

THE UNIVERSITY OF CALGARY

ACCOUNTING FOR FOREIGN OPERATIONS

by

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE OF
MASTER OF BUSINESS ADMINISTRATION

FACULTY OF MANAGEMENT

CALGARY, ALBERTA

OCTOBER, 1991

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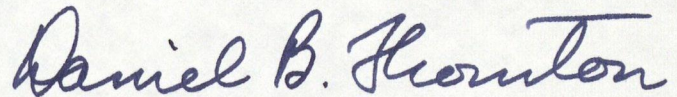
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ISBN 0-315-75231-9

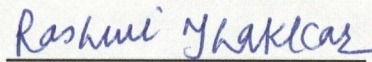
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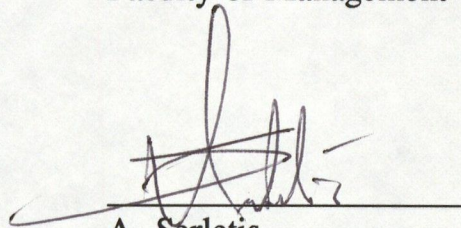
The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled, "Accounting for Foreign Operations" submitted by Kathryn Holgate in partial fulfilment of the requirements for the degree of Master of Business Administration.



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October 1991

ABSTRACT

Accounting for Foreign Operations

by

Kathryn Holgate

This study is a comprehensive review of accounting for foreign operations at both a theoretical and practical level.

At the theoretical level, there is an examination of economic theories describing the behaviour of foreign exchange rates, their inter-relationship and their suitability for the purposes of accountants. Although economic theories have frequently been cited in accounting literature in evaluations of accounting practices their suitability for this purpose has not been established. In this paper the observed differences between accounting practices and economic theories are rationalized and the suitability of economic theories as bases for accounting standard setting is assessed.

At the practical level, the accounting literature on foreign operations, and related material in the literatures of international accounting, international business, and international finance are briefly reviewed. A theory is advanced to explain cross-temporal differences observed, with a corollary to explain cross-sectional differences.

The hypothesis advanced is that change in accounting practice for foreign operations was triggered by change in the economic circumstances, which, given extant accounting practice caused a negative impact on reported net income or financial ratios. The examination of contemporary accounting research offers a causal explanation of the hypothesis. The hypothesis is examined analytically and in a visual presentation for each of the United States, United Kingdom and Canada. The hypothesis explains change in the United States and the United Kingdom but not for Canada. The implication of the conclusion is that the process by which accounting standards are set in the U.S. and the U.K. is more political than in Canada.

The corollary to the theory is that differences in accounting practice will exist only in different economic circumstances. The Canadian practice of deferral and amortization of exchange gains and losses is examined empirically relative to the volatility of the Canadian dollar and the extent to which the economic relationships of purchasing power parity and the international Fisher effect hold. Evidence is found to justify the practice.

Since the theory was deduced from a sample of industrialized nations with similar political and cultural characteristics, both the theory and its corollary will apply only to countries of similar nature.

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CHAPTER 1

Introduction

The globalization of trade and financial markets is an ongoing phenomenon. The "world factor" in securities markets was identified in the late 1970's and since then both national legislation such as the Canada/U.S. Free Trade Agreement and international policy, implemented pursuant to the General Agreement on Tariffs and Trade, have fostered the phenomenon.¹

The effects of globalization on the economy are threefold: direct investment, financial transactions, and trade transactions. Although accounting practices have evolved with the globalization trend, standards for direct foreign investment have been controversial. Six practices have achieved general acceptance in one or more of Canada, the United States ("U.S.") and the United Kingdom ("U.K.") and each has had its critics.

This thesis is a comprehensive review of accounting for foreign operations at both the theoretical and practical levels. At the theoretical level, it is demonstrated that accounting standards for foreign operations have not mirrored economic theories and the deviations are rationalized.

At the practical level, the argument that economic events have triggered change in accounting standards for foreign operations is developed. When economic circumstances changed so that extant accounting practices had negative

¹ Ian H. Giddy, "Exchange Risk: Whose View?" Financial Management 6 (Summer 1977): 23-33.

impacts on reported net income or financial ratios, managers lobbied for new accounting standards to mitigate or eliminate the negative impacts. This theory explains cross-temporal differences in accounting practice. A corollary to the theory is that cross-sectional differences in accounting practices exist only in different economic circumstances. The Canadian practice of deferral and amortization of exchange gains and losses is examined as an example.

Organization of the Thesis

In Chapter 2 accounting practices are examined for consistency with accepted economic theories. In Chapter 3 the literature on accounting for foreign operations is reviewed. Topics covered include: historical development, criticisms, comparative studies, and market efficiency. Classification systems used in the complementary disciplines of international business and finance are reviewed and compared to accounting classifications.

Notwithstanding the significant body of comparative and critical literature, there has been little interest in the basis for the diversity of methods or the discrepancies between accounting practice and economic theories.² The present study addresses these issues.

² Connor (Joseph E. Connor, "Accounting for the Upward Float in Foreign Currencies," The Journal of Accounting (June 1972): 39-44) examines both the theoretical and practical reasons for the adoption of foreign currency accounting practices during the era of fixed exchange rates, and Nobes (C.W. Nobes, "A Review of the Translation Debate," Accounting and Business Research 10 (Autumn 1980): 421-431) briefly discusses practical acceptability.

In Chapter 4 the rationale for the thesis is derived from contemporary accounting theories; in Chapter 5 the methodology is described; in Chapter 6 the results of empirical tests are presented; and in Chapter 7 the conclusions are stated.

CHAPTER 2

Accounting Practice and Economic Theories

Introduction

