfices des corporations

Etant donné que Tc est toujours inférieur à 1, D est toujours positif.

II. Echantillon et méthodologie

Notre étude examine pendant quatre différentes périodes la différence entre les rendements de deux groupes de Multinationales soumises à la réglementation de change étranger de 1975, à savoir:

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(3) Nous définissons l'opération de lissage comme toute opération fictive qui n'aurait pour but que d'essayer d'atténuer les effet comptables du FAS#8.

(4) Nous définissons une stratégie sous-optimale comme toute stratégie d'investissement qui ne respecterait pas le critère classique de la valeur actuelle nette.

(5) En effet le cash-flow d'une firme n'ayant pas entrepris des politiques de protection est donné par:

$$CF_{gcfn} = (R - C)\ (1 - Tc) + Tc\ A \qquad \text{(Equation 2)}$$

Celui d'une firme ayant des politiques de protection est donné par:

$$CF_{gcfs} = (R - C - CP)\ (1 - Tc) + TcA \qquad \text{(Equation 3)}$$

La soustraction de l'équation 3 de la deux, nous donne D = CP (1 - Tc)

ou CF_{gcfn} = Cash-flow de la firme sans politique de protection
CF_{gcfs} = Cash-flow de la firme avec politique de protection
CP = Coût des politiques de protection
R = Recettes
C = Dépenses en dehors des amortissements
A = Amortissements
Tc = Taux de l'impôt sur les corporations

(i) Groupe de Multinationales dont le cash-flow a été affecté à cause de leur politique de protection, GCFS (17 firmes);

(ii) Groupe de Multinationales dont le cash-flow n'a pas été affecté, parce que elles n'ont pas entrepris de politique de protection, GCFN (40 firmes).

La répartition des Multinationales entre ces deux groupes a été réalisée par voix de questionnaire(6), que nous avons envoyé à toutes les firmes apparaissant dans les publications du "Business International" de 1976.

Les quatres périodes(7) étudiées, en se basant sur les données quotidiennes, sont:

(a) La période du mémorandum-discussion
(b) La période de l'exposé-sondage
(c) La période d'adoption de la réglementation
(d) La période de réaffirmation.

La division de notre échantillon global en GCFS et GCFN, nous permettra de comparer le rendement de ces deux groupes de Multinationales durant les différentes périodes examinées.

La méthodologie dite de "différence-entre-les-rendements" sera employée dans ce travail. Elle consiste à classer les multinationales dans chacun du GCFS et du GCFN par leur bêta afin de former deux portefeuilles à risque systématique identique(8) pour chacune des périodes du mémorandum-discussion, de l'exposé-sondage, de l'adoption et de la réaffirmation,

C'est-à-dire:

$$\beta GCFS_t = \beta GCFN_t \qquad \text{(Equation 4)}$$

Chaque portefeuille sera composé de 17 firmes

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(6) Sur 169 questionnaires envoyés, nous avons reçu 57 réponses pertinentes qui se repartissent comme suit: GCFS = 17 et GCFN = 40

(7) Chaque période porte sur 38 jours entourant chacun des évènements, c'est-à-dire 24 jours avant et 13 jours après l'exposé-sondage, le mémorandum-discussion, l'adoption et la réaffirmation du FAS#8.

(8) Notons, cependant que les bêtas individuels à l'intérieur de chacun des portefeuilles peuvent avoir différentes valeurs, c'est-à-dire: $\beta_1^F \neq \beta_2^F \ldots \neq \beta_N^F$. En outres le bêta de chaque titre est estimé en utilisant 110 données de rendements quotidiens sur chaque titre, entourant le jour de l'événement (memorandum-discussion, exposé-sondage...) tout excluant les 10 jours antérieurs à ce dernier et les 9 jours qui lui sont postérieurs.

Finalement, les rendements espérés du GCFS et ceux du GCFN sont calculés, pour chaque période, en utilisant le modèle du coefficient aléatoire(9):

$$E(\tilde{R}_{1t}) = \alpha_1 + \overline{\beta}_1 R_{mt} + W_{it} \qquad \text{(Equation 5)}$$

$$\text{et} \quad E(\tilde{R}_{2t}) = \alpha_2 + \overline{\beta}_2 R_{mt} + W_{it} \qquad \text{(Equation 6)}$$

où $E(\tilde{R}_{1t})$ et $E(\tilde{R}_{2t})$ sont les vecteurs de rendement espérés du GCFS et du GCFN respectivement, R_{mt} est le rendement du marché, α et β sont les paramètres de la régression et W_{it} est le terme de résidu. Si le FAS#8 n'a pas de contenu informationnel, nous devons observer que $E(\tilde{R}_{1t}) - E(\tilde{R}_{2t}) = 0$, étant donné que d'après l'expression 4, le GCFS est égal au GCFN. Différents vecteurs de rendements sont évidemment consistents avec le contenu informationnel. En résumé, notre hypothèse nulle serait:

$$\begin{bmatrix} E(\tilde{R}_{1,1}) \\ E(\tilde{R}_{1,2}) \\ \vdots \\ E(\tilde{R}_{1,38}) \end{bmatrix} - \begin{bmatrix} E(\tilde{R}_{2,1}) \\ E(\tilde{R}_{2,2}) \\ \vdots \\ E(\tilde{R}_{2,38}) \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \\ \vdots \\ 0 \end{bmatrix}$$

(Equation 7)

L'hypothèse alternative est que le vecteur des différences soit différent de zéro. En d'autres termes que le comportement des rendements espérés du GCFS soit différent du comportement des rendements espérés du GCFN.

L'hypothèse nulle peut être testée en utilisant, tout comme Gonedes (1975) et Beaver, Christie et Griffin (1980), le test t deux de Hotelling(10).

$$T^2 = N(\hat{Y}_1 - \hat{Y}_2)^1 S^{-1} (\hat{Y}_1 - \hat{Y}_2) \qquad \text{(Equation 8)}$$

où T^2 est le test t deux d'Hotelling, Y_1 et Y_2 sont les estimés de $E(\tilde{R}_1)$ et du $E(\tilde{R}_2)$ respectivement, S est la matrice variance-covariance estimée de $(\tilde{R}_1 - \tilde{R}_2)$ et N est le nombre d'observations.

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(9) Traditionnellement le rendement espéré du titre i pour une période t est calculé à l'aide du modèle du marché:

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \qquad \text{(Equation 9)}$$

l'élément discutable découlant de l'utilisation du modèle du marché est l'hypothèse qui veut que le bêta soit constant durant toute la période d'analyse. Nous savons, cependant que tel n'est pas le cas, c'est pourquoi le modèle du coefficient aléatoire qui tient compte de la non-stationarite du bêta est préféré au modèle classique du marché, pour plus de discussion de ce modèle voir Fabozzi et Francis (1978).

(10) Pour plus d'explication du T deux d'Hotelling voir Morrisson (1967).

TABLEAU 1

Rendements espérés du GCFS et GCFN (11)

Calculés à l'aide des équations 5 et 6

JOUR	MEMORANDUM-DISCUSSION		EXPOSE-SONDAGE		ADOPTION		REAFFIRMATION	
	GCFS	GCFN	GCFS	GCFN	GCFS	GCFN	GCFS	GCFN
-24	-0.00290	0.01024	0.00222	0.00442	0.00465	0.00425	-0.00682	-0.00663
-23	0.00198	0.01515	-0.01364	-0.01207	-0.00861	-0.00902	0.00203	0.00221
-22	0.00860	0.02181	0.00217	-0.00014	-0.01473	-0.01514	-0.00491	-0.00472
-21	-0.01293	0.00017	-0.00078	0.00130	-0.00113	-0.00153	-0.00588	-0.00568
-20	-0.01393	-0.00084	-0.00601	-0.00414	0.01667	0.01627	0.00362	0.00381
-19	0.00085	0.01401	-0.03207	-0.03121	0.01334	0.01294	-0.00404	-0.00387
-18	0.00201	0.01518	-0.02713	-0.02607	-0.00184	-0.00224	-0.00070	-0.00052
-17	-0.00550	0.00763	-0.01210	-0.01046	0.00719	0.00679	0.01065	0.01082
-16	-0.00408	0.00906	-0.02212	-0.02087	0.02532	0.02492	-0.00026	-0.00008
-15	-0.00785	0.00527	-0.02960	-0.02865	0.01614	0.01574	-0.01268	-0.01248
-14	-0.00828	0.00484	-0.02104	-0.01975	0.02601	0.02561	-0.01455	-0.01435
-13	0.00086	0.01402	0.00414	0.00641	0.00263	0.00223	-0.01305	-0.01285
-12	-0.00646	0.00666	-0.00017	0.00193	0.00094	0.00053	-0.00508	-0.00489
-11	-0.01590	-0.00282	-0.01413	-0.01257	0.01500	0.01460	0.00013	0.00032
-10	-0.02594	-0.01292	-0.91120	-0.00952	0.00366	0.00325	-0.00357	-0.00338
- 9	-0.01187	0.00123	-0.01692	-0.01547	0.00770	0.00730	0.00215	0.00234
- 8	-0.00550	0.00763	-0.00999	-0.00827	-0.00164	-0.00204	0.00580	0.00598
- 7	-0.00448	0.00866	0.00326	0.00550	-0.00720	-0.00761	0.01435	0.01452
- 6	-0.01248	0.00062	-0.00937	-0.00762	-0.00567	-0.00608	0.00504	0.00522
- 5	-0.01836	-0.00530	-0.01370	-0.01213	0.00734	0.00693	-0.00074	-0.00055
- 4	-0.00961	0.00350	0.02445	-0.02329	0.02021	0.01981	-0.00566	-0.00547
- 3	-0.00809	0.00502	0.00705	0.00944	0.01140	0.01100	-0.00084	-0.00065
- 2	-0.00585	0.00727	0.00155	0.00372	0.00183	0.00143	-0.00490	-0.00471
- 1	0.00043	0.01360	-0.00859	-0.00682	0.01122	0.01082	-0.00280	-0.00261
0	0.00734	0.00578	-0.01768	-0.01626	0.00744	0.00704	0.00022	0.00041
1	-0.00236	0.01079	0.04569	0.04958	0.00639	0.00599	-0.00185	-0.00166
2	0.00119	0.01436	0.05684	0.06116	0.01268	0.01228	-0.00944	-0.00924
3	-0.00002	0.01314	0.02535	0.02845	0.00849	0.00809	0.00147	0.00166
4	-0.00734	0.00578	0.02939	0.03265	0.00453	0.00413	-0.00382	-0.00362
5	0.00105	0.01422	0.01908	0.02194	0.00830	0.00790	0.00006	0.00025
6	-0.00273	0.01041	0.00195	0.00414	0.00138	0.00098	0.00556	0.00574
7	-0.00727	0.00586	0.00806	0.01049	0.00839	0.00799	0.00893	0.00902
8	-0.00821	0.00491	0.03301	0.03640	0.01261	0.01221	0.00262	0.00280
9	-0.00619	0.00693	0.01214	0.01472	0.00634	0.00594	-0.00226	-0.00207
10	0.00513	0.01332	-0.00540	-0.00350	0.01100	0.01060	-0.00340	-0.00321
11	0.00099	0.01415	-0.00121	0.00085	0.00066	0.00025	-0.00695	-0.00676
12	-0.00980	0.00331	0.00181	0.00399	0.00414	0.00374	-0.00501	-0.00482
13	-0.00137	0.01178	-0.01182	-0.01017	0.00994	0.00953	-0.00070	-0.00051

(11) GCFS : Groupe de FMA ayant entrepris des politiques de protection afin de contrer l'effet comptable du FAS#8.

GCFN : Groupe de FMA n'ayant pas entrepris de politiques de protection.

TABLEAU 2

Différences cumulées entre les rendements espérés du GCFS et du GCFN[12] et tests statistiques. $[E(R_{GCFS}) - E(R_{GCFN})]$

PERIODES	DIFFERENCE CUMULEE	T2	NOMBRE D'OBSERVATION
MEMORANDUM-DISCUSSION	-.4989	24.78	76
EXPOSE-SONDAGE	-.0764	.24	76
ADOPTION	.0153	22.50	76
REAFFIRMATION	-.0071	2.28	76

(12) GCFS = Groupe de FMA ayant entrepris de politique de protection afin de contrer l'effet comptable du FAS#8;
GCFN = Groupe de FMA n'ayant entrepris de politique de protection.

III. Résultats empiriques

L'objectif de ce travail est de déterminer si les rendements moyens espérés du GCFS et du GCFN sont significativement différents. Le tableau 1 présente les rendements moyens des firmes du GCFS et du GCFN durant les 38 jours entourant chacun des événements (mémorandum-discussion, exposé-sondage, etc...) calculés à l'aide du modèle du coefficient aléatoire. Si l'hypothèse nulle tient, c'est-à-dire, si les distributions des rendements moyens du GCFS et du GCFN sont identiques, les valeurs espérées des différences entre ces deux vecteurs de rendements devraient être égales à zéro. A cette fin nous présentons un test T deux d'Hotelling pour chacune des périodes du du mémorandum-discussion, de l'exposé-sondage, d'adoption et de la réaffirmation du FAS#8. Le tableau 2 montre les différences cumulées entre les rendements moyens des deux groupes et les T deux d'Hotelling. Les rendements moyens espérés du GCFS diffèrent statistiquement de ceux du GCFN pendant les périodes du mémorandum-discussion et d'adoption du FAS#8. Ceci est évidemment consistent avec le contenu informationnel du FAS#8. Nos résultats doivent, cependant, être interprétés avec beaucoup de précaution puisque notre emploi du questionnaire, afin de répartir les Multinationales en groupe ayant entrepris des politiques de protection et en groupe n'ayant pas entrepris de telles politiques, est une procédure discutable à laquelle nous n'avons pu échapper. En outres, il importe de réaliser aussi que tout test de l'effet du FAS#8 est un test joint qui porte, par la même occasion, sur le modèle employé pour le calcul des rendements théoriques.

IV. Conclusion

Nos résultats semblent indiquer que le groupe de multinationale à cash-flow sensible, GCFS a été affecté négativement par la nouvelle réglementation. Les différentes politiques de protection entreprises par les multinationales composants ce groupe semblent en être les principales causes.

Bibliographie

Beaver, W., A. Christie et P. Griffin, "The Information content of SEC Accounting Series Release No.190", Journal of Accounting and Economics 2, 1980.

Evan, T.G., W.R. Folks et M. Jelling, "The Impact of Statement of Financial Accounting Standards No.8 on Foreign Exchange Risk Management Practices of American Multinationals", FASB, Novembre 1978.

Fabozzi, F.J. et J.K. Francis, "Beta as Random Coefficient", Journal of Financial and quantitative Analysis, March 1978.

Gonedes, N.J., "Risk Information, and the Effect of Special Accounting Items on Capital Market Equilibrium", Journal of Accounting Research, Automne 1975.

Massaro, V.G., "Corporate Experience with FASB Statement 8", Information Bulletin No.40 of the Conference Board, New York, juin 1978, publication du FASB.

Morrisson D., "Multivariate Statistical Methods", 2ème Edition, McGraw-Hill, New York, 1976.

Naciri, A., "La réaction boursière à l'uniformité en matière comptable: Cas de la conversion des états-financiers en devises étrangères", minutes de l'association canadienne des professeurs de comptabilité, 1982.

"Accounting Standard's Economic Effects: The Case of the FAS#8", Université du Québec à Montréal, 1983.

Peat, Marwick et Mitchel et Cie., "A survey of the Economic Impacts of FASB Statement No.8", New York, juin 1977, Publication de Peat et Cie.

Scott, D. et C. Walker, "Foreign Currency Translation in Canada and United States", CA Magazine, Novembre 1974.

Stanley, M.J. et S.B. Block, "Economic Consequences of FASB No.8", Papier de recherche, Texas Christian University, 1977.

Theil, H., "Principles of Econometrics", New York, John Whiley and Son, 1971.

LES FACTEURS EXPLICATIFS DU DELAI DANS LA PRODUCTION ET LA DIVULGATION DE L'INFORMATION COMPTABLE

Par: Daniel Zéghal

Les états financiers publiés régulièrement par les firmes constituent l'extrant majeur du processus de production de l'information comptable vers les utilisateurs à l'extérieur de la firme.

La réputation des comptables comme gardien et promoteur de l'efficacité et de la productivité dans la firme n'est plus à faire. Plusieurs critères et instruments de mesure de performance sont sous juridiction comptable ou d'inspiration comptable. Curieusement, la fonction qui a le plus souvent échappé à ces efforts de rationalisation dans la firme est la fonction comptable. Ceci nous semble-t-il est principalement dû à la difficulté de percevoir la fonction comptable comme une activité économique, dont l'un des objectifs majeurs est la production de données comptables et à laquelle il y a lieu d'appliquer les mêmes critères d'efficacité économique que ceux appliqués aux autres fonctions fondamentales dans la firme.

Sur un autre plan les recherches sont unanimes à l'effet que les états financiers sont utiles à plusieurs utilisateurs et différents types d'utilisateurs et ont par conséquent une certaine valeur informationnelle. Il restait aux comptables, dans ces conditions, au moins deux types d'objectifs à poursuivre dans la préparation des états financiers. Le et à promouvoir leur utilisation, quant au deuxième il consiste à améliorer l'efficacité et la productivité du processus de production des états financiers.

La plupart des recherches, et des préoccupations académiques, professionnelles et autres se sont concentrées presque exclusivement sur le premier type d'objectifs d'où les études sur les objectifs des états financiers, la divulgation comptable, le contenu informationel des états financiers et autres. Les aspects relatifs au processus de production des données comptables tels que le coût de préparation, la technologie, et le timing nous semblent avoir été négligés.

L'objet de cet article est d'analyser et d'expliquer le délai exprimé en nombre de jours qui sépare la date de fin d'exercice de la date de publication des états financiers trimestriels et annuels.

Rappelons tout d'abord que l'information divulguée dans les états financiers est de nature principalement historique et le fait de retarder sa publication ne peut qu'accentuer cet aspect historique; ceci fournirait potentiellement l'occasion à d'autres sources d'information concurrents de

s'y substituer et d'en diminuer par conséquent leur utilité. C'est ainsi que la plupart des organismes de règlementation comptables ont adopté la publication en temps opportun comme une caractéristique que doit posséder l'information comptable pour être utile aux utilisateurs (FASB (1979), ICA (1975), APB (1970)). Placée dans une perspective économique pour juger de la productivité du processus comptable, le délai peut être perçu comme une mesure d'efficacité du processus de préparation et de publication des états financiers et pourrait éventuellement servir dans une analyse coûts-bénéfices du processus de production et de reportage de l'information comptable.

Dans le restant de cet article nous tenterons en première étape de traiter très brièvement de la nature du délai que prennent les firmes pour rendre public leurs données comptables et des principales composantes qui forment ce délai. Dans la deuxième partie nous identifions l'échantillon et nous donnons une description et une analyse statistique du délai. Enfin en troisième partie nous proposons un modèle pour expliquer empiriquement les variations dans le délai.

I Les recherches antérieures sur le délai:

Les études qui ont porté sur l'analyse du délai dans la publication des rapports comptables sont peu nombreuses. Dans tous les cas elles se sont limitées au délai de publication dans les rapports annuels et se tenant par conséquent à donner une indication partielle sur le processus comptable.

Selon Dyer et Mc Hugh (1975), le délai dans la publication des états financiers annuels peut être perçu comme un agrégat de différentes composantes de délai dont les principales sont le délai de préparation des états financiers, le délai de vérification et le délai d'impression. Les auteurs ont rapporté un accroissement dans le délai de publication des états financiers par les sociétés australiennes durant la période 1965 à 1971. Ils ont pu trouvé une relation inverse entre la taille de la firme et le délai de publication de ses états financiers. Des résultats similaires pour la Nouvelle Zélande ont été rapporté par Courtis (1976) et à nouveau dans le contexte australien par Davis et Whittred (1980).

Finalement Givoly et Palmon (1982) ont basé leur étude sur des données américaines, la conclusion majeure de leur recherche est à l'effet que la publication tardive des états financiers semble diminuer leur contenu informationnel pour le marché des capitaux.

Notre effort dans cette étude consiste à extensionner les recherches antérieures par l'inclusion des rapports trimestriels et le développement d'un modèle explicatif du délai dans la publication des rapports comptables.

II Méthodologie

1. Sélection de l'échantillon

Cette étude s'appuie sur un échantillon de 11,733 annonces de

publications d'états financiers trimestriels et 4,186 annonces d'états financiers annuels appartenant à 1,402 compagnies, soit une moyenne de 11.5 états financiers par compagnie, pour les années 1973, 1974 et 1975.

Ont été incluses dans l'échantillon toutes les firmes cotées à la Bourse de New York et à la Bourse américaine qui ont répondu aux critères suivants:

a) Les rendements sont disponbibles sur la banque de données CRSP pour la période: 1/1/69 au 31/12/75.

b) Les données financières sont disponibles sur la banque de données COMPUSTAT.

c) La compagnie n'a pas changé d'industrie durant la période.

D'autres conditions devraient être respectées pour qu'une compagnie soit incluse dans l'une des sous périodes ou dans toutes:[1]

d) La compagnie a eu au moins deux états financiers publiés dans le Wall Street Journal pour chacun des exercices considérés, soit 1973, 1974 et 1975.

e) Le nombre d'observations de rendements manquants n'a pas excédé dix durant la période de formation, et cinq durant la période d'estimation.[2]

Ces dernières restrictions ont laissé le nombre de compagnies suivantes pour chacune des sous-périodes: 1973: 1303 compagnies; 1974: 1337 compagnies; 1975: 1362 compagnies.

Parmi les autres caractéristiques de l'échantillon:

i. Les firmes appartiennent à plus que 200 groupes d'industries selon le Standard Industriel Classification.

ii. La distribution en pourcentages des firmes selon leur mois de fin d'exercice est comme suit:[3]
janvier 3.63 (5.0), février 2.28 (2.5), mars 3.99 (4.5), avril 2.42 (5.84), mai 1.30 (2.2), juin 7.70 (8.7), juillet 2.63 (2.8), août 2.06 (2.5), septembre 5.84 (6.5), octobre 2.78 (4.1), novembre 2.42 (2.6), décembre 62.91 (55.4).

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1 Une sous période est équivalente à une année, ce qui donne trois sous périodes correspondants aux années 1973, 1974 et 1975.

2 Nous définissons plus loin les périodes d'estimation du risque.

3 Les chiffres entre ponenthèses indiquent les pourcentages de la date de fin d'exercice de toute les firmes sur COMPUSTAT (Foster (1978)). La similarité des deux distributions indiquent que notre échantillon constitut une bonne représentation de la population.

iii. 389 compagnies sur un total de 1402 sont cotés sur la bourse américaine (AMEX).

2. L'identification des dates de publication des états financiers.

Les dates de publication des états financiers ont été identifiées d'après le Wall Street Index.

3. Mesure du délai

La mesure du délai (D) est déterminée par le nombre de jours qui sépare la date de la fin du trimestre ou de l'année fiscale et la date de publication des états financiers telle qu'annoncée sur le Wall Street Journal.

Avec D^q le délai moyen pour les trois états financiers intérimaires (soit le premier trimestre fiscal, le deuxième et le troisième), D^a le délai pour le rapport annuel et D^m le délai moyen pour les quatres rapports émis par la firme durant une année, le tableau no. 1 nous donne une description de la distribution pour chacune des variables. La moyenne du délai pour la publication des états financiers intérimaire D^q est de 27.16 jours et la déviation standard est de 9.68. Ils sont respectivement de 46.6 et de 18.12 dans le cas du délai de publication du rapport annuel D^a. Finalement lorsqu'on considère le délai pour les quatres rapports réunis D^m, la durée moyenne est 32.46 et la déviation standard est de 10.67.

L'examen des distributions des trois variables semble indiquer des différences significatives dans le délai que se donnent les firmes pour rendre public leurs états financiers; à titre d'exemple le délai moyen dans le premier quartile dépasse généralement de 50% le délai moyen dans le premier quartile et ceci s'applique autant au délai trimestriel, annuel que total.

4. La stabilité du délai

Selon le tableau no. 2, la moyenne des délais trimestriels est demeurée stationnaire pour les trois premiers trimestres de l'année et durant les trois années de l'étude. Nous remarquons cependant une légère tendance à la hausse dans la moyenne du délai des rapports annuels.

Pour juger de cette stabilité au niveau de l'ensemble des distributions nous avons d'abord généré les fréquences relatives cumulées (f.r.c) pour chacune des années. Nous avons ensuite pu vérifier à l'aide du test Kolmogorov-Smirnov les hypothèses que f.r.c. 1973 = f.r.c. 1974; f.r.c. 1974 = f.r.c. 1975; et f.r.c. 1973 = f.r.c. 1975 peuvent être acceptés pour un intervalle bilatéral à 95% de confiance. Ce résultat s'applique autant aux rapports trimestriels qu'aux rapports annuels. Notons enfin que le délai annuel est généralement plus long que les délais trimestriels, toutefois une forte corrélation de l'ordre de 70% semble indiquer que tous les deux sont affecté par les mêmes facteurs.

Cette analyse statistique du délai nous permet de conclure qu'il existe des différences significatives dans le délai que prennent les firmes

pour rendre public leurs rapports comptables et que dans l'ensemble les délais trimestriels et annuels sont stationnaires d'une année à l'autre et à l'intérieur d'une même année pour les rapports trimestriels. Ces résultats en plus de motiver notre désir d'expliquer le délai vont selon nous orienter notre choix quant à la sélection des facteurs explicatifs. Ceci fera l'objet de la section suivante.

III L'explication du délai

La stationnarité du délai à travers les trimestres et à travers les anneés, ainsi que l'homogénéité des distributions de délai d'une période à l'autre indiquent que les écarts dans le délai sont demeurés invariables avec le temps.

Ceci suggère, selon nous, que les facteurs et les variables qui déterminent le délai de publication des rapports comptables seraient de nature permanente et structurelle à l'entreprise telles que les caractéristiques opérationnelles plutôt que de nature transitoires et conjoncturelles tels que les résultats des dites opérations.

Nous avons retenu dans ces conditions les trois variables suivantes pour expliquer les différences dans le délai que prennent les entreprises pour rendre public leur rapports comptables:

1. l'industrie
2. la taille
3. et le risque

Ces variables peuvent être perçues dans la plupart des cas comme des variables subrogées par des variables qui affectent directement le délai, nous donnerons au fur et à mesure dans ce qui suit les motivations qui sont à l'origine du choix de chacune des variables avant de vérifier sa présence empirique.

1. L'industrie

La classification des entreprises en groupes d'industries constitue une bonne indication de la nature de l'activité des entreprises dans leur groupe d'appartenance. Le caractère saisonnier de l'industrie et sa coincidence avec celui des cabinets comptables, la nature des opérations de l'entreprise et leur complexité (par exemple certains stocks sont plus difficiles et/ou plus longs à évaluer et à vérifier que d'autres, la structure du marché de l'industrie sont autant des facteurs qui peuvent affecter la longueur du délai.

En raison de l'uniformité qui peut exister entre les entreprises classées dans une même industrie et en raison des différences qui peuvent exister d'une industrie à l'autre l'on peut s'attendre à des différences significatives dans le retard de publication des états financiers d'une industrie à l'autre.

Après avoir classé les industries par ordre croissant selon la moyenne pour les firmes qui les composent du délai des rapports trimestriels, annuels et total. Nous avons rapportés sur le tableau no 3 les six industries qui ont eu les moyennes les plus faibles, les six qui ont eu les moyennes les plus fortes et les six industries médianes pour les variables D^q, D^a et D^m. Les résultats de ce tableau indiquent clairement un comportement des firmes marqué par leur industrie d'appartenance.

2. La taille

Les raisons économiques qui justifient l'inclusion de la taille sont à l'effet que la taille est une variable subrogée pour plusieurs variables qui pourraient affecter le délai, de telles variables pourraient appartenir entre autre à l'économie de l'information, la qualité du système interne, au coût politique et à la visibilité des firmes de grande taille, ainsi qu'aux règlementations du marché des capitaux et des valeurs mobilières etc.

Selon ZEGHAL (1981) la taille de la firme peut-être considérée comme une variable subrogée pour le montant des ressources allouées à la production de l'information par et sur la firme et par conséquent à la préparation des états financiers. Une étude effectuée par la Commission des valeurs mobilières sur les compagnies publiques révèle que le fardeau de reportage des données comptables et significativement beaucoup plus élevé pour les petites compagnies. Pour la préparation de la formule 10-K, les compagnies de petite taille encourent des coûts qui sont 60 fois plus élevés par dollar de vente que ceux des firmes de grande taille; dans le cas de la formule 10-Q, les mêmes coûts sont 120 fois plus élevés.[4] De plus, la taille servirait comme indication quant au degré de priorité accordé par le vérificateur aux firmes de grande taille et aussi par les administrateurs de ces firmes qui considèrent les états financiers comme un instrument privilégié des relations publiques notamment auprès de leur créanciers et actionaires. Etant donné le nombre d'actionnaire, le coût moyen par actionnaire demeure faible.

La divulgation en temps opportun des états financiers est une part intégrale de la fonction managérielle. Les administrateurs des firmes de grande taille préfèrent généralement des délais courts pour les rapports de leur compagnie, en raison de l'intérêt externe relativement important vis-à-vis les firmes de grande taille. L'on peut s'attendre que les administrateurs allouent une portion de chaque dollars marginal de revenu pour l'achat d'un délai moindre[5] jusqu'au point où le bénéfice marginal

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4 Report of the Advisory Committee on Corporate Disclosure to the SEC, (chapter 17), 1977.

5 Par achat de délai on entend l'embauche de plus de personnel comptable, l'implantation de système d'informatique, le paiement d'honoraires plus élevés par le vérificateur pour le dicton un délai de vérification plus court. C'est probablement un contexte où "le temps c'est de l'argent" peut être rappelé comme étant "l'argent c'est du temps en moins".

pour les actionnaires et les créanciers et autres résultats de la prochaine réduction marginale du délai soit inférieure au coût qui y est engagé, étant donné que les firmes de grande taille ont des ressources substantielles, en terme absolue et relatifs. L'on peut s'attendre qu'une covariabilité négative significative peut exister entre la taille de la firme et le délai.

Compte tenu des considérations ci-haut mentionnées, l'on s'attend dans ces conditions que les firmes de grande taille prennent moins de temps à rendre public leurs états financiers que les firmes de petite taille.

Nous avons adopté le total de l'actif au bilan comme mesure de la taille de la firme.[6]

Selon cette mesure, la taille moyenne des firmes dans notre échantillon est de $733 millions et l'écart-type est de $2,060 millions. La taille de la plus petite firme est de $787,000 alors que la taille de la plus grande firme est de $39,678 millions.

Nous nous attendons de retrouver une relation inverse entre la taille de la firme et le délai de publication des états financiers.

Pour fin de vérification de cette hypothèse nous avons effectué une analyse de variance après avoir classifié les firmes en trois groupes de taille, petite, moyenne et grande. Les résultats de cette analyse qui apparaissent sur la table no. 4 indiquent clairement la présence significative de l'effet de la taille sur le délai que prennent les firmes pour rendre public leurs états finanbiers. Cette tendance semble se confirmer autant dans le cas des rapports trimestriels, les rapports annuels ainsi que les deux réunis. Les valeurs de F sont très élevées et elles sont largement significatives.

Il est à remarquer que l'écart entre les firmes de petite taille et les firmes de taille moyenne est de beaucoup plus élevé que l'écart entre les firmes de grande taille et les firmes de taille moyenne ceci pourrait s'expliquer par la présence d'économies d'échelle décroissantes dans le cas de la production de l'information comptable.

La relation beaucoup plus significative entre la taille et le délai de publication des rapports annuels indique, selon nous, un effet plus grand des économies d'échelle dans le cas des rapports annuels et pourrait indiquer aussi l'avantage que rencontrent les firmes de grande taille auprès des firmes de vérification comparativement aux firmes de petite taille de même que l'importance plus grande du rapport annuel comme médium de communication à l'extérieur de la firme que dans le cas des rapports

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6 Selon Stigler (1968), "two firms are equal in a market if they sell or buy equal quantities in that market. Hence measure a firm's size by sales in a product market, by employees in a labor market by materials in a material market, by asset in a capital market". p. 30.

intérimaires. Le résultat de l'effet de la taille sur le délai de publication des rapports comptables corrobore les résultats de Dyer et Mc Hugh(1975) et dans Whittered(1980) dans le cas des rapports annuels des firmes australiennes.[7]

3. Le Risque

Le risque est une des caractéristiques majeures des opérations de la firme et de ses résultats. Lorsque les activités de la firme peuvent être caractérisée comme fort risquées l'on peut s'attendre que le processus d'évaluation des actifs et des coûts, celui de rapprochement des revenus et des dépenses et d'une façon générale le processus de mesure et de production de l'information deviennent très complexe et par conséquent demandent plus de temps.

De plus, un environnement volatile rend plus difficile la fonction du vérificateur, à titre d'exemple des variations importantes dans les résultats rapportés entrainent généralement des investigations plus poussées du côté du vérificateur.

L'on s'attend dans ces conditions que le risque de la firme affecte positivement la durée de publication des états financiers. Nous avons adopté la variance de rendements boursiers comme mesure du risque de la firme.

Le calcul de la variance des rendements quotidiens des titres dans l'échantillon pour chacune des périodes: la première période s'étend du 1er janvier 1969 au 31 décembre 1972, la deuxième du 1er janvier 1970 au 31 décembre 1973 et la troisième du 1er janvier 1971 au 31 décembre 1974.

Enfin pour fin de vérification de notre hypothèse quant à l'effet du risque sur le délai de publication des états financier nous avons adopté une analyse de variance après avoir classé les firmes en trois catégories selon que leur risque soit considéré comme faible, moyen ou élevé.

Les résultats rapportés sur la table no. 5 confirment l'hypothèse voulant que le risque affecte positivement le délai que prennent les firmes pour rendre public leurs états financiers.

Autant au niveau des rapports trimestriels (D^q), que le rapport annuel (D^a) que les deux réunis (D^m), les firmes au risque élevé semblent prendre plus de temps que les firmes au risque faible pour rendre public leurs états financiers. L'effet du risque sur le délai est moins fort que celui de la taille, toutefois les valeurs de F sont largement significatives dans

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7 Lorsque nous avons changé la mesure de la taille pour la valeur au marché des actions ordinaires plus la valeur au livre de la dette, les résultats de l'analyse de variance sont demeuré sensiblement les mêmes.

le cas des trois variables.[8] Ce résultat nous permet de conclure que les données comptables bien qu'elles ne communiquent pas une mesure explicite du risque, elles se trouvent néanmoins implicitement affectées dans leur production par le risque de la firme et ceci malgré leur caractère historique et apparament certain.

La Relation taille - Risque et l'Effet d'interaction:

En raison des relations potentielles, conceptuelles et empiriques, qui existent entre la taille et le risque nous avons décidé de reprendre l'analyse de variance en incluant cette fois-ci simultanément les deux variables la taille et le risque. Cette procédure nous permettrait notamment de détecter si l'effet déjà identifié au niveau du risque serait dû à un effet camouflé de la taille.

Le résultat de l'analyse de variance apparait sur le tableau no. 6. Cette analyse confirme la présence de l'effet du risque sur le délai de publication des états financiers. Le niveau de signification est toutefois légèrement plus faible que dans le cas de l'analyse basée sur le risque séparé de la taille. Signalons enfin, que l'effet d'interactions était non significatif.

IV. L'analyse Multivariée

Cette analyse vise à palier à deux limites des résultats que nous venons de présenter. D'abord déterminer l'effet total des trois variables sur les variations dans le délai. Ensuite voir dans quelle mesure les correlations potentielles entre les variables ne rendrait pas non significatif leur effet partiel déjà établi.[9] Sur la base des arguments et des résultats présentés dans la section précédente l'on peut écrire que le délai dans la publicaton des rapport comptable (D) est une fonction de

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8 Lorsque nous avons adopté le risque systématique béta comme mesure du risque, l'effet sur le délai était statistiquement significatif dans le cas des rapports trimestriels (D^q) et non significatif dans le cas des rapports annuels (D^a), ces résultats apparaissent sur le tableau 6. Signalons que dans le cas des rendements quotidiens une estimation non biaisée du risque systématique pourrait être obtenue en additionnant les coefficients obtenus de la regression multiple des rendements observés d'un titre sur les rendements précédents, synchronisés et subséquents du marché. Cette approche fut suggéré par Dimson (1979) et semble avoir des propriétés attrayantes par rapport à la méthode suggérée par Scholes et Williams (1977), nous avons adopté un indice avec pondération égale pour toutes les firmes disponibles sur la banque de données CRSP pour calculer le rendement du marché.

9 On peut imaginer que l'industrie et le risque véhiculent des indications similaires quant aux opérations de la firme; de même la taille de la firme pouvait servir d'indicateur de la structure industrielle de l'industrie.

l'industrie (I) la taille de la firme (T) et le risque (R) en d'autres mots:

$$D = f(I, T, R).$$

L'estimation d'une telle fonction pose toutefois un problème en raison de la variable industrie. Cette variable rappelons-le n'est ni cardinale ni ordinale et que son remplacement par une variable Dummy n'est donc pas pertinent en plus d'être difficile à opérationnaliser notamment en raison du nombre d'industries impliquées. Nous avons dans ces conditions décidé de procéder à l'analyse en deux étapes:

La première consiste à déterminer l'effet de la taille et du risque sur le délai soit: $D = f(T, R)$, et la deuxième consiste à déterminer l'effet de l'industrie sur le délai ajusté D pour l'effet de la taille et du risque, soit: $D = D - f(T,R)$

et ensuite:

$$D = f(I).$$

Pour fin d'estimation du modèle de regression nous avons remplacé la variable taille par son logarithme. Cette décision est motivée par les résultats des études qui ont conclu que la distribution logarithmique de la taille se conforme mieux aux caractéristiques de symétrie et de normalité (Halt et Prais (1956), Simon et Bonini (1958)). Le tableau no. 7 rapporte les résultats de l'estimation du modèle:

$$D = f(\ln T, R).$$

Dans l'ensemble ces résultats confirment les hypothèses et les résultats de l'analyse partielle. Les coefficients de regression sont largement significatif et du signe attendu soit négatif pour la taille et positif pour le risque. Le pouvoir explicatif du modèle est impressionnant est contraste avec les résultats de Dyer et MC Hugh (1975), Curtis (1976) et Givoly et Palmon (1982) qui concluaient que malgré la présence de la relation entre le délai et certaines variables, leur pouvoir explicatif demeure faible.

Nous avons finalement repris l'analyse de l'effet de l'industrie sur le délai en adoptant la variable ajustée pour la taille et le risque:
$D = D - f(\ln T, R)$.

Les résultats de cette analyse dégagent une tendance fort similaire à celle que nous avons rapporté sur le tableau no. 3. Toutefois avec des amplitudes d'écarts moins grandes. Ceci indique selon nous que l'industrie demeure un facteur déterminant pour une partie des variations du délai même lorsqu'on contrôle pour le risque et la taille de la firme.

Conclusion

Dans cette recherche nous avons examiné le délai, mesuré en nombre de jours qui sépare la date de fin d'exercice de la date de publication des données comptables; nous avons tenté d'analyser et de déterminer les facteurs et les variables qui ont en effet déterminant sur ce délai.

Selon l'évidence présentée dans cette recherche il existe des différences significatives entre les délais que prennent les firmes pour rendre public leurs états financiers.

Dans l'ensemble le délai est demeuré stationnaire d'une année à l'autre durant la période de l'étude; la même stationnarité s'applique autant au niveau des rapports trimestriels qu'annuels. À l'intérieur d'une même année les rapports trimestriels semblent commander sensiblement le même délai. Le délai annuel est généralement plus long, il demeure toutefois fortement correlé aux délais trimestriels.

Cette évidence sur le comportement de délai nous a permis de suggérer que les facteurs qui déterminent le délai sont de nature structurelle et permanente à l'entreprise plutôt que de nature conjoncturelle.

Nous avons retenu trois variables pour expliquer les variations dans le délai, l'industrie, la taille et le risque. Les analyses partielles ont indiqué un effet significatif de chacune des variables sur le délai.

Selon nos résultats les firmes de grande taille prennent moins de temps que les firmes de petite taille pour rendre public leurs états financiers. Selon cette évidence les firmes de grande taille semblent jouir d'avantages comparatifs dans la préparation et la vérification des états financiers. Enfin il existe une relation positive entre le risque de la firme, tel que mesuré par les variances des rendements quotidiens sur les actions ordinaires, et le délai de publication de ses états financiers, ceci permet de suggérer que les données comptables malgré leur caractère historique et explicitement certain, demeurent affectées du moins implicitement par le risque de la firme et de ses opérations.

Lorsque nous avons procédé à une analyse multivariée en incluant dans le même modèle le logarithme de la taille et le risque il était possible d'expliquer environ 50% des variations. L'effet de la variable industrie est demeuré encore significatif sur les variations résiduelles.

Cette recherche constitut une étape dans le procesus de compréhension et de rationalisation de la fonction comptable dans la firme. Le délai demeure la variable la plus importante au centre du processus comptable autant pour les comptables producteurs de l'information, les organismes de règlementation comptable que pour les utilisateurs de cette information. Rappelons enfin que le délai dans la production de l'information comptable revêt une importance particulière quand il s'agit d'examiner le rôle et l'utilité de cette information dans un marché efficient.

TABLEAU N° 1

SOMMAIRE DES DISTRIBUTIONS POUR LES

VARIABLES D^q, D^a et D^m

fractile	D^q		D^a		D^m	
	Moyenne	ecart-type	Moyenne	ecart-type	Moyenne	ecart-type
.05	9.51	4.66	2.46	5.11	13.038	5.65
.25	16.21	4.25	20.25	9.85	18.00	4.65
.50	19.76	4.77	29.35	11.85	23.99	5.35
.75	22.94	6.06	37.00	14.72	27.83	7.13
.95	26.94	9.29	45.47	17.62	31.85	10.22
total	27.16	9.68	46.60	18.12	32.46	10.67

Tableau no. 2

Moyennes et écart types des délais trimestriels et annuels repartits selon les trimestres et selon les années*

	1973	1974	1975	1973-75
1er trimestre	27.14 (10.90)	27.83 (10.69)	28.81 (11.20)	27.92 (10.95)
2ième trimestre	27.45 (10.75)	28.77 (11.15)	28.23 (10.69)	28.15 (10.02)
3ième trimestre	28.45 (11.02)	29.13 (10.75)	28.45 (10.80)	28.67 (10.85)
Moyenne des trois premiers trimestres	26.68 (11.17)	27.64 (10.66)	27.80 (10.72)	27.16 (9.68)
Rapport Annuel	43.92 (18.06)	46.77 (17.96)	47.01 (18.05)	46.60 (18.12)

* les chiffres entre parenthèses indiquent l'écart-type de la distribution.

TABLEAU No. 3

LES SIX INDUSTRIES AVEC LES DELAIS

LES PLUS FAIBLES, MEDIAN ET ELEVÉ

	Code industriel	D^q	Code industriel	D^a	Code industriel	D^m
Les six industries avec le délai le plus faible	3841	16.21	4811	28.46	3841	23.80
	3429	17.95	3536	30.64	2111	24.52
	3823	20.53	2111	31.73	3429	24.79
	3714	21.27	4011	32.01	3714	25.57
	3825	22.14	4911	32.99	4811	26.40
	3536	22.50	2911	35.35	7011	26.70
Les six industries avec le délai median	3811	26.09	5712	41.18	5712	30.58
	2911	26.50	3711	41.61	3825	30.62
	3069	26.62	3429	41.77	3452	30.77
	2065	27.35	7392	42.87	4511	31.95
	2844	27.88	3241	43.61	2721	32.18
	4811	27.97	2844	43.68	2844	33.14
Les six industries avec le délai le plus élevé	3651	36.03	561	55.14	1381	41.50
	1381	36.63	3651	55.89	5944	43.63
	5944	39.27	5944	56.70	3651	44.06
	5065	40.42	3069	58.05	5065	48.51
	6552	40.79	6552	59.73	6552	50.14
	3341	41.53	7393	64.63	3341	52.50

TABLEAU NO. 4

RÉSULTATS DE L'ANALYSE DE VARIANCE POUR LES VARIABLES D^q, D^a et D^m EN FONCTION DE LA TAILLE DE LA FIRME TEL QUE MESUREE PAR LE TOTAL DE L'ACTIF.

IDENTIFICATION DES GROUPES DE TAILLE	CLASSE DE TAILLE $ (000,000)	NOMBRE DE FIRMES	D^q	D^a	D^m
PETITE	< 68.03	1234	31.51	58.02	38.86
MOYENNE	68.03 a <382.47	1234	26.21	45.18	31.42
GRANDE	382.47 et plus	1234	24.13	37.58	27.64
TOTAL		3702	27.16	46.60	32.46
VALEUR DE F			187.23	452.07	383.04
NIVEAU DE SIGNIFICATION			0.000	0.000	0.000

TABLEAU NO. 5

RESULTAT DE L'ANALYSE DE VARIANCE POUR LES

D^q, D^a ET D^m EN FONCTION DU RISQUE DE LA FIRME TEL QUE

MESURE PAR LA VARIANCE DU RENDEMENT BOURSIER QUOTIDIEN

IDENTIFICATION DES GROUPES	CLASSIFICATION	NOMBRE DE FIRMES	D^q	D^a	D^m
FAIBLE	< .020098	1234	26.40	44.44	31.29
MOYEN	.020098 à < .029428	1234	26.80	46.76	32.26
FORT	.029428 et plus	1234	28.37	48.63	33.89
TOTAL		3702	27.16	46.60	32.46
VALEUR F			12.56	14.38	16.24
NIVEAU DE SIGNIFICATION			0.000	0.000	0.000

TABLEAU No. 6

RESULTAT DE L'ANALYSE DE VARIANCE POUR LES VARIABLES

D^q, D^a ET D^m EN FONCTION DE LA TAILLE ET DU RISQUE

	D^q		D^a		D^m	
	F	Signification de F	F	Signification de F	F	Signification de F
Effet	87.43	0.000	190.45	0.000	176.95	0.000
Risque	4.05	0.018	4.33	0.013	6.76	0.001
Taille	161.90	0.000	364.08	0.000	329.626	0.000
Interactions à deux sens Risque taille	1.64	0.16	1.58	0.175	0.972	0.422
Expliquée	44.544	0.000	25.45	0.000	88.634	0.000

Tableau no.7

Résultats de l'Analyse de regression pour le modèle:

$D = f(f(\ln T, R)$.

Variables	Délai		
	D^g	D^a	D^m
Constantes	32.77	58.12	43.90
ln T	-1.76	-4.66	-2.66
(écart-type)	(.10)	(.13)	(.11)
Risque	104.18	206.89	142.64
(écart-type)[a]	(12.11)	(18.20)	(15.16)
R^2	.43	.56	.47
F. Calculé	441.80	1029.20	884.16
Niveau de significations	0.000	0.000	0.000

[a] Tous les coefficients de regression sont significatifs au niveau d'un intervalle unilatéral de .05.

RÉFÉRENCES

Accounting Principles Board, "Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises", Statement No. 4 (American Institute of Certified Public Accountants, October, 1970).

Courtis, J.K. (1976), "Relationships between Timeliness in Corporate Reporting and Corporate Attributes," Accounting and Business Research (Winter 1976), pp. 45-56.

Davies, B., and G.P. Whittred (1980), "The Association Between Selected Corporate Attributes and Timeliness in Corporate Reporting: Further Analysis," Abacus (June 1980), pp. 48-60.

De Angelo, L.E., Auditor Size and Audit Quality, Journal Accounting and Economics, 3, (1981) 183-119.

Dimson, E., 1979, Risk Measurement when Shares are Subject in Infrequent Trading, Journal of Financial Economics 7, 197-226.

Dyer, J.C. IV, and Arthur J. McHugh (1975), "The Timeliness of the Australian Annual Report," Journal of Accounting Research (Autumn 1975), pp. 204-219.

Feltham, G.A. (1968), "The Value of Information, "The Accounting Review (October 1968), pp. 684-696.

Financial Accounting Board, Proposed Statement of Financial Accounting Concepts, Quantitative Characteristics: Criteria for Selecting and Evaluating Financial Accounting and Reporting Policies FASB 1979.

Foster, G., Financial Statement Analysis, Prentice-Hall (1978).

Givoly D. et Palmon D., "Timeliness of Annual Earnings Announcements: Some empirical endence", Journal of Accounting Research vol. LVII no 3, juillet 1982, pp. 486-588.

Haut et Prais, "The Analysis of Business Concentration: A Statistical Approach" Journal of the Royal Statistical Society, (1956), A., 19, pp. 150-181. The Institute of Chartered Accountants in England and Wales dans The Corporate Report (1975).

Mautz, R.K. (1954), Fundamentals of Auditing (John Wiley and Sons, 1954).

McDonald, D.L., "Feasibility Criteria for Accounting Measures", The Accounting Review, October 1967.

Schiff, A., and H.D. Fried, (1976), "Large Companies and the Big Eight: An Overview, "Abacus (December 1976), pp. 116-124.

Scholes, M. and J. Williams, 1977, Estimating Betas from Nonsynchronous Data, Journal of Financial Economics 5, 309-327.

Simons H.H. et Bonisi C.P. "The Size Distribution of Business firms" American Economic Review (1958), Vol. no. 48, pp. 607-617.

Snavely, H., "Accounting Information Criteria", The Accounting Review, Avril 1967.

Stettler, H.F. (1977), Auditing Principles (Prentice-Hall 1977).

Stigler, G.J., (1968), The Organization of Industry (Richard Irwin, Inc., 1968).

Wall Street Journal.

Wall Street Journal Index.

Whittred, G.P., Audit Qualification and the Timeliness of Corporate Annual Reports, The Accounting Review Vol. LV, no. 4, October 1980, 563-577.

Zéghal, D., L'effet de l'information non comptable sur la valeur informationnelle des états financiers sur le marché des capitaux, Revue Canadienne d'économique Vol. XIV, no. 2, mai 1981.

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University of British Columbia

Sudhir K. Saha
Memorial University of Newfoundland
Trim Shastri
University of Windsor
Yash Gupta
University of Manitoba

JOB SATISFACTION OF ACCOUNTANTS: ANTECEDENTS AND CONSEQUENCES

Abstract

This research paper provides an integrative conceptual framework encompassing individual, job and organizational variables for the study of job satisfaction of accountants in public and private organizations. Certain antecedents and consequences of job satisfaction have been identified and discussed. Some exploratory data from the authors' continuing investigation of job satisfaction of Canadian accountants are also reported here. Multiple regression analysis of data revealed that job characteristics and certain organizational characteristics had significant influence on the job satisfaction of subjects under study. Implications of these findings are discussed.

Job satisfaction generally means the degree to which employees satisfy their needs in organizations. Research investigations on job satisfaction have proliferated over the last few decades. According to Locke (1976) more than 3,300 studies have been published on the subject. Concerns for employee productivity, job and organizational commitment, absenteeism, turnover and also recent concern for the "Quality of Work Life" have spurred most of these investigations. A number of theories have been proposed to explain the job satisfaction phenomenon. Early writers (Taylor, 1947) focussed on pay and physical conditions as determinants of job satisfaction. In the 1940's and 1950's, social factors such as supervision and the work group dominated much of thinking on the subject. Work done by motivation researchers (Maslow, 1954; Herzberg, 1959; Vroom, 1964; and Porter and Lawler, 1968) attempted to explain job satisfaction in terms of individual need perceptions, goals and values. Work of Turner and Lawrence (1965), Emery and Trist (1969), Hackman and Oldham (1976) reveals a continuing interest in the investigation of job contents and job contexts as determinants of job satisfaction. Payne and Pugh (1976) provided an excellent summary of research findings on organizational climate and structure and have shown that these organizational factors are also related to job involvement and job satisfaction. Research work mentioned here so far has all contributed a great deal to our understanding of job satisfaction; but they seem to emphasize one or more aspects of job satisfaction--work itself or organization factors, or individual needs and perceptions--and ignore others. An integrated conceptual framework encompassing all the relevant variables affecting job satisfaction is needed. One of the main purposes of this paper is to present a model which takes into consideration individual job and organizational variables influencing job satisfaction.

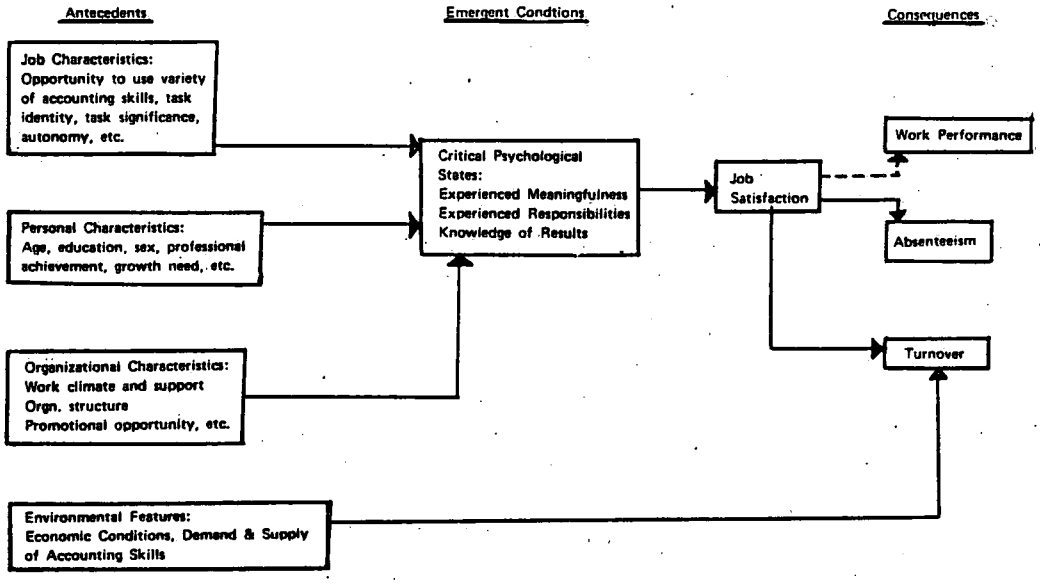
Traditionally, jobs of people in lower ranks of an organizational hierarchy in manufacturing, trade and service organizations have been subjects of job satisfaction research investigations. This may be due to a variety of reasons--manifest discontent of job incumbents, biases of investigators, easier to study, etc. Of late, however, jobs of professional people such as the accountants in various public and private institutions have received attention from research investigators. Ivancevich and Strawser (1969), Francia and Strawser (1970), Fetyko (1972), Seiler and Sapp (1979), Benke, Jr., and Rhode (1980) and Hurka (1981) have focussed on accountants as an analysis group in their job satisfaction studies. These studies, however, used either Maslow-type needs or role conflict and ambiguity or a combination of personal and job characteristics as explanatory variables for job satisfaction. For example, Ivancevich & Strawser (1969) and Hurka (1981) studies job satisfaction of public accountants only in terms of satisfaction of certain needs. Seiler and Sapp (1979) described work satisfaction of management accountants in the U.S. in terms of role conflict and role ambiguity.

While the above studies added to our knowledge about job satisfaction of accountants, there exists certain gaps in the conceptual framework used in previous research investigations. Concentration on a class of variables such as "Individual needs", or "Job factors" or "Organizational factors" as sources of job satisfaction leads to inappropriate emphasis being placed on certain things and the neglect of others. Recent work of Hackman (1980), Robey (1980) and Chung and Megginson (1981) suggest that many job enrichment programmes have not succeeded for lack of an integrated conceptual framework. These researchers further suggest that job characteristics (skill variety, task identity, task significance and others), individual factors (needs, goals and values) and organizational factors (hierarchy, climate, reward-punishment process) should be studied carefully before undertaking job redesign. Following these it may be suggested that job satisfaction likewise should be broadly conceptualized in terms of individual, job and organizational characteristics. Moreover, a study of job satisfaction of accountants should not only be concerned with simply describing certain aspects of work satisfaction (pay, co-workers, etc.), it should outline the relevant antecedents and consequences of job satisfaction. The latter approach to the study of job satisfaction entails identifying the relevant individual, organizational, job content and contextual factors, and also relevant environmental forces that have certain impacts on job incumbents psyche and work outcomes. In this paper, a conceptual framework integrating earlier research will be presented first. Some preliminary data from our continuing study of job satisfaction of a group of Canadian accountants will then be presented in support of the conceptual framework.

A CONCEPTUAL FRAMEWORK

Figure 1 represents a model showing interrelationships of a number of variables that we find useful to consider in any diagnostic efforts relating to antecedents and consequences of job satisfaction.

FIGURE 1 A Conceptual Framework for the Diagnosis of Job Satisfaction



As mentioned earlier, there seems to be a prevailing opinion, in the light of accumulated research evidence, that any diagnosis of job satisfaction ought to identify the antecedent, intervening and outcome variables (Locke, 1976). We believe that an investigation of jobs and job satisfaction of professional accountants should be no exception to this. An examination of job characteristics might give one an indication of the causes and consequences of job satisfaction/dissatisfaction.

Why do job characteristics influence job satisfaction? According to the Hackman & Oldham theory (1976), these job characteristics enhance or reduce certain psychological experience of meaningfulness, responsibility and knowledge of results to be derived by job performance. For example, an accountant will experience meaningfulness and responsibility when his/her job provides for 1) certain degree of autonomy in decision making; 2) an opportunity to use a variety of accounting skills; 3) an assignment of identifiable and significant accounting tasks; and 4) sufficient and timely feedback of the accountant's performance. One should be cautioned, however, that the direction of causality between job characteristics and job satisfaction has been recently subject to certain controversy. While Hackman and his associates argue in favour of job characteristics influencing job satisfaction, recent work by James and Jones (1980) established reciprocal causation meaning that perception of job characteristics and job satisfaction influenced each other. In spite of this academic controversy, we feel that an examination of job characteristics of accounting jobs will reveal some of the causes of job dissatisfaction.

Why do organizational characteristics influence job satisfaction? An examination of the variables mentioned in Figure 1 would indicate that these characteristics influence an accountant's perception of how he/she is being treated by the firm, whether continued participation in the firm will lead to certain desirable outcomes such as promotion, responsibility, etc.

It has been shown by Hackman (1980) and others that people react differently to similar job makeup and organizational characteristics because of differences in certain personal background factors. Age, sex, education, tenure, professional achievement and growth need are some of the

frequently mentioned factors in the organizational behaviour literature. Whether or not a given job in a given firm is satisfactory to a practising accountant may be explainable if some of these personal factors are taken into consideration.

Rather than explaining variances in consequences of job satisfaction (e.g., turnover) in terms of residual factors, our conceptual framework provides for identification of some of these influences. These residual influences may be described in terms of certain environmental features of a given firm such as the demand and supply of accounting skills in a given geographic location. As shown in Figure 1, the environmental influences may be significant only when an accountant is thinking of a move out of his present job. Labour market and economic conditions influence job satisfaction only indirectly.

Work performance as a consequence of the level of job satisfaction has been shown in our conceptual framework by a broken line. This is simply to stress the point that management of an accounting firm should not expect that work performance is necessarily a function of high job satisfaction. Porter and Lawler (1968) indicate that equitable reward influences high performance which then produces job satisfaction. Locke (1976) and Triandis (1966) have suggested that the relationship between productivity and job satisfaction is moderated by such factors as "pressure for production" and "amount of supervisory direction". Job satisfaction is an important organizational phenomenon in its own right setting aside the issue of whether or not it will cause higher productivity. Besides, a number of reviews including Porter & Steers (1973) suggest that job satisfaction reduces turnover and absenteeism. In the context of professional accounting firms in Canada, turnover of accountants seem to be the major problem encountered by the management of such firms. The following are the highlights of the conceptual framework presented in Figure 1: First, it has been suggested that job satisfaction is related to antecedent factors such as job, personal and organization characteristics via certain critical psychological states such as meaningfulness, responsibility and knowledge of results. Second, job satisfaction has certain consequences such as absenteeism, turnover and possibly work performance. Third, certain environmental influences such as economic and labour market conditions influence turnover directly and job satisfaction indirectly. The main thrust of this framework is that a diagnosis of job satisfaction of professional accountants should outline all the antecedents and consequences of such job satisfaction.

An Exploratory Study of Canadian Accountants

Discussions about the situation of public accounting firms with the management of these firms inevitably lead to the internal problems of human resources management. Employee discontent and turnover seem to arise as the main concerns. Likewise discussions with the prospective entrants (accounting majors in the universities with co-op accounting experience) reveal reservations these people have about the job make-up in accounting firms. These discussions have prompted us to investigate just how widespread these problems are and then propose appropriate remedies.

According to the conceptual framework presented, one of the initial steps in the diagnosis is to investigate the relationship between antecedent factors and job satisfaction. The present study was concerned with this initial phase of the diagnostic work. A number of questions have been raised for investigation purpose. These were: What are the jobs like in the accounting profession in terms of use of skills, significance of the job, employee autonomy and responsibility, etc.? How do these job characteristics relate to job satisfaction? Besides the job characteristics, are there any organizational and personal characteristics that may also account for job satisfaction? Our main purpose in this study is to demonstrate that the antecedent factors such as job, personal and organizational characteristics do influence certain aspects of job satisfaction.

Method

Subjects of the present research investigation were: 1) accountants working in several C.A. firms in Canada; 2) individuals holding management accounting positions in several public and private organizations in Canada; 3) B. Comm. (co-op) students engaged in accounting positions with C.A. firms and private industries. Jobs held by the subjects may be broadly classified as 1) Co-op accounting jobs (37%), 2) Management accounting jobs (19%) and jobs in C.A. firms (44%). Seventy-five percent of the subjects were males. Firm affiliations of the subjects were: 24 percent local, 6 percent regional, 44 percent national; and the rest are from government departments and private industries. Eighty-two percent of the subjects were under thirty and the rest were between thirty and forty years of age. Besides professional qualifications all the subjects had college or better level of education. The student subjects in our sample were all working towards a B. Comm. initially and C.A. designations finally. Since these students may be categorized as future professional accountants, it was deemed appropriate to find out their perceptions about accounting jobs. All the subjects were invited to participate on a voluntary basis after we obtained an approval from the management of their employer firms.

INSTRUMENTS AND MEASURES

The job Descriptive Index (JDI) as developed by Smith, Kendall and Hulin (1969) was used as the main investigative instrument in past studies of job satisfaction of professional accountants. The JDI has also been used extensively in other job satisfaction studies. This instrument has been found to be reliable and valid. We, however, feel that for a diagnosis of job satisfaction, the Job Diagnostic Survey (JDS) instrument developed by Hackman and Oldham (1980) is more appropriate. The JDI describes certain aspects of job satisfaction. The JDS, on the other hand, is able to generate diagnostic information such as what seems to be the background job and other factors that influence job satisfaction. In other words, an analysis of job make-up, individual need strength, etc., is facilitated by the JDS instrument. We, therefore, decided to use the JDS as our primary investigative instrument. For information relating to the development, reliability and validity of this instrument, the reader is referred to Hackman and Oldham (1980). A short description of the JDS, is however, helpful here. The JDS is a seven-part questionnaire measuring the following: 1) job perceptions of skill variety, task identity, task significance, autonomy, feedback, etc.; 2) need strength for higher order

needs; and 3) employee reactions to jobs including measures of intrinsic motivation, growth satisfaction, satisfaction with pay, co-workers, supervision, etc. The underlying theory behind the JDS is that job perceptions influence job satisfaction.

The present investigators also constructed a number of Likert-type scales measuring the perception of the subjects about their organizations. The subjects were asked to rate career opportunity and organizational climate provided in their organizations. They were also asked questions about the number of levels existing in the firm, the nature of performance appraisal system and also the frequency of change in key people's authority and responsibility. In the personal characteristics measures, age, education, sex, nature of employment, and professional achievement were included.

Statistical analysis of the data included the following: 1) descriptive statistics (Mean, SD, etc.) showing the level of job characteristics; 2) analysis of variance indicating the extent and significance of differences among various groups under investigation; 3) a simple correlational analysis measuring the degree of relationship between job characteristics and job satisfaction measures; and 4) a stepwise multiple regression to ascertain the variance in job satisfaction accounted for by job, organization and personal factors.

Results

Perceived Job Characteristics:

What are the jobs like for people holding various accounting positions? To provide some information on this question, the respondents were asked to rate their jobs on a seven point Likert-type scale to the extent to which they felt the jobs provided for task identity and significance, autonomy, feedback, opportunities to deal with others and also use a variety of accounting skills. Means and standard deviations of job perception scores received from the subjects under investigation are provided in Table 1. Normative scores for professional and technical jobs as presented by Hackman & Oldham (1980) are also included in Table 1 for the purpose of comparing this sample with similar other professional jobs.

Table 1

Perception of Job Characteristics

Job Characteristics	Mean Scores[1]							
	Co-op Accountants N = 31		Management Accountants N = 16		C.A. N = 37		[2]Normative Scores Professional & Tech.	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Skill Variety*	4.52	1.33	4.83	1.44	5.14	1.03	5.40	1.00
Task Identity	4.90	1.58	4.75	1.43	5.39	1.11	5.10	1.20
Task Significance	4.76	1.02	5.06	1.21	4.89	1.15	5.60	0.95
Autonomy*	4.21	1.10	5.31	1.17	5.18	1.07	5.40	1.00
Feedback From Job	5.18	0.99	5.06	1.15	4.87	1.15	5.10	1.10
Feedback from Agent	4.49	1.43	4.04	1.76	4.81	1.42	4.20	1.40
Dealing with Clients	5.73	1.02	5.62	1.32	6.09	0.85	5.80	0.96

* Indicates significant difference between all group means at .05 Level

SD = Standard Deviation

[1]Mean of Scale 1-7 [2]Source: Hackman and Oldham (1980)

Results reported in Table 1 indicate the following: Firstly, mean job perception scores of this sample of co-op, management and chartered accountants are within or close to one standard deviation of mean normative scores. According to the interpretation provided by Hackman & Oldham (1980), for such observed differences, the job perception of this sample is not significantly different from the larger sample of professional and technical people who contributed to the production of normative scores. Secondly, analysis of variance results show that co-op accountants had jobs which were significantly lower in skill variety and autonomy as compared to the jobs of management and chartered accountants. On the remaining five job characteristics, minor differences exist. This finding gives some support to the notion that beginners in the profession find their jobs with little challenge and responsibility. Thirdly, in view of the fact that the majority of job perception scores are around a mean of five on a seven point scale, it appears that there is a scope to improve the perceived job characteristics. How this may be done will be elaborated in the discussion section of this paper.

Reactions of Accountants to Job Characteristics:

What are the impacts of perceived job characteristics on job satisfaction of accountants? Results provided in Table 2 address to this question. These are based on job design theory (Hackman & Oldham, 1976) which states that job characteristics and job satisfaction are positively related.

Table 2

Correlations of Job Dimensions and Psychological States with General, Growth and Specific Satisfaction Measures (N = 84)

Job Dimensions:	General Satisfaction	Growth Satisfaction	Job Security	Pay	Co-Workers	Supervision
Skill Variety	.45**	.68**	.24*	.13	.41**	.32**
Task Identity	.40**	.58**	.18**	.05	.28**	.26**
Task Significance	.43**	.40**	.22**	.26*	.26*	.35**
Autonomy	.22*	.56**	.06	.13	.46**	.22*
Feedback From Job	.31**	.44**	.22*	.17*	.38**	.36**
Feedback From Agent	.41**	.39**	.18**	.32**	.26**	.59**
Dealing With Others	.004	.17*	.08	.15	.25*	.07

* P < .05

** P < .01

In Table 2 forty-two correlations have been reported. They are based on an analysis of seven job dimensions (skill variety, task identity and so on) and six job satisfaction measures (general, growth, job security, pay, co-workers and supervision). General satisfaction measured an overall job satisfaction while growth satisfaction measured the extent to which the job provided for the satisfaction of higher order needs. Pay, job security, co-workers and supervision are specific job satisfaction measures. A substantial number (34 out of 42) of these correlations are positive and statistically significant. These results provide some support to the hypothesis in job design theory which suggests that job satisfaction is associated with positive job attributes.

Further, this theory also maintains that these job characteristics contribute to higher performance, job satisfaction and motivation. One should be cautioned however, against the inference of causality in one direction or another. Recent work by James & Jones (1980) suggests that perceived job characteristics and perceived job satisfaction may influence each other contrary to the direction hypothesized in the job design theory. Pending further investigation on this subject, the correlations presented in Table 2 should be taken only to mean that there is association between perceived job characteristics and perceived job satisfaction.

Personal, Job, Firm Characteristics and Job Satisfaction:

Table 3 presents mean job satisfaction scores of subjects based on age, sex, education, job types and firm characteristics. These scores are based on five one-way analysis of variances. They indicate the extent of job satisfaction existing in subjects within various groups.

Table 3

Breakdown of Job Satisfaction Scores
by Personal, Job and Firm Characteristics

Variables		Satisfaction Scores[1]											
			General		Growth		Job Security		Pay		Co-Workers		Supervision	
		Size	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Sex	Male	63	4.78	1.19	4.96	1.23	4.81	1.48	3.54	1.62	5.60	.75	5.10	1.17
	Female	21	4.61	1.31	5.02	1.37	4.90	1.93	9.17	1.68	5.47	.92	5.34	1.17
Age	Under 30	69	4.60*	1.16	4.80*	1.27	4.78	1.37	3.55*	1.56	5.45	.76	5.11	1.05
	30-40	15	5.35	1.31	5.81	0.87	5.07	1.84	4.40	1.92	6.13	.69	5.40	1.56
Education:														
	Some College	27	4.95	1.01	4.98	1.11	5.22	1.11	3.85	1.76	5.46	.79	5.17	1.10
	Technical Degree	29	4.66	1.05	4.71	1.52	4.93	1.44	3.72	1.32	5.54	.87	4.89	1.07
	College Degree	22	4.43	1.36	5.15	.74	4.32	1.68	3.36	1.76	5.63	.64	5.33	1.21
	Master's or Higher	6	5.53	1.87	5.62	1.93	4.50	1.76	4.16	2.29	6.00	.94	5.77	1.50
Job Types:														
	Co-op Accounting	31	4.93	1.04	4.80	1.30	5.06*	1.19	3.45*	1.39	5.46	.68	5.16	1.07
	MGT Accounting	16	4.50	1.39	5.12	1.14	4.41	1.49	3.54	1.71	5.39	.69	5.20	1.25
	C.A.	37	4.90	1.02	5.00	1.46	5.34	1.66	4.56	1.76	5.75	1.19	5.06	1.18
Firm:														
	Local	20	4.24*	1.20	4.81	.98	4.27	1.69	3.15*	1.35	5.45	.76	5.02	1.49
	Regional	5	5.64	0.49	5.65	.38	4.90	1.14	3.30	1.89	5.80	.39	5.47	0.50
	National	43	4.80	1.3	4.97	1.36	4.89	1.24	3.69	1.62	5.54	.68	5.23	1.05
	Govt. & Others	16	4.90	1.02	5.00	1.46	5.34	1.66	4.56	1.77	5.75	1.15	5.06	1.18

* $P < .05$

1 Scale 1-7

Results in Table 3 show that there is no significant difference in job satisfaction of various education and the two sex groups. Regarding age, this sample is on the younger side and may not be representative of the population of accountants in Canada. There is, however, a significant difference noticeable between the two age groups - older group expressing more job satisfaction. On pay and job security aspects, chartered accountants expressed more satisfaction compared to the co-op and management accountants. Subjects in local firms seem to be less satisfied in pay and overall job satisfaction compared to regional and national firms. These results, however, should be viewed with some caution because of sampling limitations.

Organizational, Personal and Job Characteristics:

In order to test whether and to what extent job, organizational and personal characteristics influence job satisfaction, a stepwise multiple regressional analysis was conducted. Independent variables in the regression

equation included job characteristics; five organizational variables - organization climate, structure in terms of the number of organization levels and changes, frequency of performance review, career prospects provided in the firm; four person variables - age, sex, education and professional achievement. Since performance, turnover and quality of attendance data were unavailable, job satisfaction has been used a a dependent variable. The measure of job satisfaction used in the present analysis is an average of scores derived from three items which reflect an overall assessment of their jobs by the respondents. These items are: a) Generally speaking, I am very satisfied with my job; b) I frequently think of quitting my job (reversed scoring); and c) Generally speaking, I am very satisfied with the kind of work I have to do on my job. These three items are taken from the JDS instrument.

Table 4

Job, Personal and Organizational Characteristics as Predictors of Job Satisfaction

Multiple R = 0.65
R^2 = 0.42
Adjusted R^2 = 0.34
Standard Error = 0.98
F-ratio = 5.31
Probability of F-ratio = P < 0.01

Variables	R. Square	Absolute Coefficients	Standard Error	F-ratio	Standardized Coefficients
Job Characteristics	0.20	.01	.01	11.95	.38
Orgn. Climate	0.31	.22	.08	6.56	.26
Education	0.35	-.19	.15	1.46	-.14
Career Prospects	0.38	.19	.07	6.31	.26
Age	0.39	.44	.33	1.77	.14
Orgn. Change	0.40	-.21	.15	1.71	-.13
Professional Achievement	0.41	-.15	.13	1.21	-.12
Number of Orgn. Levels	0.42	.05	.07	0.39	.06
Performance Review	0.42	-.08	.10	0.29	-.04
Sex	0.42	-.09	.25	0.11	-.03
CONSTANT		1.89			

N = 84

Results reported in Table 4 indicate that out of the ten independent variables entering the regression equation, three variables--job characteristics, organizational climate and career prospects within an accounting firm--are statistically significant and the direction of their signs are as expected. The F-ratio of the multiple regression equation is significant at $P<0.01$. Thus, R^2 is significantly greater than zero, but it is rather small. An examination of R^2 values in column 2 of Table 4 indicate that the first seven variables--Job characteristics, Organization climate, Education, Career prospects, Age, Organizational change and Professional achievement explain forty percent of common variance in job satisfaction. They also indicate that prediction accuracy is increased by adding person and organization variables to job characteristics. It should be noted, however, that person variables--age, education and professional achievement did not produce significant F-ratios. Overall, these results lend some support to our main hypothesis.

DISCUSSION

A conceptual framework for investigation of job satisfaction of people in

the accounting profession has been presented here. This conceptual framework lists a set of variables which enable a researcher to look into certain antecedents and consequences of job satisfaction. There are at least two features of this present framework that deserve some considerations. First, the model presented here expounds the notion of multiple causality of satisfaction which means that job satisfaction needs to be investigated by looking at more than one aspect of a job situation. It is an interaction of personal job characteristics and organizational factors that produce job satisfaction/dissatisfaction.

Secondly, it complements earlier research by suggesting that job satisfaction ought to be investigated in terms of inputs (antecedents), processes (emergent conditions) and outputs (consequences) as outlined in Figure 1.

What can be said about the validity and applicability of this conceptual framework? We have quoted research support for various elements of the model. Results from an exploratory investigation of a sample of Canadian accountants have been presented here. Because of unavailability of performance, absenteeism and turnover data, a complete test of the model has not been possible. If one is willing to recognize these shortcomings and work towards overcoming them, it is possible to provide a complete test of the model.

Pending our further investigation on the subject, certain findings from the present study ought to be discussed. Results reported in Table 1 show that job perceptions of accountants may be further improved by enhancing certain job characteristics such as variety of skills to be used, autonomy and task identity. Also, certain perceptual differences between beginners such as Co-op accountants and professional accountants such as RIAs and CAs have been observed. To what extent these differences are due to inherent job factors as compared to differences in age, education and experience have not been fully ascertained. An investigation providing for control of these variables may shed further light on this matter.

Positive and significant correlations between job perception scores and satisfaction measures as reported in Table 3 indicate that there is an association between perceived job characteristics and job satisfaction. An implication of this finding as argued in job design theory (Hackman, 1976) is that improvement in job characteristics may increase job satisfaction of accountants. Results reported in Table 4, however, indicate that job satisfaction of subjects in the present investigation are due to job, person and organization factors. This means that though job characteristics are a valid predictor, personal and organizational characteristics also explain a part of the variance in job satisfaction. Table 4 also indicates that two organizational factors, climate and career prospects, influence job satisfaction. Support for personal factors in this study is weak. Overall, the findings presented here should be regarded as tentative and exploratory in nature. These findings need to be validated by more adequate sampling of subjects.

Three suggestions for the improvement of human resources management in accounting establishments may be made in the light of this present exploratory investigation. First, job satisfaction of accountants will be enhanced if the management of these firms improve job makeup by sharing authority and responsibility with them. Secondly, accountants' perception of career prospects and organizational climate within a firm should be improved by indication of career

path, facilitating individual growth and maintaining an atmosphere of trust and helpfulness. Thirdly, careful assignment of job duties for the beginners in the profession may encourage these individuals to be more favourably disposed towards pursuing a career in the accounting profession.

References

Benke, Jr., R.L. and Rhode, J.G., "The Job Satisfaction of Higher Level Employees in Large Certified Accounting Firms", Accounting, Organizations and Society (1980). pp. 187-201.

Chung, K.H. and Megginson, L.C., Organizational Behaviour, Harper & Row, 1980.

Emery, F.E., and Trist, E.L., "Socio Technical Systems", in F.E. Emery (ed.) Systems Thinking, London: Penquin, 1969

Fetyko, D.F., An Analysis of Needs, Job Satisfaction and Turnover in Public Accounting Firms, Unpublished Ph.D. Dissertation, Michigan State University

Francia, A.J., and Strawser, R.H., "Job Satisfaction of Accountants in Public Practice", National Public Accountant Nov. 1970, pp. 16-17, 20-22

Hackman, J.R. and Oldham, G.R., "Motivation through the Design of Work: Test of the Theory", Organizational Behaviour and Human Performance, 1976, pp. 250-279

Hackman, J.R. and Oldham, G.R., Work Redesign, Reading, Massachusettes: Addison Wesley Publishing Co., 1980

Herzberg, F., Mausner, B., Snyderman, B., The Motivation to Work, New York: Wiley, 1959

Hurka, S.J., "Job Satisfaction Among Accountants Employed in Different Work Environments", paper presented at the Annual Conference of CAAA, Halifax, 1981

Ivancevich, J.M. and Strawser, R.H., "A Comparative Analysis of the Industrial Managers and Certified Public Accountants", Academy of Management Journal, 1969, pp. 193-203

James, L.R. and Jones, A.P., "Perceived Job Characteristics and Job Satisfaction: An Examination of Reciprocal Causation", Personnel Psychology, 1980, pp. 97-135

Lock, E.A., "The Nature and Causes of Job Satisfaction" in M.D. Dunnette (ed.), Handbook of Industrial and Organizational Psychology, Chicago: Rand McNally, 1976

Maslow, A.H., Motivation and Personality, New York: Harper Row, 1954

Payne, R. and Pugh, D.S., "Organization Structure and Climate in M.D. Dunnette (ed) Handbook of Industrial and Organizational Psychology, Chicago: Rand McNally, 1976

Porter, L.W. and Lawler, E.E., Managerial Attitudes and Performance, Homewood, Ill.:Drosey Press, 1968

Porter, L.W. and Steers, R.M., "Organizational Work and Personal Factors in Employee Turnover and Absenteeism, Psychological Bulletin, 1973, pp. 151-176

Robey, D., Designing Organizations, Homewood, Ill.: Irwin, 1982

Seiler, R.E., and Sapp, R.W., "Job Satisfaction and the Management Accountant", Cost and Management, 1979, pp. 4-8

Smith, P.C., Kendall, L.M. and Hulin, C.L., The Measurement of Satisfaction in Work & Retirement, Chicago: Rand McNally, 1969

Taylor, H.C., Scientific Management, New York: Harper & Bros., 1947

Triandis, H.C., "Notes on the Design of Organizations" in J.D. Thompson (ed.), Approaches to Organizational Design, Pittsburgh: University of Pittsburgh Press, 1966

Turner, A.N. and Lawrence, P.R., Industrial Jobs and the Worker, Cambridge: Harvard University Press, 1965

Vroom, V.H., Work and Motivation, New York: Wiley, 1964

CAAA Conference 1983
University of British Columbia

Morton Nelson
Faculty of Business Administration
University of Windsor
Windsor Ontario

COST/BENEFIT ANALYSIS AND LABOUR NEGOTIATIONS IN CANADA

Much has been written in the accounting literature about cost/benefit analysis and much has been written in the industrial relations literature about labour negotiations. This paper brings these two topics together by reporting on the results of a survey to determine the extent to which cost/benefit analysis has been applied in labour negotiations.

Background

It is only during the past few years that the use of accounting information with respect to labour negotiations has been explored in the accounting literature. Most recently, Lau and Nelson (1981) and Tang and Jensen (1981) called for the specific use of cost/benefit analysis by management to test the acceptability of alternative labour compensation proposals. These recent works extend and enlarge the earlier publications of Granof (1973), Nelson (1973), Bennison (1977) and Goyal and Goyal (1978), to cite but a few.

Both the 1981 publications call for managements' use of cost/benefit analysis, but neither pair of authors conducted a statistically viable survey to determine whether this analytical tool was being used, although Lau and Nelson did conclude after a small non-random sample that managements were not sufficiently analytical.[1] It is the purpose of this paper, therefore, to report on a survey of Canadian companies conducted during the Spring of 1981 in order to determine the extent to which financial information and, more specifically, cost/benefit analysis is used in conjunction with labour negotiations.

The Sample

With the assistance of Statistics Canada a stratified sample of 340 Canadian manufacturing firms was selected out of a population of approximately 1,650 firms with more than 200 employees. The population was stratified by company size (using the number of employees as the size criterion) and by manufacturing classification in order that the sample would not consist of a preponderance of one size or of one industry.

The name of the controller or other suitable corporate officer was obtained by referring to the Canadian Trade Index.[2] When a name was not available the questionnaire was addressed to the "chief financial officer". The questionnaire was addressed to a specific individual in 291 of 340 or 85.6% of the cases.

Total responses to the mail survey amounted to 130 out of 340 questionnaires or 38.2%. Of the responses 5 companies indicated that they would not

be able to complete the questionnaire usually due to the company being a private corporation and having a policy of non-response. Therefore, 125 completed questionnaires remained for a usable response rate of 36.8%.

Sampling Manual for Auditors[3] indicates that, at a 95% confidence level with an expected error rate not over 3% and a sample size of 115 from a population size of 1,600 - 1,700, the precision percentage is plus or minus 3%. Thus, it is possible to state that the sample of 125 questionnaires is representative of the population at a 95% confidence level.

The list of companies provided by Statistics Canada included each firm's industrial classification code. Table 1 provides the industrial breakdown of the respondents.

Table 1

Industrial classifications

	Number	%
Food & Beverage	18	14
Rubber & Plastics	1	1
Leather Industries	1	1
Textile Industries	6	5
Knitting Mills	1	1
Clothing Industries	3	2
Wood Industries	8	6
Furniture & Fixtures	4	3
Paper & Allied Industries	8	6
Printing & Publishing	7	6
Primary Metals	12	10
Metal Fabricating	9	7
Machinery Industries	4	3
Transportation Equipment	10	8
Electrical Products	14	12
Non-Metallic Mineral Products	7	6
Chemical Products	9	7
Miscellaneous Manufacturing	3	2
Total	125	100

A further consideration in choosing the sample was the desire to obtain a cross-section of manufacturing firms using the number of employees as the size criterion. Smaller firms (fewer than 200 employees) were ignored on the basis that they were more likely not to be unionized nor to have formalized labour-management relations. Table 2 illustrates the relative sizes of the firms responding to the questionnaire. (The missing response is one firm which did not indicate the number of employees but did complete the rest of the questionnaire.)

Table 2

Size of firms responding

Number of employees	Respondents	%
200-499	25	20
500-999	30	24
1,000+	69	55
Missing	1	1
Total	125	100

Tables 1 and 2 thus indicate that a good cross-section of respondents was obtained with respect to both the industrial classification of the firms and the size of the firms.

The Questionnaire

The questionnaire was designed (and pilot-tested) to provide background information via the sales volume, number of employees and whether the company had ever had a strike and, if so, its duration and year of occurrence. Firms were also asked to indicate which items out of a list of benefits and perquisites were included as factors in determining the total cost of a labour compensation package. Finally, a series of questions was included to determine what accounting analysis was performed and by which department. The involvement (or lack, thereof) of the accountants in labour negotiations often indicates the degree to which the company uses analytical techniques with respect to negotiations and the degree to which the firm uses cost/benefit analysis in this area.

A major concern was the response rate with a mail survey. To this end the questionnaire was limited to four pages and the questions were designed to enable the respondent to answer the questions quickly and easily. As examined above, the response rate would appear to indicate that this objective was successfully attained. The questionnaire, including the responses, is presented at the end of this paper as Exhibit 1.

The Results

For the purpose of analysis the questionnaire may be divided into four major segments: first, information which describes the company; second, items which are included in the costing of the compensation package; third, questions which describe the departmental responsibilities with respect to labour negotiations; and fourth, the extent to which the company uses accounting information in its negotiation processes.

In looking at the responses one should note that several companies did not indicate a response to all questions. Therefore, the responses do not necessarily total 125 for every question. However, the missing responses do not affect the development of conclusions.

The companies

The survey was conducted in the Spring of 1981. Therefore, the respondents replied to the questions regarding sales with respect to their most recently completed fiscal year i.e. 1980 in most cases. The average sales were $327.2 million.[4] The average respondent had 3,039.4 employees[5] of which 2,131.6 were classified as "blue collar" and 924.9 classified as "white collar". On average, 84% of the blue collar workers were unionized while 8.3% of the white collar workers were unionized.

Out of the 125 respondents, 96 indicated that they had experienced a strike or lock-out and 27 had not (the companies which did not answer this question likely had not experienced a strike or lock-out). The questionnaire asked the respondents to indicate the length of their two most recent stoppages and these averaged 66.6 and 62.4 days respectively.[6]

Costing the compensation package

As might be expected a large majority of the firms included, along with the base rate, their applicable employee benefits in determining the cost of the compensation package (see exhibit 1, page 1, question 4). However, a significant minority (e.g. 29% with respect to U.I.C.) apparently did not include government legislated benefits in the costing of their labour compensation packages. This is especially surprising considering that items such as unemployment insurance, Canada (Quebec) Pension Plan, etc. comprise a significant portion of total costs. Nevertheless, these results would generally coincide with those of Lau and Nelson (1981) where they stated that "The manner in which compensation packages are costed is relatively well developed...".[7]

Departmental responsibility

The involvement of the accountants in the labour relations field is generally thought to be slight. Table 3 presents the proportion of respondents who indicated the accounting area's involvement in various aspects of preparing for and participating in labour negotions.

Table 3

Involvement of accounting area

Question		Accounting Involved	Respondents Answering
5.	Costing of current package	57.3%	124
6.	Costing of proposed package	9.8	122
7.	Determination of incremental cost	56.5	124
8.	Calculates net income effect	78.7	122
11B.	Estimates effect of strike/lock-out	87.2	101
12B.	Comparison of cost/saving of strike	85.9	71
13C.	Prepares/cost benefit analysis	95.0	60
14B.	Determines expected cost of strike	89.7	88

The accounting department is involved in the majority of the procedures except for the costing of the proposed package which appears to be almost the exclusive responsibility of the personnel or industrial relations departments. A large number of firms did not respond to questions 12B, 13C or 14B which is an indication that these procedures are not performed. These data appear to contradict the findings of Lau and Nelson (1981) and indicate that accountants are more involved, at least as providers of information with respect to labour negotiations, than the earlier studies concluded.

Use of accounting information

Several questions were asked in an attempt to determine the extent of the analysis and the type of accounting information used in labour negotiations by the respondents. Table 4 presents a summary of the responses to these questions. Again, the first column presents the proportion of firms answering positively and the second column, the number of firms responding to the question.

Table 4

Use of accounting information

Question		Yes	Responding (125 possible)
10A.	Are alternate wage packages considered?	94.4%	124
10B.	Are costs of alternate packages considered?	95.1	122
10C.	Are probabilities used?	51.2	121
11A.	Is income effect of strike estimated?	84.5	116
12A.	Is anticipated cost/benefit compared?	60.2	113
12C.	Is cost/benefit a criteria?	58.2	91
13A.	Are future cash flows analyzed?	56.8	111
13B.	Is time value of money used?	43.0	86
13D.	Are estimated cost/benefits compared	21.0	105
13E.	Which economic criteria are considered prior to and during labour negotiations?		
	- state of economy	87.7	114
	- interest rates	22.1	113
	- market demand	80.5	113
	- inventory levels	43.4	113
	- other	37.3	110
14A.	Are strike costs determined	76.1	113
14C.	Which items are included in strike costs?		
	- out of pocket costs	88.5	87
	- overheads	78.2	87
	- opportunity costs	39.1	87
	- lost contribution margins	81.6	87
	- other	13.8	87

If one assumes that the non-responses to a question represent, in effect, a negative response, then that proportion of firms applying the

analysis or procedure would be somewhat lower. For example, Question 13A, "Are future cash flows analyzed?" had 56.8% positive responses out of 111. However, as a proportion of the total sample the positive responses are only 50.4%. Thus, half of the firms returning the questionnaire do not analyze future cash flows which may arise as a result of a strike. Similarly, revised proportions may be calculated for several of the other questions in table 4.

An interesting observation may be made with respect to Question 14A, "Are strike costs determined?" As reported above, 96 companies indicated that they had experienced a strike or lockout. However, only 86 of these companies answered positively to Question 14A. One therefore wonders why it is that 10 companies who have experienced a strike or lockout did not determine the cost of the work stoppage. For the time being at least a conclusion on this point would only be speculation.

In examining the data presented in Table 4 one could reasonably conclude that approximately half of the firms surveyed do not perform a cost/benefit analysis with respect to a strike or lockout.

Summary and Conclusions

The results of the survey show that while most companies include employee perquisites in costing their compensation packages and involve their accounting personnel in the costing and analytical process, many firms generally do not apply cost/benefit analysis techniques in the process of labour negotiations. This latter observation is reinforced by the fact that very few firms indicated any accounting involvement in the designing of a proposed compensation package.

It is somewhat incongruous that the capital budgeting literature has, for years, advocated use of cost/benefit techniques using present value concepts and estimations of future cash flows, etc. in order to provide managements with better information for decision-making. One also senses that managements would be much less comfortable with their decisions if this information were not available. However, in the field of labour negotiations where contract costs easily approach the size of capital equipment costs and lengthy strikes cost millions of dollars, approximately half of the managements surveyed do not apply cost/benefit analysis techniques in their labour negotiations.

The problem is likely one of education: education in the sense that managers should be told that deriving the necessary numbers is not as difficult as they imagine; education in that industrial relations managers should realize that the accountants have something to offer in this field; and, education in that educators can integrate information from the two areas in their classrooms.

The survey has show that many firms are not using all the techniques which are available to them and which can assist in their decision-making processes. However, it is hoped that further research and dissemination of the results will bring additional sophistication to this area of management.

Footnotes

1. Lau and Nelson (1981), p.99.

2. Canadian Manufacturers' Association, 1980 Canadian Trade Index, Canada, 1980.

3. Institute of Internal Auditors (1967), table A.4.

4. Range: $7.9 million to $2,819.9 million.

5. Range: 194 to 24,730 employees.

6. Ranges: 1 to 400 days; 1 to 274 days.

7. Op. cit., p.99.

References

Alfino, J., "Measuring Strike Costs", Management Record, July-August 1959, pp. 235-237.

Bennison, B.R., "Accounting for Industrial Disputes", Management Accounting, June 1976, pp. 224-225.

Bennison, B.R., "A Break-even Analysis", Personnel Management, February 1977, pp. 22-31.

Canadian Manufacturers' Association, 1980 Canadian Trade Index, Canada, 1980.

Climo, T., "The Role of the Accountant in Industrial Relations", Accountant, December 1976, pp. 701-703.

Goyal, S.K., and Goyal P.L., "Decision Making During Strikes", Management Accounting, May 1978, pp. 201-202.

Granof, M.H., "Financial Evaluation of Labor Contracts", Management Accounting, July 1973, pp. 38-45.

Imberman, W., "Strike Costs and How to Avoid Them", Canadian Business Magazine, October 1979, pp. 130-134.

Imberman, W., "Strikes Cost More Than You Think", Harvard Business Review, May-June 1979, pp. 133-138.

Jack, H.H., "The Accountant's Role in Labor Relations", Management Accounting, October 1970, pp. 57-63.

Lau, C.T., and Nelson, M. "Accounting for Industrial Disputes: Issues and Implications:, Proceedings, 1979, Annual Conference, The Canadian Academic Accounting Association, 1979, p. 113-122.

References

Lau, C.T., and Nelson, M., "Total Wage Compensation: A Survey", Proceedings, 1980 Annual Conference, The Canadian Academic Accounting Association, 1980, pp. 126-135.

Lau, C.T., and Nelson, M., Accounting Implications of Collective Bargaining (Hamilton: The Society of Management Accountants of Canada, 1981).

Lockheed Aircraft Corporation, Sampling Manual for Auditors (Institute of Internal Auditors Inc., 1967).

Miller, R.D., "Accounting and Labor Relations--Interrelated Responsibilities", Management Accounting, November 1971, pp. 15-19.

Nelson, M., "Accounting for Strikes", Cost and Management, November-December 1973, pp. 48-50.

Nelson, M., "Accounting Disclosures of Strikes and Lockouts", Cost and Management, November 1982, pp. 30-32.

Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K., Bent, D.H., Statistical Package for the Social Sciences, second edition (New York: McGraw-Hill, Inc., 1975).

Siegel, S., Nonparametric Statistics (New York: McGraw-Hill Book Company, Inc., 1956).

Smallwood, R., " The Management Accountant and the....Costing of Strikes:, Management Accounting, March 1981, pp. 22-23.

Statistics Canada, Manufacturing Industries of Canada: national and provincial areas, 1978 (Ottawa: 1980).

Tang, R.Y.W., and Jansen, H.L., "Cost-benefit Analysis for a Potential Strike", Cost and Management, November-December, 1981, pp. 21-25.

THE USE OF FINANCIAL DATA IN LABOUR NEGOTIATIONS

At your convenience, please take 10 minutes of your time to answer the following questions. Please answer all questions as completely as possible. Your responses will be greatly appreciated.

1. Could you please indicate your company's total sales volume for the most recently completed fiscal year?

   $ 327.2 million (average for 125 companies)

2. Could you please identify your major product lines (such as automotive parts)?

   _____

   _____

   _____

3. Please indicate the total number of employees in your company.

		Total Number	Percent Unionized
(i)	Blue collar	2131.6	84.0
(ii)	White collar	924.9	8.3
	Total	3039.4	____

4. In determining the total cost of a labour compensation package, which of the following factors does your firm include?

		(A) Yes	(B) No	(C) Not applicable
(a)	Base rate	125	0	0
(b)	Cost of living allowances	60	16	49
(c)	Shift premiums	119	4	2
(d)	Overtime premiums	117	5	3
(e)	Performance bonuses	42	19	63
(f)	Government unemployment insurance	82	36	6
(g)	Government health insurance	86	28	10
(h)	Government pension plans	84	35	5
(i)	Workmen's compensation	81	38	5
(j)	Private unemployment insurance	42	20	62
(k)	Private health insurance	111	5	8
(l)	Private pension plans	111	7	6
(m)	Life insurance plans	121	2	1
(n)	Vacation allowances	121	2	1
(o)	Holiday allowances	116	4	4
(p)	Rest periods	87	28	9
(q)	Sickness allowances	91	24	9
(r)	Personal safety equipment	73	34	17
	Other (please specify)			

_____

_____

5. Which department in your organization was responsible for determining the cost of the compensation package currently in operation?

(a)	Accounting	40	Acctg. & IR	24
(b)	Industrial Relations	31	Acttg. & Pers	7
(c)	Payroll	4	IR & Pers	4
(d)	Personnel	12		
(e)	Other (please specify)	2		

6. Which department is responsible for designing your company's proposed compensation package to your employees?

(a)	Accounting	2	Acctg. & IR	5
(b)	Industrial Relations	59	Acctg. & Pers	5
(c)	Payroll	1	IR & Pers	15
(d)	Personnel	23		
(e)	Other (please specify)	12		

7. Which department is responsible for determining the incremental cost of your company's proposed compensation package?

(a)	Accounting	43	Acctg. & IR	18
(b)	Industrial Relations	32	Acctg. & Pers	9
(c)	Payroll	2	IR & Pers	13
(d)	Personnel	13		
(e)	Other (please specify)	4		

8. Which department calculated the effect on net income of the proposed change in labour costs?

(a)	Accounting	80	Acctg. & IR	11
(b)	Industrial Relations	18	Acctg. & Pers	5
(c)	Payroll	0	IR & Pers	2
(d)	Personnel	3		
(e)	Other (please specify)	3		

9. To what extent does your firm recover increased labour costs by increasing selling prices?

(a) Not at all 11

(b) Partially 77

(c) Completely 33

Explain briefly, giving percentage recovered _____

_____

10(A) Does your company prepare and consider alternative wage compensation proposals?

Yes 117 No 7

(B) Are the costs of these alternative proposals also determined?

Yes 116 No 6

(C) In quantifying the cost of a number of proposals are probabilities assigned to the costs in order to arrive at a single "expected value" for the range of proposals?

Yes 62 No 59

11(A) If a strike/lock-out is anticipated, is an estimate made of its effect on net income?

Yes 98 No 18

(B) Which department is responsible for calculating this estimate?

(a)	Accounting	61	Acctg. & IR	24
(b)	Industrial Relations	9	Acctg. & Pers	3
(c)	Payroll	0		
(d)	Personnel	1		
(e)	Other (please specify)	3		

12(A) Is a comparison made by your company between the anticipated costs of a strike/lock-out and any anticipated savings or other benefits of a strike or lock-out?

Yes 68 No 45

(B) Which department is responsible for developing the comparisons?

(a)	Accounting	34	Acctg. & IR	24
(b)	Industrial Relations	5	Acctg. & Pers	3
(c)	Payroll	0	IR & Pers	1
(d)	Personnel	3		
(e)	Other (please specify)	1		

(C) Is this cost/benefit analysis employed as one of the criteria in deciding to accept or reject union demands?

Yes 53 No 38

13(A) Does your company prepare an analysis of changes in future cash flows which may arise as a result of a strike?

Yes 63 No 48

(B) Is the time value of money employed in this analysis?

Yes 37 No 49

(C) Which department prepares the analysis?

(a)	Accounting	49	Acctg. & IR	7
(b)	Industrial Relations	0	Acctg. & Pers	1
(c)	Payroll	0		
(d)	Personnel	1		
(e)	Other (please specify)	2		

(D) Is a comparison made between the estimated cost of a strike/lock-out now and the estimated cost of a strike/lock-out some time in the future?

Yes 22 No 83

(E) Which economic criteria are considered by your company prior to and during labour negotiations?

		Yes	No
(a)	State of the economy (e.g. boom or recession)	100	14
(b)	Level of interest rates	25	88
(c)	Market demand for your product(s)	91	22
(d)	Level of physical inventories on hand	49	64
(e)	Other (please specify) _____	41	69

14(A) Is the cost of a strike determined?

Yes 86 No 27

(B) Which department determines the expected cost of a strike?

(a)	Accounting	53	Acctg. & IR	25
(b)	Industrial Relations	5	Acctg. & Pers	1
(c)	Payroll	0		
(d)	Personnel	1		
(e)	Other (please specify)	3		

(C) Which items are included in strike costs? (check those that apply).

		Yes	No
(a)	Out of pocket costs	77	10
(b)	Overheads normally allocated to production	68	19
(c)	Opportunity costs	34	53
(d)	Lost contribution margins	71	16
(e)	Other (please specify) _____	12	75

15(A) Has your company ever experienced a strike or lock-out?

Yes 96 No 27

(B) When did the latest two occur?

1. 19____ (strike____; lock-out____)
2. 19____ (strike____; lock-out____)

(C) What was their duration?

1. 66.6 days Average
2. 62.4 days Average

Thank you for your time and cooperation.

Please return to:
Prof. M. Nelson
Faculty of Business Administration
University of Windsor
Windsor, Ontario N9B 3P4

CAAA 1983 Conference
University of British Columbia

Ashton C. Bishop
Department of Accounting and Finance
James Madison University

Kelly F. Gheyara
Faculty of Business
McMaster University

THE AFUDC EARNINGS COMPONENT IN THE ELECTRIC UTILITIES INDUSTRY: AN INFORMATION CONTENT APPROACH

The AFUDC account is a noncash component of reported earnings of electric utility companies, which represents imputed interest on capital expenditures for plant construction and whose recovery is deferred until the plant is operational. This study uses three income models and seeks evidence that such earnings were consistent with information used in setting equilibrium stock prices.

INTRODUCTION

The Allowance for Funds Used During Constructionn (AFUDC) account is a noncash earnings component included by electric utility companies in their income statements and represents a credit of imputed interest capitalized on funds (both debt and equity) used for plant construction. The recovery of this imputed cost of capital was deferred (by charging it to the Construction-in-process account) until the plant becomes operational. Thus utility rates during a given construction period were sheltered from the interest charges on construction expenditures and reflected only the costs of assets operational during that period.

The proportion of the AFUDC credits to the total income has been increasing over the past two decades. However, the ratios of the market values to the book values of utility companies' shares have declined. The objective of this paper is to examine alternative earnings measures related to AFUDC during the period 1969-1975 and seek some empirical evidence to determine which measure is perceived by market agents to have information content in setting stock prices.

HISTORICAL ISSUES AND HYPOTHESIS

Prior Viewpoints

There appears to be a diversity of opinions pertaining to the propriety of using the interest capitalization model for setting utility rates. Many consider the AFUDC to be a valid component of total utility earnings. Litke (1972) noted that the propriety of AFUDC must be considered in the light of regulatory practices which limit the amount of prospective earnings on the investments of utility stockholders, and concluded that:[1]

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[1]Most regulatory commissions appear to believe that consumers should pay a return only on those assets which are currently providing a service and

> Income generated from the capitalization of the allowance for funds used during construction is valid income because it will become part of the assets of the utilities on which they will be entitled to earn a return and which will be recovered through depreciation expense in their cost of service over the service life of the property. Accordingly, the allowance capitalized represents a valid asset and the derivative income is equally valid (p. 21).

Coughlan (1976) considered the AFUDC to be a valid claim to future earnings even if only to the extent that it represents economic consideration for the use of capital, while Frazer and Ranson (1972) viewed the practice to be sound and necessary.[2] Barkwill (1970) expressed a similar viewpoint even more strongly.[3]

Dissenting views from those observed above range from total rejection to partial acceptance. Business Week (1974) in two articles, termed the AFUDC component of utility earnings to be ". . . phantom profits . . ." arising from ". . . psychedelic accounting . . .", and The Value Line Investment Survey (1969) identified it as an accounting method which provides a short-term solution to electric utilities facing lower earnings. Olson (1971) thought it logical that earnings which merely include a credit of allowance for funds would not be valued as highly by investors as cashflow earnings. Earnings with a high AFUDC content were considered by Fitzpatrick and Stitzel (1978, p. 20) as ". . . a sign of weak financial position . . .", and by Walker (1973) as ". . . being of lesser quality than cashflow earnings . . ."[4] This view was widely supported by many others including Johnson (1977) and Bowen (1981).

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hence, do not allow construction work-in-process to be included in the rate base. A few regulatory commissions allowed such an inclusion in the rate base and to calculate the allowance for funds. However, the allowance for funds is deducted from the allowed return. See Bolster (1971) and Johnson (1977) for a discussion of the method.

[2]However, in both these studies, the authors have conceded that others have viewed this practice as a gimmick. For example, Frazer and Ranson (1972, p. 20), abstracted prior opinions on utility income accounts as being ". . . for the most part full of what have come to be known as 'gimmicks' . . . one of the most serious of the gimmicks results from including a credit for interest charges in current earnings . . ."

[3]Barkwill (1970) concludes ". . . interest during construction earnings are as good as operating earnings. Aside from giving the procedure a better title, I would do nothing to change it. It records the construction profit at the proper time and then collects it, in cash, from the proper customers at the proper time. To repeat, lets leave well enough alone . . ."

[4]Walker (1973) as quoted by Bowen (1981, p. 3). This criticism is based on the premise that AFDUC credit can significantly increase earnings without a commensurate increase AFUDC in future expected cashflows.

Thus, Pomerantz and Suelflow (1975) quotes Truslo Hyde, an economist and public utility consultant as follows:

> Investors can hardly be expected to give much value to earnings so

Objective of the Study

The objective of this study is to examine the association between alternative earnings measures and market returns of electric public utility companies during the period 1969-1975. This study observes the market response (identifying long-term equity capital investors as a specific group), and thereby, facilitates inference as to which earnings measure, related to the AFUDC, furnished information to market agents to set equilibrium prices.[5] Alternatively, it can be viewed as the revision observed in stock prices due to information associated with making public a particular earnings measure. Three earnings measures are examined: (1) reported earnings which include AFUDC, denoted hereinafter as AFUDC earnings, (2) earnings excluding AFUDC, denoted as NonAFUDC earnings, and (3) cashflows which were the sum of the NonAFUDC earnings, depreciation and deferred taxes. The last measure is included in this analysis to examine concerns expressed about the effects of AFUDC on utilities' cashflows.

Since serious disagreements prevail regarding the AFUDC component being included in reported income, the evidence provided by our study should contribute a clearer indication of whether or not market investors view the capitalization of imputed interest to be a sound economic practice. If the AFUDC is discounted by market agents as a valid component of total earnings, it could suggest that ratemakers should reconsider their current reporting practice and resort to some alternative method to disclose such data. The issue of social desirability of such reporting mandates of the regulatory commissions is not addressed here since policy formulation deals with the more onerous issues of social choice which are beyond the scope of this study.

Hypothesis

If the market considers the allowance for funds model to be economically prudent, the allowance earnings will have the highest association with security returns. This result would tend to indicate that market agents perceive reported earnings inclusive of the AFUDC component, and therefore by implication, the AFUDC component itself, to contain information pertinent to setting equilibrium market prices. Evidence inconsistent with the above, viz., the NonAFUDC earnings or cashflow earnings having a higher association with security returns, would suggest that the economic justifications for using the allowance for funds tend to be invalidated.

The time-series residual returns model, also referred to as the Abnormal Performance Index (API) model and described in the following section, was employed to assess the relative importance of the three earnings measures.

> heavily dependent on the credit for interest charged to constuction which results from nothing more than an arbitrary credit and an assumption that the plant under construction will provide sufficient earnings to offset the decline in this credit when the plant is placed into serice. This is a highly speculative and problematic assumption (p. 5).

[5]Information has been commonly defined as a change in the subjective probabilities of state occurrence. See Gheyara and Boatsman (1980), Demski (1972) and Lev (1969).

The model has been effectively documented in earlier studies by Ball and Brown (1968), Beaver and Dukes (1972 and 1973) and Gonedes (1974). These studies have used the residual returns model to provide evidence that accounting earnings have information content, where the measure which produced earnings numbers having the highest degree of association with stock prices was considered to be most consistent with information used in setting security prices.

ANALYTICAL MODELS AND DATA

General Methodology

The time-series residual model requires estimates of: (1) abnormal returns, and (2) unexpected earnings changes for securities, denoted by i, and is based on the application of the market model. These estimates were obtained by using ordinary least squares procedures. Earnings forecast errors were then computed by comparing expected earnings with ex post earnings. Firms with positive forecast errors (which could be interpreted as good news) were grouped in a "positives" portfolio while those with negative forecast errors were placed in a "negatives" portfolio (bad news). An Abnormal Performance Index (API) was computed for each portfolio. The Chi Square test was performed to test for the significance of the association between earnings and security returns. The test examines the frequency with which the positive abnormal rates of return are assigned to the positive earnings portfolio and negative abnormal rates of return are assigned to the negative earnings portfolio. Thus the null hypothesis can be formally stated as follows:

H_o : No association between the sign of the earnings forecast and the sign of the abnormal rate of return exists.

The alternate hypothesis is:

H_1 : An association between the sign of the earnings forecast and the sign of the abnormal rate of return exists.

This procedure of computing the API was applied to each of the aforementioned three earnings measures, denoted by P_j (j=1,2,3) where the AFUDC earnings are subscripted as j=1, the NonAFUDC earnings as j=2 and the cashflows as j=3.

Abnormal Security Returns

The market model can be defined notationally as:

$$\tilde{R}_{it} = \alpha_i + \beta_i \tilde{R}_{mt} + \tilde{\varepsilon}_{it} \qquad (1)$$

where:

$\tilde{R}_{it}$ = the return on security i in time period t;

$\tilde{R}_{mt}$ = the return on the market portfolio;

β_i = the systematic risk of the security i;

α_i = the intercept of the linear relationship between R_{it} and R_{mt};

$\tilde{\varepsilon}_{it}$ = the residual component of the security's return which is independent of $\tilde{R}_{mt}$;

and assuming that:

$$E(\tilde{\varepsilon}_{it}) = 0$$

$$(\tilde{R}_{mt}, \tilde{\varepsilon}_{it}) = 0$$

$$(\tilde{\varepsilon}_{it}, \tilde{\varepsilon}_{kt}) = 0, \text{ for all } i \neq k$$

The tildes denote that the variables are randomly distributed. The model assumes the expected return to be conditional on the ex post value of the market factor, i.e.,

$$R_{it} - E(\tilde{R}_{it}|\tilde{R}_{mt}) = \hat{\varepsilon}_{it} = 0 \qquad (1a)$$

and if the ex post returns differ from the conditional expectations, ε_{it}, the differences can be viewed as abnormal returns.

Estimated values of the coefficients, denoted by (^) and obtained by following ordinary least squares procedures on concurrent observations of R_{it} and R_{mt},[6] were used in the following prediction model to estimate abnormal returns:

$$E(R_{it}) = \hat{\alpha}_{it} + \hat{\beta}_i E(R_{mt}) \qquad (2)$$

and was operationalized by:

$$\Pi_{it} = \hat{R}_{it} - \{\hat{\alpha}_i + \hat{\beta}_i \hat{R}_{mt}\} \qquad (2a)$$

Unexpected Earnings Changes

Since market expectations of P_i cannot be observed, a similar prediction model is required to provide surrogates of these expectations. Expected earnings changes can be assumed to follow the market model form:

$$E(\Delta P_{it}) = \lambda_i + \phi_i E(\Delta P_{mt}) + \mu_{it} \qquad (3)$$

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[6] R_{it} is operationally defined as the natural logarithmic function of the price relative of firm i adjusted for dividends, and notationally stated as:

$$R_{it} = \ln\left[\frac{P_t + D_t}{P_{t-1}}\right]$$

R_{mt} is similarly defined as the natural logarithmic function of Fisher's Composite Index (Beaver and Dukes, 1972, p. 323), can be viewed as an index of return for all NYSE securities, and is expressed as:

$$R_{mt} = \ln\left[\frac{C_{it}}{C_{i\ t-1}}\right]$$

However these values are available and were obtained from the CRSP data files.

$$E(\mu_{it}) = 0$$

$$E(\Delta P_{mt}, \mu_{it}) = 0$$

$$E(\mu_{it}, \mu_{kt}) = 0, \text{ for all } i \neq k$$

where:

ΔP_{it} = the change in P_j from time period t - 1 to t;

ΔP_{mt} = the change in the average earnings variable of all firms in the sample other than i, from t - 1 to t;

μ_{it} = the part of security i's return which is independent of P_{mt} (the individualistic factor); and

λ_i, ϕ_i = the intercept and slope of the linear relationship between P_{it} and P_{mt}.

Values of $\hat{P}_{it,j}$ and $\hat{P}_{mt,j}$ were available from the Compustat Utility data base. The coefficients, $\hat{\lambda}_{it}$ and $\hat{\phi}_{it}$, were first determined by regressing $(\Delta\hat{P}_{i,t-r})$ on $(\Delta\hat{P}_{m,t-r})$, r = 1,2, . . ., t-1, i.e., using data up to the end of the previous year.[7] The procedure was adopted for each value of j, and the subscript has been suppressed, for convenience, from the rest of this section. The expeced earnings change for i in year t can be defined by the following prediction model:

$$E(\Delta P_{it}) = \hat{\lambda}_i + \hat{\phi}_i E(\Delta P_{mt}) \tag{4}$$

and the unexpected earnings changes were computed as follows:

$$\mu_{it} = \Delta P_{it} - \Delta P_{it} \tag{4a}$$

Abnormal Performance Index

The signs of the unexpected earnings changes from (4) were used to form two portfolios for each alternative of j. Firms whose actual earnings changes exceeded the expected earnings changes (positive forecast error) were included in the "positives" portfolio and firms whose actual earnings changes were less than the expected (negative forecast error) were grouped into the "negatives" portfolio. The unexpected security price changes for these portfolios were aggregated using the Ball and Brown (1968) API model:

$$API_T = \frac{1}{N} \sum_{i=1}^{N} \prod_{t=1}^{T} (1 + \mu_{it}) \tag{5}$$

where:

API_T = the abnormal Performance Index after T-Month holding period, t = 1,2,..., T;

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[7]Earnings data from 1958 were used to obtain estimates of the coefficients in Equation (4).

N = the number of securities, i = 1,2,..., N; and

μ_{it} = the forecast error of firm i.

A composite index was then computed for each earnings measure, using the following procedure:

$$API_T = \frac{N(+) \cdot API(+) - N(-) \cdot API(-)}{N(+) + N(-)} \qquad (6)$$

where:

N(+) = the number of securities with positive forecast errors;

N(-) = the number of securities with negative forecast error.

The API was used to test whether foreknowledge of the actual earnings measure would enable an investor to earn abnormal returns. It measured the return from an unusual investment strategy because portfolios were formed twelve months prior to the actual release of an earnings measure. The information received by an investor is a forecast of whether a company's earnings measure will increase or decrease. The investor then adopts a long position in the company's stock if the earnings change forecast is positive or a short position if the earnings change forecast is negative. The API assumes a dollar is invested in equal amounts in each security in each portfolio from t up to time T. At time T the earnings numbers are assumed to be made public. Earnings announcements are assumed to be issued in the third month following the end of the calendar year.

It is hypothesized that if the market considers the economic aspects underlying the allowance for funds, the allowance earnings will have the highest API association with stock prices. This is because the reported earnings are expected to better depict the economic aspect that the AFUDC will add to the rate base after the construction period and enable the firm to recover the cost of capital invested in a project.

Data Base

To ensure that all necessary information is publicly available, the population of interest consists of all electric utility companies listed on the New York Stock Exchange meeting the following criteria:

(1) The company's fiscal year ends on December 31.

(2) The company has an account balance in AFUDC at the end of each year during the study period.

(3) Earnings data are available on the Compustat Utility tape for all years from 1958 through 1975.

(4) Monthly stock prices and dividend data are available on the Centre for Research in Security Prices tape (CRSP) for all months during the period from January 1968 through April 1976.

Electric public utility companies for this period are being examined because AFUDC were extremely important to these companies due to high levels of new construction. The Compustat Utility data file was used to select the sample, and to obtain earnings data. Eighty firms fulfilling the selection criteria were selected. The CRSP data file was used to obtain returns data.

DATA ANALYSIS AND CONCLUSIONS

Results

Table I presents composite API values for each earnings measure. The composite API assumes an investment strategy of buying long the securities in the "positives" portfolio and selling short those in the "negatives" portfolio. The results are summarized by month, relative to the earnings announcement date with the month of the earnings announcement set at month T = 0. Although API measures are presented at monthly intervals, the APIs are cumulative, beginning with month T = -11.

Table I shows that for the years 1968-75, foreknowledge of the year's earnings sign twelve months prior to the earnings announcement results in an abnormal return of 3.0 percent for AFUDC earnings, 2.2 percent for NonAFUDC earnings and 2.0 percent for cashflow.[8] This indicates that AFUDC earnings have the highest degree of association with stock price changes, followed by NonAFUDC earnings and then by cashflow.

An analysis of the APIs also shows that most of the information contained in each annual earnings measure appears to be anticipated by the market before announcement. The market begins to anticipate earnings forecast errors as early as month T = -11 and continues to do so with increasing success throughout the year. The expectation is so accurate that the actual earnings number does not appear to cause any unusual movement in the APIs at month T = 0. This is consistent with a semi-strong efficient market in which the market gathers information and adjusts stock prices accordingly in anticipation of the earnings announcement.

To evaluate the cross-sectional aggregation effect of the data, the Chi Square test was applied and the results are presented in Table II. The frequencies with which the forecasting method assigned utilities with positive abnormal returns to the positive error portfolio and utilities with negative abnormal returns to the negative error portfolio are compared in two-by-two contingency tables. Whether the computed test statistic (χ^2)) is significant can be determined by reference to a table of critical values of χ^2s. A computed value of χ^2 which is equal to or greater than the value for a given significance level, indicates that the null hypothesis is false and should be rejected. The test results show that for the AFUDC and the NonAFUDC earnings measures it is unlikely that there is no relationship between the sign of the earnings forecast error and the sign of the abnormal return in most of the months up to and including the month of announcement.

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[8]For example, the 3.0 percent abnormal return for AFUDC earning is computed by subtracting the investment ($1.00) from the proceeds ($1.030).

TABLE I

API MEASURES FOR COMPOSITE EARNINGS PORTFOLIOS BY MONTH RELATIVE TO EARNINGS ANNOUNCEMENT DATE

Month T	Allowance	Nonallowance	Cashflow
-11	1.002	1.001	1.004
-10	1.005	1.001	1.006
- 9	1.004	1.000	1.006
- 8	1.001	1.001	1.011
- 7	1.015	1.013	1.012
- 6	1.014	1.011	1.012
- 5	1.020	1.016	1.020
- 4	1.026	1.019	1.023
- 3	1.026	1.018	1.019
- 2	1.027	1.017	1.012
- 1	1.028	1.021	1.017
0	1.030	1.022	1.020
+ 1	1.030	1.024	1.023
+ 2	1.034	1.027	1.026
+ 3	1.037	1.028	1.025
+ 4	1.037	1.027	1.019
+ 5	1.035	1.028	1.022
+ 6	1.037	1.028	1.023

TABLE II

SUMMARY CHI SQUARE STATISTICS BY MONTH RELATIVE TO EARNINGS ANNOUNCEMENT DATE

Month T	Allowance	Nonallowance	Cashflow
-11	1.84	.23	1.87
-10	2.79	.12	1.25
- 9	2.42	1.15	1.06
- 8	14.56	10.31	3.78
- 7	13.36	7.76	4.64
- 6	12.81	11.37	9.42
- 5	27.80	15.89	15.66
- 4	25.47	7.80	9.77
- 3	20.29	13.46	4.37
- 2	21.58	11.96	1.00
- 1	21.04	18.76	2.80
0	23.81	13.98	6.23
+ 1	26.94	21.01	12.06
+ 2	21.46	20.31	9.42
+ 3	26.19	19.17	9.99
+ 4	26.55	10.73	1.93
+ 5	23.88	10.43	4.67
+ 6	21.35	23.24	5.89

Note: Probability (Chi Square $\geq$ 3.84 | $\chi^2 = 0$) = .05, for one degree of freedom.
Probability (Chi Square $\geq$ 6.64 | $\chi^2 = 0$) = .01, for one degree of freedom.

This is not so consistently evident in the case of the cashflow earnings.

Conclusions

This study provides some evidence about how investors perceived the controversial allowance for funds component of electric public utility earnings. The results of this study indicate that for the years 1968-75, AFUDC earnings were the most consistent with the information used in setting stock prices, followed by NonAFUDC earnings, and then by cashflow. This conclusion is supported by the fact that AFUDC earnings had the highest API associated with stock prices followed by NonAFUDC earnings and cashflow, respectively.

The results failed to reject arguments which questioned the economic validity of the AFUDC component of earnings. It appears that the aggregate market did consider AFUDC to be a valid component of earnings because AFUDC earnings had the highest API associated with stock prices. This suggests that investors considered AFUDC earnings to better reflect the earnings potential of a utility since AFUDC represents a claim to future earnings which enables a utility to recover the financing costs associated with a construction project. However, this does not necessarily imply that the practice of capitalizing AFUDC was the preferred practice since preference rankings involve issues of social choice that were beyond the scope of this study. The inferences, however, are conditional upon the models used and the limitations of the data contained in the study.[9]

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[9]The stability of the systematic risk cooefficient has been questioned in prior studies. Also Marshall (1975) questioned the procedure adopted to classify securities into portfolios based merely on the sign of the earnings.

BIBLIOGRAPHY

Ball, R., and P. Brown, "An Empirical Evaluation of Accounting Income Numbers", The Journal of Accounting Research, (Autumn, 1968), pp. 159-178.

Barkwill, A.C., "Interest During Construction," paper presented to the New York Society of Security Analysts, Inc., New York, November 30, 1970.

Beaver, W.H. and R.E. Dukes, "Interperiod Tax Allocation, Earnings Expectations, and the Behavior of Security Prices," The Accounting Review, (April, 1972), pp. 320-332.

_____, "Interperiod Tax Allocation and ∂-Depreciation Methods: Some Empirical Results," The Accounting Review, (July, 1973), pp. 549-559.

Bolster, D., "Should Plant Under Construction Be Included in Rate Base?", Public Utilities Fortnightly, (May 27, 1971), pp. 25-28.

Bower, R.M., "Valuation of Earnings Component in the Electric Utility Industry," The Acounting Review, (January, 1981), p. 1-22.

Brown, P., and J.W. Kennelly, "The Information Content of Quarterly Earnings: An Extension and Some Further Evidence," The Journal of Business, (July, 1972), pp. 403-415.

"A Case of Phantom Profits?", Business Week, (June 15, 1974), p. 87.

Coughlan, P.B., "Allowance for funds in Construction: Accounting Stepchild and Regulatory Football," Public Utilities Fortnightly, (November 4, 1976), pp. 26-33.

Demski, S., "Choice Among Financial Reporting Alternatives," The Accounting Review, (April, 1974), pp. 221-232.

Fitzpatrick, D., and T. Stitzel, "Capitalizing an Allowance for Funds Used During Construction: The Impact on Earnings Quality", Public Utilities Fortnightly, (January 19, 1978), pp. 18-22.

Frazer, E., and R.C. Ranson, "Is Interest During Construction "Funny Money'?", Public Utilities Fortnightly, (December 21, 1972), pp. 20-27.

Gheyara, K.F., The Replacement cost Disclosure Requirements of ASR-190: A Test for Information, Unpublished dissertation, (Oklahoma State University, 1979).

_____ and J.R. Boatsman, "Market Reactions to the 1976 Replacement Cost Disclosures," Journal of Accounting and Economics, (August, 1980), pp. 107-125.

Gonedes, N.J., "Capital Market Equilibrium and Annual Accounting Numbers: Empirical Evidence," The Journal of Accounting Research, (Spring, 1974), pp. 26-62.

Johnson, J., "The Income Quality of Allowance for Funds Used During Construction," Public Utilities Fortunightly, (June 9, 1977), pp. 32-36.

Lev, B., Accounting and Information Theory, Studies in Accounting Research #2, (American Accounting Association, 1969).

Litke, L., "Allowance for Funds Used During Construction," Public Utilities Fortnightly, (September 28, 1972), pp. 19-22.

Marshall, M., "Interpreting the API," The Accounting Review, (January, 1975), pp. 99-111.

Olson, C.E., "Interest Charged Construction: Economic, Financial, and Regulatory Aspects," Public Utilities Fortnightly, (August 19, 1971), pp. 30-34.

Pomerantz, L.S., and L.E. Suelflow, Allowance for Funds Used During Construction, MSU Public Utilities Studies (Michigan State University, 1975).

The Value Line Investment Survey, (Arnold Bernhard and Company, May 16, 1969), pp. 581-582.

Walker, R., "Testimony and Exhibits of Richard Walker for Arthur Andersen & Co.," Florida Public Service Commission Docket No. 72609-PU, June 18, 1973.

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Bernadette E. Lynn
Assistant Professor
McMaster University

ABSTRACT

How current value reporting (CVR) effects users of financial statements has been debated extensively. This article attempts to analyze the possible impact that CVR has on internal decisions, especially those involved with performance measurements. Some performance measures used internally by multidivisional firms are reviewed and analyzed in the context of CVR.

The Impact of Current Value Reporting on Internal Performance Measurement

In most of their debate about the usefulness of current value statements, researchers have argued from the perspective of external reporting, concentrating on how much information should be reported and in what form the information should be presented.[1] Throughout the many years of debate over current value reporting, few researchers have considered the impact on the individual firm of using inflation-adjusted current-value information. Rather, the impact has been assessed on the overall financial reporting of the firm and how that will affect the various constituencies of users of financial statements outside the firm. Indeed, Paragraph 6 of Section 4510 of the CICA of Handbook enumerates some of the uses of the supplementary current value statements, in each case emphasizing the relevance to statement users, particularly investors and analysts. For example Part "c" of Paragraph 6 reads as follows:

> ....When prices change during the period in which an enterprise holds assets, the worth of the enterprise can be increased or decreased. For example, prudent timing of inventory purchases may avoid an anticipated price increase with the result that the worth of the inventory acquired subsequently increases. The effects of such price changes are an important aspect of overall enterprise performance even though they may be distinguished from operating performance. Measurements that reflect current prices can provide a basis for users to assess returns on financial capital invested and the extent to which past decisions on the acquisition of assets have created opportunities for an enterprise to realize higher net cash inflows in the future. The measurement of business performance using current cost data may also aid users by providing a uniform basis both for evaluating the relative performance of different enterprises and making interperiod comparisons of the performance of an individual enterprise.

As can readily be seen, this paragraph emphasizes "enterprise" results and their interpretation by "users" of the financial statements. Preparation and presentation of current value information, however, can be a useful exercise for the firm itself, the internal audience for the financial information especially for certain aspects of internal management decision making.

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[1]While most discussion of current value accounting centers on the investor's and the analyst's uses of the data, some work in the area has considered the internal use of current value data. The most significant work of this kind is Edgar O. Edwards and Philip W. Bell, The Theory and Measurement of Business Income (Los Angeles; University of California Press, 1961), especially pp. 38-59. Also, in a more practical vein, Alan H. Seed III has undertaken a series of studies, surveying companies to determine the way in which they use current accounting data. See, for example, Inflation: Its Impact on Financial Reporting and Decision Making. (New York: Financial Executive Research Foundation, 1978); "Managing More Effectively with Inflation-adjusted data," Financial Executive (November, 1982), 15-20; and "Inflation Accounting: How It Aids The Financial Executive" Fianancial Executive (December, 1982), 15-24.

This paper will discuss the impact of current value reporting on one feature of a firm's internal accounting system — the performance evaluation system in a multi-divisional manufacturing company. The paper will review the theoretical aspects of a performance evaluation system. Then it will analyze the way in which current value reporting can improve internal evaluation of managerial performance.

Definition of the Problem

Performance evaluation systems in multi-divisional firms have provided a vast seed ground for writers in managerial accounting. Essentially, performance evaluation can be viewed from one of two perspectives:

1) the enterprise perspective, where the performance being evaluated is the firm as a whole
2) the managerial perspective, where the performance being evaluated is that of individual managers at different levels within the firm.

In the first instance the enterprise is judged on the results it has achieved in relation to some overall firm objective or in relation to other firms in the same industry. The internal audience most interested in such measures would be top executives and Boards of Directors. Such measures of firm-wide performance are also those which elicit the most interest from external users of the firm's financial information. The second perspective of performance evaluation, while it may accommodate aspects of the first (the use of return on investment as a measure of divisional performance, for example), is quite different in its emphasis. Indeed, the audience for such performance measures is the managers themselves, since the measures comprise, in most firms, a substantial part of the motivational and reward structure of the organization.

The measures used in an internal performance evaluation system must possess several essential characteristics. First, the measures must be realistic; that is, they must be related to the actual function they purport to evaluate. For example, using a revenue measure (such as, sales value of parts transferred) to assess a manufacturing department, communicates no "real" information about how well or how badly the department has done. Performance measures, besides being realistic, must also be unbiased, excluding allocations from other areas in the organization. Thirdly, such measures must present an adequate and comprehensive picture of an operation and promote congruence with the goals of the organization as a whole. To find a single measure that incorporates realism, lack of bias and comprehensiveness is indeed a monumental task, so monumental that many firms compromise and attempt to adjust existing measures for bias and comprehensiveness. Theoretically, the overall criterion for adapting measures is to include within the statistic only those aspects of the operation over which the manager (or function) has control.[2] The items included in an "ideal" measure that is realistic, unbiased and comprehensive, must be under management control. For example, although it may be equitable to charge the fixed costs

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[2]See, for example, Raymond Villers discussion of the problem in "Control and Freedom in a Decentralized Company," Harvard Business Review (March-April, 1954), 89-96. David Solomons, Divisional Performance Measurement and Control (New York: Financial Executives Research Foundation, 1965), pp. 54-56 and 71-2.

of the depreciation of plant and equipment to an operating line, it may not be fair to evaluate the foreman's performance on the basis of a measure which incorporates those costs, if he has no control over them. A much more legitimate measure which reflects the real, unbiased picture of the operation would include only those cost components over which the foreman can exercise control. Thus in most cases, the controllability criterion becomes the overriding consideration in performance evaluation.

One of the major criticism of many performance evaluation systems is the inclusion of non-controllable items in performance measures. In most situations, changes in specific prices and changes in the general price level are not items over which management has control. Given the high level of inflation experienced over the last decades, most accounting measures are influenced by specific price changes and general inflation. Specifically, the measurement of income on a historical cost basis represents, in many cases, a distorted measure of the firm's performance. On the level of internal measures, the impact can be even greater since historical cost measures of performance can be misleading and, in certain instances, can reward poor management of resources. Performance evaluation, unadjusted for specific price changes and general inflation, is no more a real or unbiased measure of a manager's or a department's performance than is unadjusted income a measure of the firm's performance as a whole.

To establish adequate, realistic performance measures, which are controllable, it is necessary to incorporate current value information into the measures in some way.

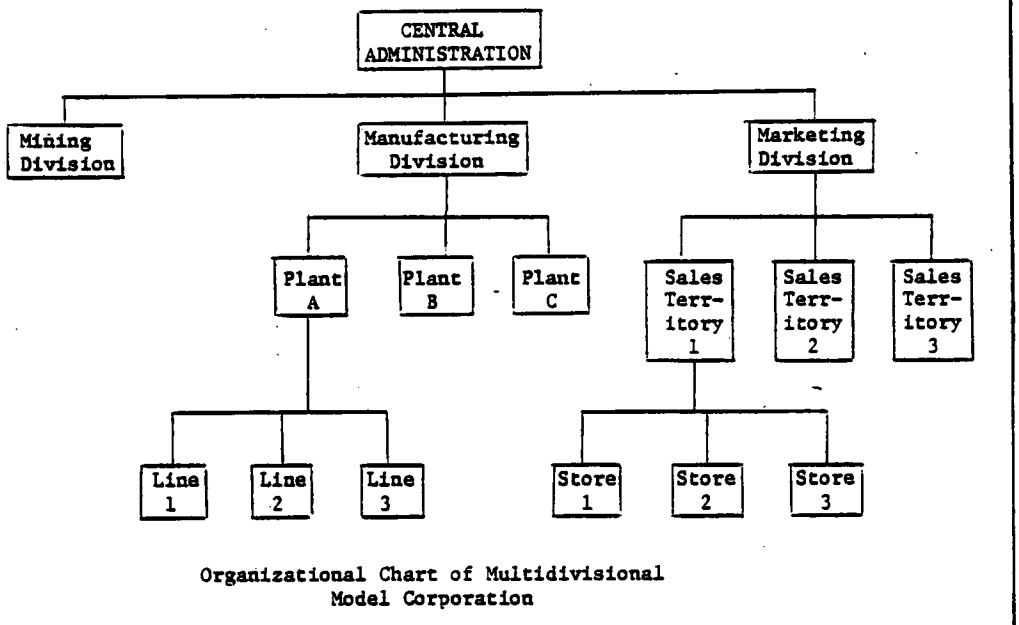
Current Value Performance Measures

In a multidivisional firm performance evaluation occurs on a number of levels, depending on the nature of the business and geographical location of plants sales outlets and other organizational aspects. If one chooses as a model a simplified multidivisional manufacturing operation, vertically integrated, that markets its own final product, the firm may be represented by figure 1. From the diagram, the levels of control and responsibility are readily evident. Ultimate organizational control lies with the president in the central administration, divisional control with divisional managers, and so on to the foreman on the lines and the store managers in charge of retail outlets. Also, as can be seen, the sphere of control expands as one moves from the bottom to the top of the organization. The divisional manager is responsible (with certain designated limits) for all aspects of his division and given the appropriate level of autonomy operates the division as a firm within a firm. The manager of Plant A, while he contributes to the overall divisional results, can only wield his authority within the limited realm of his manufacturing operation. It is obvious, then, that the measures used to evaluate the performance of these different levels must be adapted to the sphere of control each exhibits.

Cost Centre Performance

On the lowest levels of the manufacturing division of the model corporation, those of the plant and production line, management has at minimum control over costs. In these areas the most familiar measures of performance are budget variances — management is evaluated on its ablity to adhere to a budget based upon standards which incorporate both a price and efficiency measure.

Figure 1



Organizational Chart of Multidivisional Model Corporation

If the model firm maintains currently attainable standards with respect to price, then the impact of specific price changes in raw materials should be eliminated. Firms that do not revise their standards frequently can, in fact, be showing unfavourable materials price variances or labor rate variances, whose major components are specific price changes, uncontrollable by management. For example, assume that Model Corporation set a materials price standard of $5 per kilo of raw material used by Line 1 in Plant A and that standards are reviewed quarterly by the plant management. During the first quarter of 1982, prices for the raw material were rising at a rate of 1 1/2% per month, an occurrence caused by heavy demand for the raw material, an event uncontrollable by the line foreman. By the end of March the raw material would be selling at $5.23 per kilo, yielding a price variance of $.23 per kilo of the material purchased at the month-end price. It should be noted that, if the material is being replaced evenly over the period, the materials price variance should be calculated on the average price ($5.12) charged during the quarter.

What does this price variance represent? Since the cause of the variance was an uncontrollable change in the specific price of the commodity, it is obvious that the variance measures the current cost savings that could have been achieved had additional purchases been made when the materials price was $5.00. Indeed, if raw materials inventory on hand at the end of the quarter is all revalued at the $5.23 current price, the holding gain which results is, in fact, a measure of the cost savings realizable by wise purchasing as well as being a price variance for the period. Thus, under a current value system, in times of price change, the price variance is composed of two portions: (1) the opportunity loss (gain) which results from materials purchased, used and held during the period, and (2) the holding gain on inventory on hand at the end of the period.

Using the bipartite analysis of the price variance, one is able to assess the impact of managerial expertise on the purchase/hold decision. If the manager participates in setting the standards, he would insure that the standard is based on his best estimate of prices over the period to which the standard would apply. Hence, compounded in the standard is a forecast of normal value of the commodity over the period, the value which appears to be currently attainable. To obtain a favorable price variance, then, a manager would time his purchases such that the standard always exceeded his purchase price. A zero variance could indicate that the manager was always at the current price, performance which could be evaluated as acceptable or unacceptable depending on the circumstances.

In times of changing prices, part of the price variance will always be a holding gain (loss). If a manager continually obtained unfavourable or zero variances using currently attainable standards, it could be construed that the manager was exercising poor judgement in timing his purchases or that his forecast of prices was a poor one. At this point, then, a refinement has been added to the current value variance analysis which allows an even clearer assessment of the management's performance in the cost center. Using historical cost price variances as a measurement tool for performance evaluation is always problematic, then, because of the way in which factors over which the manager has little control are implicit in the variances. Moreover, even if a company uses currently attainable standards (which approach current value) the holding gain portion of the variance is not isolated, and, hence, one does not get an overall picture of whether purchasing has been done poorly or well.

One other performance measurement tool used within the cost centre is the budget. Whereas standards relate to units of inputs and variances relate to the departments that control those inputs, the budget generally relates to a department as a whole. Budgets are composed of predicted levels of performance and are used to control or monitor actual events. Theoretically, variances from budget are based on a flexible budget, i.e., how much should have been spent given a certain level of activity. Performance evaluation through flexible budgets is understandably, like conventional variance analysis, an ex ante undertaking. In setting the budget, as in setting standards, it is to the manager's benefit to incorporate his best estimates of prices, etc., since it is the objective of a cost centre to adhere to its budget as the minimum acceptable performance. The budget or standard is held constant and compared with a variation of "average" expense over the period.

The impact of current value reporting on cost centres is merely an extension of the analysis of variances. Ex post budget evaluation requires the analysis of variances from budget, part of which could have been caused by specific price changes and part of which could be the result of inflation, thus incorporating current, end-of-period prices into the analysis. To provide an adequate, realistic evaluation of a cost center, these items should be isolated. Without their identification, management cannot tell whether management has planned and controlled effectively, whether productivity has declined or increased.

To provide a thorough evaluation of a cost centres performance in times of changing prices requires the calculation of at least three variances for each of the budget items over which the manager has responsibility and over which the cost centre as a whole has control. As was discussed earlier, the

price variances (or spending variances) can be analyzed in two parts, a current cost or holding portion and an operating portion. The third variance which needs to be considered is the efficiency or usage variance -- the variance which gives some indication of the productivity of the cost centre, since price is held constant by using standard cost.

It is in the price (spending) variances that management's performance can be evaluated in the face of rising prices and general inflation. In a standard cost system, the current cost savings can be represented as follows:

$$\text{(i)} \quad CP_{t_1} - SP_{t_0} = CCS$$

where, "CP_{t_1}" is the current cost of the item at time t, for items on hand at the end of the period (or in the case of income items, the average current cost during the period);

SP_{t_0} is the standard set a time t_0;

CCS is the current cost savings achieved.

The current cost savings includes (or may be equal to) the operating price variance (OPV):

$$\text{(ii)} \quad P_{t_1} - SP_{t_0} = OPV$$

where, P_{t_1} is the average actual price paid for the good or service during the period.

It should be recognized that P_{t_1} may or may not be equal to the average current cost over the period in equation (i). If management is exercising astuteness in its expenditures then P_{t_1} should approach SP_{t_0} since the cost standard for any item incorporates management's forecast of what should be spent on the item, given predicted economic conditions hold. Current cost savings thus include a holding gain (loss) realized in the operations of the period, a holding gain (loss) which will be realizable in future periods and an operating price variance. Furthermore, the real cost savings can be determined by adjusting for the change in the general price level, an adjustment which adds a further dimension to the evaluation of the cost centre's performance. By calculating the real outcomes of the period's operations, one eliminates false signals and strengthens the chance of management's achieving real improvements in performance.

Theoretically, then, by extending budget and variance analysis, current value reporting should improve performance evaluation by focusing a manager's sights on items over which he has responsibility and control. One caveat should be raised at this point, however, no budgeting process, no standard setting process, is ideal or infallible. In fact, the ways in which human creativity can undermine the best-intended system are too multitudinous to enumerate. Thus, the extended analysis is only as good as the system on which it is based. If slack standards and slack budgets are the rule for cost centres rather than the exception, then, the extended analysis would

contribute little to the evaluation scheme since management would already be liberally allowing for price changes in their "soft" standards.

Profit-Centre Performance

The use of current value statistics in the evaluation of cost centres has significant benefits at the grass roots level of the organization. Accommodating price changes also has an impact at other organizational levels, such as the profit centre. The profit centre, by definition, has control over not only its costs but also its income. Evaluation of profit centres goes beyond simple cost variance analysis to assessment of the effectiveness of profit centre management in generating income. In economic terms, the objective of a profit centre is to maximize net income, by charging the highest price possible for the product, given its elasticity of demand, while minimizing costs, given the constraints of the production function. Thus, the profit centre is constrained on two sides — by the market for its outputs and by the price it pays for its inputs. In the vertically - integrated model firm considered here, the input price to the marketing division is, in fact, a transfer price.

Numerous micro-economists and accountants have theorized about what the appropriate transfer price should be.[3] Ideally, goods should be transferred at the price which maximizes the revenue for the firm as a whole, that is, where the marginal cost of the manufacturing division is equal to the marginal revenue of the marketing division. In a firm where divisions are autonomous (as they are in our model firm) and have access to the outside market, the transfer price should be the market price or marginal revenue. If one assumes that the model firm operates at least at the average efficiency of others in the market and can not influence price on its own, then management should be indifferent to charging the market price to external or internal buyers.

Using a current value system, market price is always the transfer price because market price represents the current cost of the input to the purchasing division. It is possible, however, that a division could negotiate a transfer price at the beginning of an accounting period (t_0). While the price set at t_0 may be the current market price at the time of the contract, if prices change over the period and the purchasing division has an asssured "contract" price, the division will accrue holding gains (losses) over the period. Using a current value system decreases the possibility of dysfunctional decision making, at least in terms of setting the transfer price, since the current market price pertains. The evaluation of the divisions, then, is based on the current price/current cost relationship. Indeed, the performance measures used to evaluate profit centres, such as, the return on sales ratio, the inventory turnover ratio and divisional profit, are all implicitly affected by the introduction of a current value system.

Like a cost centre, a profit centre uses budgets to plan and evaluate its activities. Also like a cost centre, the profit centre incorporates forecasts of current value information in its budget projections. The chief difference in the evaluation of the two types of centres resides in the inclusion of the sales line which follows from the profit centre's responsibility for sales.

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[3] For an extensive treatment of the economic solution of the transfer pricing problems see J. Hirschleifer, "On the Economics of Transfer Pricing," Journal of Business, XXIX (July, 1956), 172-84 and "The Economics of the Divisionalized Firm," Journal of Business, XXX(April, 1957), 96-108.

In the vertically integrated model corporation, accountability for sales is inextricably connected with setting transfer prices, a process, which, as we have seen, is somewhat improved by the use of current value information.

The performance of the profit centre manager is thus affected by changing prices both of specific items and of the general price level. Under a historical cost income evaluation procedure, the effects of a manager's superior negotiating skills or his ability to operate monopolistically are, in many cases, the key to good performance results. Using current value information distinguishes, to some extent, between the operating achievement of the managers and the benefits of negotiated prices. For example, assume that in our model firm, the mining, manufacturing and marketing divisions all have profit responsibilities. all are considered to be autonomous in negotiating the sales prices of their commodities within the firm, but that each division has free access to an outside market, on which it is a price taker. The current price for the products of Plant A at t_0 was $10 and Marketing division agreed to accept transfers at that price. Hence, the $10 became the fixed price of this specific inventory item acquired internally by the marketing division. Any external purchases would of course be made at the price current at the purchase date.

At the end of the period, historical cost and current cost results of the divisions were as follows (assuming no change in the general price level):

Manufacturing Division

	Historical Cost	Current Cost
Sales	$30,000	$30,000
Cost of Sales	18,000	20,000
Other Expenses	10,000	10,000
Current Operating Income		Ø
Holding Gain	—	2,000
Net Income	$ 2,000	$2,000

Marketing Division

Sales	$50,000	$50,000
Cost of Sales	30,000	36,000
Other Expenses	15,000	15,000
Current Operating Income (loss)	—	(1,000)
Holding Gain	—	6,000
Net Income	$ 5,000	$ 5,000

The current cost statements for the divisions allow for two significant improvements in measuring management's performance. First, the current cost statements discriminate between operating and holding activities and give management the opportunity to evaluate these two factors separately. As can be seen in the example above, the marketing division is operating at a loss when evaluated on a current value basis and the manufacturing division is just breaking even. For both divisions, historical cost income signals positive returns from operations. Likewise, if return on sales were used as a

performance measure, and historical cost system would yield a 6-2/3% return for manufacturing and a 10% return for marketing. Neither division would show a positive operating return on sales using current value data. The example illustrates a situation in which total net income returns for the divisions are derived from management's holding activities rather than from operations. As an evaluation of managements' performance this suggests that managers have not been successful in maintaining a positive margin on sales in the face of rising inventory prices. If, in fact, the firm has no ability to influence the price of its final product, then, the current cost measure of the two divisions reveals that the firm is better off by $1,000 in having manufacturing sell its product on the outside market and having them take advantage of the rising prices. Thus, the current value measure gives the divest signal. It seems irrational for a division to continue operations without serious revaluation when its net income is almost entirely composed of realized increases in the value of its inventory assets, increases which may be fortuitous at best.

The second major improvement in the evaluation of the profit centre arises from the use of a common measuring unit, average current dollars. Current operating income is measured in average current dollars for the period and thus is a statistic which can be used to compare the two divisions. Historical cost income is stated in mixed dollars and, hence, the measuring unit differs from division to division, depending on when purchases were made. Thus the income from the two divisions is not a good measure of performance not only because it confuses holding with operating activities, but also because it can not be used to compare divisions.

Current Value Reporting and the Investment Centre

As one moves toward the higher levels of the organization from the cost centre to the profit centre, performance measures become broader, moving from variances on specific budget items to all-encompassing income measures which can be further analyzed to obtain more specialized information for evaluations. The impact of current value data becomes more significant for internal evaluation as the performance measures become more catholic in their makeup. When one reviews the measures used to evaluate the performance of a division (or an area of central management) which has control over investment decisions the use of current value information is critical. Whether a firm uses return on investment (ROI), residual income (RI) or some other measure to evaluate performance, the most important information required is an accurate, realistic income figure and an appropriate measure of the investment base. Using current cost measures enhances the usefulness of these performance measures.

Accountants have provided many illustrations of the drawbacks of using ROI as a performance evaluation tool. Writers stress the dysfunctional behaviour of managers who, when evaluated by ROI, tend to maximize the percentage return on investment rather than an absolute income return after the firm's hurdle rate has been achieved (as is the case with residual income). Both the income figure and the investment base are subject to managerial manipulation, manipulation which in most instances runs counter to the firm's global objectives. A current value system reduces a manager's motivation to arbitrarily adjust income since the major components of income have been adjusted to a current value basis. Similarly, setting the investment base at current replacement cost and basing any analysis on the average current cost over the period, relieves a manager of a modicum of his

measurement problems. It is true that current replacement cost is difficult to determine for unique or specialized assets and, thus, may be based on highly subjective data. For most assets, however, a specialized index may be found or a proxy value derived from the market, both objective, verifiable ways of establishing current investment values.

Both net income and the investment base can be measured in current dollars and thus share a common valuation unit. Ensuring a common valuation unit for both the numerator (income) and the denominator (average current investment value over the period) helps to remove measuring unit errors from the ratio. The problems of comparing inter-divisional R.O.I. or R.I. are overcome by eliminating the measuring unit errors, since assets, regardless of when their purchase took place, will be measured in terms of the current replacement cost in common dollars of the measurement period.

Using R.O.I., investment centre management can evaluate two performance measures: current operating return on net investment and current net income (including real increases in investment value) return on net investment. Each measure provides a different perspective on managements' performance. As was illustrated earlier in the profit center example, the operating return on investment gives an indication of how well the segment has performed given changes in the value of its assets — has the segment been able to stay ahead of specific and general price level changes? Can the segment generate sufficient cash to replace its assets and continue operations? The operating R.O.I. provides signals in both of these areas. The net income R.O.I., on the other hand, is a more all-encompassing measure. Because it includes holding gains, it measures not only how well the firm has done in maintaining and increasing its financial welloffness but also how wisely management has made its investment decisions. To obtain a complete and realistic evaluation of the investment centre performance, then, both returns need to be considered.

Conclusion

Current value adjustments of internal accounting reports have a significant impact on the interpretation of measures of performance evaluation. Using current-value adjusted measures helps to ensure that managers will be assessed on the basis of what they control and that their management of operations is judged on a different measure than their decision to purchase and hold assets (the timing decision). Practically, current value common dollar adjustments can be made at the end of the period as is recommended in the supplementary reporting requirements in the United States and Canada. Conversions of internal performance reports would require more frequent reporting, say on a monthly or, at minimum, a quarterly cycle. As reporting becomes more frequent, the production of the current value data becomes more costly and at some point the benefit of revising the accounting system itself for current values becomes feasible.

This paper has reviewed some of the potential courses that current-value adapted performance measurement could take. Further study needs to be undertaken of the actual uses that management has made of current value data for internal evaluation and their plans for incorporating current value measures into the system.

References

Edwards, Edgar O. and Bell, Philip N. The Theory and Measurement of Business Income. Los Angeles: University of California Press, 1961.

Hirschleifer, J. "On the Economics of Transfer Pricing," Journal of Business, XXIX (July 1956), 172-184.

_____. "The Economics of the Divisionalized Firm", Journal of Business, XXX (April, 1957), 96-108.

Seed, Alan H. III. Inflation: Its Impact on Financial Reporting and Decision Making New York: Financial Executives Research Foundation, 1965.

_____. "Managing More Effectively with Inflation - Adjusted Data," Financial Executive (November, 1982) 15-20.

_____. "Inflation Accounting: How It Aids the Financial Executive," Financial Executive (December, 1982), 15-24.

Salomons, David. Divisional Performance Measurement and Control. New York: Financial Executives Research Foundation, 1965.

Villers, Raymond. "Control and Freedom in a Decentralized Company", Harvard Business Review (March-April, 1954), 89-96.

CAAA 1983 Conference
University of British Columbia

D.C. MacCharles
Division of Social Sciences
University of New Brunswick
Saint John, N.B.

MANUFACTURING COSTS, CORPORATE DECISION-MAKING AND THE ROLE OF MANAGEMENT ACCOUNTANTS[1].

Unit manufacturing costs in Canada are higher than for foreign-based competitors because of greater product diversity, smaller scale and higher inflation. Accountants in Canada are not as fully informed on these issues as they need to be if they are to effectively advise management on cost-reducing strategies in an increasingly competitive world.

Introduction

Accountants have a responsibility to provide correct information and advice to managers so that strategic decisions can be made on behalf of shareholders for such policy issues as prices, dividends, new markets, fixed asset acquisition and the structure of debt. Recent research (Daly and MacCharles, 1983) indicates that a large proportion of management accountants do not fully understand the significant effect that small scale and product diversity have on unit costs. Also, a large proportion of them have not accounted for the serious impact inflation has had on unit costs and other values reported in financial statements. These are important factors in the cost environment for Canadian manufacturers. Any lack of understanding of them by accountants hampers their ability to provide appropriate current as well as prospective information and advice to management on how to improve productivity and lower costs. Consequently, the quality of decision-making by managers in Canada could be lowered with undesirable implications for the return to capital, wages, employment and capital flows.

There appear to be three basic reasons for any lack of understanding of the impact of scale and specialization on unit costs. One is that there has been a lack of continuing professional development by practitioners as research has led to new knowledge in this area. Another is that Canadian accounting faculty are not integrating this new knowledge into their teaching material and showing students its application in a Canadian setting. The third is that the profession borrows heavily from the U.S. intellectual tradition where, because the domestic market size is so much larger, cost structures are influenced to a much smaller extent by any lack of scale and specialization. Consequently, there is less need there to integrate these concepts into the cost framework and relate it to applied micro decision-making.

The new knowledge about the relationship between specialization and unit cost reduction in Canadian manufacturing has been developed since the late 1960's and over the 1970's by industrial organization researchers (Caves,

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[1]This paper is based on a larger study undertaken with Prof. D. Daly of York University. I wish to acknowledge his helpful comments and suggestions on a draft of this paper. I also wish to acknowledge the work of W. Altwasser in gathering and analyzing the data for the inflation adjustments.

1975; Daly, Keyes and Spence, 1968; Scherer, 1975). Also, new information has been developed by researchers in international trade and micro economics on the relationships between rate of output (or scale), total volume and unit cost reduction that has been termed modern cost theory (Alchian, 1959; Alchian and Allen, 1972; Hirshleifer, 1962; Hogendorn and Brown, 1979; MacCharles, 1983). Yet the most popular managerial accounting texts used in Canada make no reference to this important literature and they do not integrate it into the discussion of cost curves and how they should be applied in a Canadian setting.

Another feature of the Canadian cost environment which has seriously influenced costs but has not been adequately treated by the profession in Canada is the rate of inflation. Since WWII, it has been both higher and more persistent than in any such previous period. It has also accelerated more quickly in the past decade and done so more quickly in Canada than in the U.S. and Japan whose producers are the major competitors to Canada's both at home and abroad (Daly and MacCharles, 1983). It is a matter of record however, that other jurisdictions such as the U.K. and the U.S. have for some time integrated inflation adjustment methods into the profession's conceptual and applied framework. Yet Canadian accountants, for reasons which will not be dwelt on here, have lagged considerably in doing so.

Cost Environment

Scale and specialization. Since the mid-1960's research in economics has considerably improved our understanding of the cost environment in which Canadian manufacturing firms function. It is now well recognized that Canadian manufacturers, while having plant sizes that are not significantly different from their major competitors elsewhere in the world, have a considerably greater number of products and components produced in them by smaller run sizes and in smaller total volumes (Caves, 1975; Daly, Keyes and Spence, 1968; Eastman and Stykolt, 1967; Wonnacott and Wonnacott, 1968). This lack of specialization, along with small scale and small total volume resulted in Canadian manufacturers on average having unit labour costs that were in excess of 30% higher than their more specialized, large-volume competitors elsewhere in the world (i.e. product-specific diseconomies of scale). Labour costs are over 60% of total cost after eliminating the double-count of intermediate goods and are indicative of total unit cost.

The relatively high degree of diversity in Canadian plants for both final goods and internally-made intermediate goods increased total production activity and allowed the firms to more fully utilize their excess capacity. This behaviour did absorb the existing fixed costs associated with the firms' capacity. But, it also increased the average variable unit costs of labour (as well as intermediate goods and overheads) compared to those of a high-volume, specialized producer. The high unit costs were tolerable because of the high effective Canadian tariffs which reduced competition from foreign-produced goods and allowed the manufacturers to engage in limit-pricing behaviour to cover their high costs. The scale of production was small because run-sizes and total volume were limited by the small size of the Canadian market. Further, the tariff protection allowed management to turn its view inward so it did not always fully consider the possibilities for achieving lower unit costs by specializing a firm's products and production activities and increasing the scale of output through export sales.

Recent comparative costs. The economic environment for Canadian manufacturers has changed in the past decade. Tariffs will have been reduced to about 15% of their 1950 level when the Tokyo round of tariff reductions are fully implemented in 1987. Further, there is now considerably more competition from internationally cost-efficient producers located in offshore areas than existed in 1950. These two influences became strongly cumulative by the 1970's and significantly increased the competition for Canadian manufacturing firms in both their domestic and export markets. As a result, the firms are being forced to become more efficient. Table 1 shows the improvement in the unit-cost-of-labour gap between Canada and the U.S. (along with some other-country comparisons) since 1960. Canada, while now a relatively low-cost producer in comparison to European competitors, is still at a cost disadvantage with U.S. producers by about 20% in the U.S. market and is a more costly source of supply in that market relative to Japanese producers.

Table 1

Indices of Labour Costs per Unit of Output
Total Manufacturing
Selected Countries for 1960 and 1980
After Exchange Rate Adjustment
U.S. = 100

Country	1960	1980
U.S.	100	100
Japan	44	80
France	45	101
West Germany	48	132
U.K.	58	129
Sweden	80	149
Canada	138	120

Source: D.J. Daly and D.C. MacCharles, Canadian Manufactured Exports: Constraints and Opportunities.

Further potential cost reductions. In order to assess how Canadian producers are adapting to their changing environment and their potential for unit cost reductions a study of thirty manufacturing firms was undertaken. Twenty firms provided data for two of the questions emphasized in the study which were designed to determine their existing structure of cost and the effect on unit cost of increased specialization along with a tripling of output (Table 2).

The unit cost reductions over all these firms averaged about 22 percent of the original unit cost before residual (14 firms had reductions of 11 to 30 percent, 4 had less than 10 percent and 2 had greater than 30 percent). The area of cost reduction of major interest here was the 18% decrease in the unit cost of labour. This improvement is close to the average labour cost difference between Canadian and U.S. producers for the manufacturing sector as a whole as discussed earlier. This suggests increases in scale and specialization would go a long way in making Canadian manufacturers

Table 2

Distribution of Relative Costs
Before and After Specialization and Scale Increase
Twenty Firms

Cost Item	Present Unit Cost	Unit Cost After Tripling Output	Change in Cost	
			Amount	% of Total Change
Material	48.0¢	41.4¢	(6.6)¢	(32)%
Labour	10.0	8.2	(1.8)	(9)
Factory Costs	16.7	12.3	(4.3)	(21)
Total Production Cost	74.7¢	62.0¢	(12.7)¢	(62)%
Non Production Cost	20.1	12.3	(7.8)	(38)
Residual	5.2	25.7	20.5	100
	100.0¢	100.0¢	0	0

Source: D.J. Daly and D.C. MacCharles, ibid.

internationally cost competitive provided it was uniformly the same in the service and intermediate goods sectors and passed on in the form of lower prices to the manufacturing sector.

Roughly, it is possible to divide the unit cost reductions into two categories of response to increased scale and specialization. One is an efficiency response. The other is a volume-related response. The changes in material and labour are basically efficiency responses. The reductions in the unit cost of material result from improved efficiency as specialist suppliers are used who achieve product and volume-specific economies of scale and lower their prices to buyers. It also reflects better utilization of material in production as waste is reduced and the introduction of different types of material and production methods as scale and specialization are increased. The increased efficiency in labour comes from less change-over time, more learning-by-doing, better balancing of capital and labour and greater mechanization. The volume response relates to factory and non-production costs which have relatively large fixed cost components that fall per unit of output as the scale and total volume of output is increased.

Most of the cost reductions were about twenty percent of present unit costs. Canadian manufacturers will need such cost reductions to survive in a world of increasing competition and soft markets in which their high costs can no longer be passed on in the form of high prices. Given the magnitude of the present cost differences of about twenty percent between Canadian and U.S. producers noted before, the present profit margins of five to ten percent are not high enough to absorb the price reductions that are necessary to make Canadian producers competitive in either U.S. or Canadian markets. It is important that accountants understand the role of scale and specialization in developing prospective costs for management decision-making. Yet, for well

over one-half of the thirty firms in the sample, the accountants were not advising managers they could reduce their firms' high unit costs to internationally competitive levels by an increase in exports which would allow increased scale and specialization. Also, since the higher unit costs cannot be passed-on as higher prices because of the increased competition, profits for these firms were being unnecessarily reduced. In the longer run, this has implications for the whole economy since it could result in less investment spending being undertaken and lower future growth in productivity, employment and income in the manufacturing sector.

Costs and inflation. The current recession, low productivity increases and accelerating unit costs for labour and other inputs relative to the U.S. over the past decade, plus increased competition from internationally cost-efficient producers have all combined to seriously erode profit margins for firms in the manufacturing sector (Daly, 1981; Daly, MacCharles and Altwasser, 1982). But to make matters worse, accountants have been overstating these profits and understating costs by not allowing for the effects of inflation. Instead, in Canada, they have continued to use historical-cost accounting procedures even when much of the industrialized world has moved toward some form of price-level-adjusted reporting system. Even when the latest CICA draft on inflation accounting is implemented, considerably fewer than 25% of all the firms in the manufacturing sector will be required to use it. Further, our research indicates that a much lower ratio of firms will adopt inflation-adjusted values for their internal reporting and management decision-making. These conclusions also find support in a recent survey of members by the Canadian Manufacturers' Association. The first question in the survey was on the topic of inflation accounting. Only 15% of the members reported adjusting their financial statements for the impact of inflation and the comment of the CMA staff was that most managers remain ignorant of the critical importance of inflation accounting. Further, in a summary of external financial reporting practices by the largest Canadian mining companies prepared by Deloitte Haskins and Sells, fewer than 20% of the firms were providing inflation-adjusted statements to shareholders. Those that were, were doing so in response to U.S. regulations (i.e. F.A.S.B. No. 33).

The low ratio of firms using inflation-adjusted values is also confirmed by income tax statistics (Statistics Canada, 1969-1979). The ratio of depreciation to reported profit for the manufacturing sector declined from 47% in 1969 to 30% in 1979 while the capital cost allowances allowed by the tax regulations remained at 53% of reported profit over this period. The tax regulations compensated indirectly for the impact of inflation to some extent through such features as faster asset write-offs and various tax expenditure schemes. However, the declining ratio reported by the firms indicates they have not recognized the need for inflation adjustments in their financial reports.

Information available from another source also indicates this to be the case. The real stock of capital in the manufacturing sector rose 1.4 times between 1972 and 1981 (Statistics Canada, 1981). But price changes due to inflation caused it to increase a further 2.5 times. If the 1972 reported values for depreciation were increased by the same ratio then by 1981 they would have been greater than the reported values for that year by about one billion dollars, or 12% of before-tax profit.

Estimates were made for the impact of inflation on reported financial statements. The balance sheets and income statements for the manufacturing sector as a whole from published data for the years 1966 to 1979 were used to derive the estimates (Statistics Canada, 1966 to 1979). Projections of the financial statements were also made for the years 1980 through 1982 for which published data are not yet available. The line accounts on the summary financial statements were adjusted for the effects of inflation by using the general price level (GPL) model with the GNP price deflator as the adjusting index. The effect of inflation on profit, income taxes, cash flow, shareholders' financial capital investment and ROI's for the manufacturing sector was then calculated.

The Hicksian concept of income determination was used to calculate the adjustments. In this formulation changes in the purchasing power of the shareholders' income and financial investment must be allowed for before income is correctly reported (Hicks, 1946; Tarasofsky, Roseman and Waslander, 1981). That is, their financial capital must be maintained in real terms at the end of a period at a value at least as great as at the beginning of the period. And income cannot be considered as earned until the effect of inflation on a firm's assets and liabilities has been accounted for and the nominal flows for depreciation, cost of goods sold and other items on the income statement are stated in a common purchasing power unit consistent with the current period's price level. The GPL adjustments made to the summary financial statements for the manufacturing sector follow this Hicksian concept of capital maintenance and income determination.

It should be noted that inflation does not uniformly affect all prices at once but occurs with different lags between various types of items. The GPL model used here does not attempt to take into account these relative differences in price changes. Normally, this practice would be reasonable since it could be safely assumed that over the twelve year period of the analysis any lags would be largely ironed out even though on a year-to-year basis the adjustments would be a much rougher approximation for the effects of inflation. For the years 1980 through 1982, however, the lag appears to have increased significantly which seriously influenced reported profits in this period. The rate of increase in output prices decelerated under the influence of the recession and increased competition. But the rate of increase in input prices continued. The increase in the lag between the rate of inflation of output relative to input prices put manufacturing firms in a severe cost-price squeeze with a deleterious effect on profits. A summary of the adjustments made to reported statements using the GPL approach follows. The above description of the concepts and adjustments are necessarily brief. The larger and more detailed analysis from which they are taken is available from the author upon request.

Inflation-Adjusted Results

Adjustments to profit. The major negative adjustments to income for the effects of inflation were for depreciation and inventory both of which were restated to replacement cost values. A positive effect on profit was recorded for firms with long-term debt outstanding and net short-term liabilities (calculated after the deduction of inventory).

Table 3

Major Adjustments to After-Tax Profit,
Total Reported and Inflation-Adjusted Profit
Manufacturing Sector
Selected Years, 1966-1982.
(In $000,000's)

Year	Adjustment as a % of After-Tax Profit			Reported Profit	Inflation Adjusted Profit
	Depreciation	Inventory	Debt		
1966	.01	.11	.06	$1922.	$1805.
1970	.11	.11	.13	2645.	1518.
1975	.18	.27	.27	4564.	3780.
1979	.20	.32	.16	8948.	5844.
1982 Est.	.51	.86	.60	3500.	(800.)

Source: D.J. Daly and D.C. MacCharles, ibid.

Table 3 shows for selected years the effect on reported profit as a result of these three major adjustments stated as a percentage of reported profit after taxes. By 1979 the manufacturing sector's reported values for depreciation and net fixed assets at historical cost were about fifty percent less than required based on replacement-cost accounting procedures. The adjustment for this to profit represented about twenty percent of after-tax profit. The adjustment to cost of goods sold for the revaluation of inventory was about thirty percent of 1979 after-tax profit. The gain from holding debt and short-term liabilities by 1979 was about fifteen percent of after-tax profit. The net effect is that reported profit was overstated by about one-third in 1979. The size of these adjustments had become much larger by 1979 than a decade earlier because of the cumulative effect of chronic inflation over the decade at increasingly greater rates. The projections for the period 1980 through 1982 show an even more dramatic impact of cost inflation on profits which became very serious when combined with the effects of the recession and increased competition from foreign-produced goods.

Income tax rates: The income tax regulations do not provide for inflation adjustments being deducted from taxable income. But there have been some changes to the tax code over the past few years that have had the effect of at least partially indexing for the effects of inflation on reported nominal profits. Consequently, firms in the manufacturing sector have been able to avoid the full taxation of their inflation-distorted profits. For instance, the tax regulations allow for a 3 percent write-off of inventory to taxable income and provide for accelerated depreciation allowances. Also, tax expenditures have increased substantially from an insignificant level in 1966, although they are not designed primarily to index the tax system and depend mainly on firms investing in new plant and equipment in order to benefit from them. Therefore, they are a second-best way to deal with the problem of taxing overstated profits arising from the effects of inflation. However, in spite of these changes, the effective tax rate has risen since 1966 and now is considerably higher than the nominal tax rate as Table 4 shows.

Table 4
Effective and Nominal Tax Rates
Manufacturing Sector
Selected Years, 1966-1982

Year	Canadian Tax Rate		U.S. Effective Tax Rate
	Effective	Nominal	
1966	.42	.41	.42
1970	.45	.43	.43
1975	.45	.40	.42
1979	.46	.36	.50
1982 Est.	.70	.35	N.A.

Source: D.J. Daly and D.C. MacCharles, ibid.

In 1966 the effective and nominal tax rates were about the same at approximately 41 percent. By 1979, the overstatement of reported profit because of the influence of inflation had raised the effective tax rate to more than 25 percent above the nominal rate (i.e. 46% vs. 36%). Furthermore, the nominal rate declined after 1966 (partly as a result of increased tax expenditures) which is misleading since the effective tax rate has really increased. The projections to the end of 1982 indicate further significant widening between the effective and nominal tax rates as a result of declining profits and increased inflation adjustments. Table 4 also indicates that effective tax rates in the U.S. generally are marginally lower than in Canada (Holland, 1980). The current relatively higher rate of inflation in Canada compared to the U.S. will continue to raise the effective tax rate here vis-a-vis the U.S. and serve to further widen the gap in the rates between the two countries.

Cash flow. Firms in the manufacturing sector, if they are to continue as going concerns, must be able to generate a sufficient cash flow to at least replace their existing stock of fixed capital assets as it is retired. Table 5 presents some data on this cash-generating ability. It compares the reported and inflation-adjusted retained earnings plus depreciation after they have been restated to constant (i.e. real) 1979 dollars. This provides an indication of the effect of inflation on cash flow as well as allowing a comparison over time of the purchasing power of it. In addition, the real value of the fixed capital stock in the manufacturing sector that the cash flow must eventually replace is shown in the Table.

The data in Table 5 indicate that in 1982 the purchasing power of the cash flow is estimated to be about one-third of its peak level in 1974 and at about one-half the level of the 1960's. However, the net stock of fixed capital in manufacturing has about doubled from the late 1960's to 1982. On this basis, it appears there has been disinvestment in the manufacturing sector in 1982 unless firms have been liquiding non-operating assets, increasing their liabilities and relying on low rates of capacity utilization to extend the service life of assets. No doubt this much-diminished real cash flow largely reflects the impact on profits since 1981 of the steep recession in conjunction with cost inflation. But this is the first recession at least since 1966 in which this low a level has been recorded. The major implication is that start-

Table 5
Cash Flow Values
and Fixed Capital Stock
Manufacturing Sector
Selected Years, 1966-1982
($000,000's)

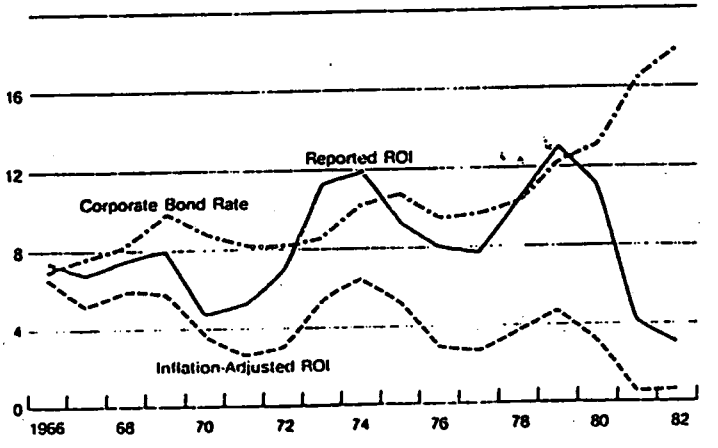
Year	In Constant 1979 Dollars		
	Reported Retained Earnings Plus Depreciation	Inflation-Adjusted Retained Earnings Plus Depreciation	Fixed Capital Stock
1966	$5038.	$4725.	$43452
1970	4921.	4910.	53369
1975	7256.	7336.	66610
1979	9104.	7837.	75272
1982 E.	3030	2348.	81900

Source: D.J. Daly and D.C. MacCharles, ibid. and Statistics Canada, Fixed Capital Flows and Stocks.

ing in the mid-1970's and continuing into the forseeable future manufacturing firms will have to rely more on the use of external financial capital and less on the use of internally generated cash flow to maintain themselves as ongoing entities. The effect of inflation on cash flow has been neglected by accountants and consequently it is not generally recognized by corporate executives. It exists even after allowing for the influence of the business cycle. This is particularly pronounced since 1975 as the effects of inflation became more chronic and rose to levels higher than those experienced in the ten years preceeding 1975.

R.O.I.'s. Figure 1 plots the reported and inflation-adjusted returns on equity invested in the manufacturing sector (ROI's). The long-term corporate bond yield is also shown. It is an indication of the alternative return that capital invested in the manufacturing sector could earn if it were invested elsewhere (it is not the cost of capital to manufacturing firms).

Figure 1
Reported and Inflation-Adjusted Rates of Return (ROI)
on Equity Capital
Manufacturing Sector
1966-1982



Source: D.J. Daly and D.C. MacCharles, ibid.

In 1966, all three rates of return were about equal. Between 1966 and 1979 the reported ROI closely tracked the corporate bond yield. In 1979 a very pronounced bifurcation occurred between both reported and inflation adjusted ROI and the corporate bond yield. The bond yield increased while the ROI's declined. This reflects two factors. The first is the increase in bond yields because of the premium lenders needed to protect their income and wealth from the impact of inflation. The second is the decline in profit, and consequently in both the ROI's, as a result of low aggregate demand in conjunction with rising costs of labour and primary products. A major implication of the bifurcation is that, on average, firms in the manufacturing sector cannot currently generate a high enough internal rate of return to justify borrowing for asset replacement purposes, let alone for asset growth. The reported and inflation-adjusted ROI's diverged between 1966 and 1979. This is partly because of the effects of inflation which created a wedge of illusory profit between them. It is also partly because the calculation for inflation-adjusted ROI is based on the replacement costs of assets which have a higher current value than their historic costs used to determine the reported ROI. By 1979, the reported ROI was over two-and-one-half times that of the inflation-adjusted ROI. The inflation-adjusted ROI is estimated to be at a fifty year low by the end of 1982 and close to a zero return.

Summary of impact of inflation. The use of historical-cost accounting procedures by accountants have overstated the reported profit in the manufacturing sector by about 50 percent. It has also overstated the ROI by almost three-fold by 1979. This in turn has resulted in higher effective tax rates than are generally reported. It has also distorted the accounting for cash flow between that available to pay dividends as a return on capital to shareholders (i.e. income payment) and that required for retention in the firms to maintain their stock of fixed assets intact. If this latter cash flow is unwittingly paid as dividends to shareholders as an income payment (which may actually be the case in 1982) because of inappropriate accounting procedures then the firms in the manufacturing sector are effectively being mined of their capital. In the longer run this would reduce the resources available to these firms for replacing their assets as they are retired and could require them to resort to the debt markets for funds because the resources set aside based on historical-cost depreciation are insufficient to replace assets at their higher prices. The inflation-adjusted ROI these new funds can generate, on average, may not be high enough to service the debt and provide for its ultimate repayment. This, in turn, might force the firms to seek even more capital to close the gap. Or, a firm could be misled into undertaking an expansion of its operating assets on the basis of the overstated reported ROI. Only later would it realize it cannot afford to service the debt at market rates of return. In either case the firm is put into a cash-flow squeeze as a result of incorrect reporting and might even face bankruptcy. This currently appears to be the case for many firms in the Canadian manufacturing sector. The solution is not further borrowing but unit cost reduction to allow access to export markets, increased scale of output and larger profit margins and cash flows.

CONCLUSION

The above results indicate the serious implications for strategic business decision-making and resource allocation generally in the economy if accountants do not provide correct information and advice to managers and executives. Accountants need to understand more fully the cost environment in which firms are functioning if they are to provide relevant information. Increases in product and production specialization along with scale increases through export activity are considered the key to unit cost reduction and increased competitiveness of Canadian manufacturers. Correct prospective cost and price information is necessary for this. Also, the cumulative effect of inflation, particularly in the last few years, has resulted in a serious mistatement of the financial position of firms in the manufacturing sector. This is because accountants continue to use the historical-cost principle in the traditional GAAP model used by them to prepare financial statements. Proper accounting for the effects of inflation is key to the long-run financial stability of the manufacturing sector.

These points have implications for the education and training of accountants and improvement generally in the quality of management in Canada as well as the decisions it makes. Canadian firms must improve the quality of their management and its decisions if they are to improve productivity, reduce costs and remain in business in a world where it is no longer possible to maintain market share, profits and market ROI's by covering higher costs with higher prices.

The following suggestions are made to help improve the quality of management and reduce the neglected responsibility of accountants in appropriately advising management in strategic areas of their businesses. For instance, accountants must better understand the cost environment if corporate decision-making is to be improved. Accountants should become more familiar with international financial markets, the determinants of exchange rates and international economic issues since all these items affect the cost and availability of financial capital, unit costs and export profits. Accounting personnel should also become familiar with the literature on product-specific economies of scale that can be achieved through increases in specialization and scale so that cost reductions can be more accurately forecast and used in management decision-making. They also need to integrate replacement cost values into their cost records so that long-range pricing can account for the effects of inflation on costs/prices, ROI, cash flow and debt structure. They also need to be more open to international influences, more flexible and more open to change and professional development. To facilitate these improvements in the quality of management, the firm should establish links with local business schools that have an "applied" orientation. Firms should also facilitate personnel training through the use of cooperative programmes at such universities. This will also provide a two-way interchange of ideas between faculty and management. Management should be prepared to support research by faculty members on their firm's problems and business schools should be prepared to induct management into their programme management systems. The universities also need to be more actively involved in the professional development of graduated accountants to keep practitioners up-to-date on the changing body of knowledge in their area of expertise particularly in the areas of modern cost theory and inflation as they relate to corporate decision-making.

REFERENCES

Alchian, A., "Costs and Outputs", M. Abramovitz, et al, The Allocation of Economic Resources: Essays in Honor of B.F. Haley, Stanford: Stanford University Press, 1959.

Achian, A. and Allen, W.R., University Economics, Belmont Calif.: Wadsworth Publishing Company, Inc., 1972, Chapt. 15.

Caves, R.E., Diversification, Foreign Investment and Scale in North American Manufacturing Industries, Ottawa: Economic Council of Canada, 1975.

Daly, D.J., Keyes, B.A. and Spence, E.J., Scale and Specialization in Canadian Manufacturing, Ottawa: Economic Council of Canada, 1968.

Daly, D.J., "Declining Productivity Growth: An International Perspective", Canadian Business Review, (Winter, 1981), 2-b.

Daly, D.J. and MacCharles, D.C., Canadian Manufactured Exports: Constraints and Opportunities, Toronto: forthcoming, 1983.

Daly, D.J., MacCharles, D.C., and Altwasser, W., "Corporate Profit Drop is Worst Since 1930's", Canadian Business Review, (Autumn, 1982), 6-12.

Eastman, H.C. and Stykolt, S., The Tariff and Competition in Canada, Toronto: MacMillan, 1967.

Hicks, J.R., Value and Capital, Oxford: Oxford University Press, 1946, 171-181.

Hirshleifer, J., "The Firm's Cost Function: A Successful Reconstruction?", Journal of Business, (July, 1962), 235-55.

Hogendorn, J.S. and Brown, W.B., The New International Economics, Reading, Mass.: Addison-Wesley Publishing Company, 1979, 249-250.

Holland, D.M., "Inflation-Induced Distortions in Financial Reporting and Taxation, The Experience in Other Countries", Peering Under the Inflationary Veil, P. Grady, ed., Ottawa: Minister of Supply and Services, 1980.

MacCharles, D.C., "Knowledge, Productivity and Industrial Policy", Cost and Management, Society of Management Accountants in Canada, (January, 1983) 14-18.

Scherer, F.M., et. al., The Economics of Multi-Plant Operation, Cambridge, Mass.: Harvard University Press, 1975.

Statistics Canada, Canadian Financial Statistics, Ottawa, 1966 through 1979.

Statistics Canada, Corporate Tax Statistics, Ottawa, 1969 through 1979.

Statistics Canada, Fixed Capital Flows and Stocks, Ottawa, 1981.

Tarasofsky, A., Roseman, T. and Waslander, H., Ex Post Aggregate Real Rates of Return in Canada: 1947-76, Ottawa: Minister of Supply and Services, 1981.

Wonnacott, P., and Wonnacott, R.J., U.S.-Canadian Free Trade: The Potential Impact on the Canadian Economy, Montreal: Private Planning Association of Canada, 1968.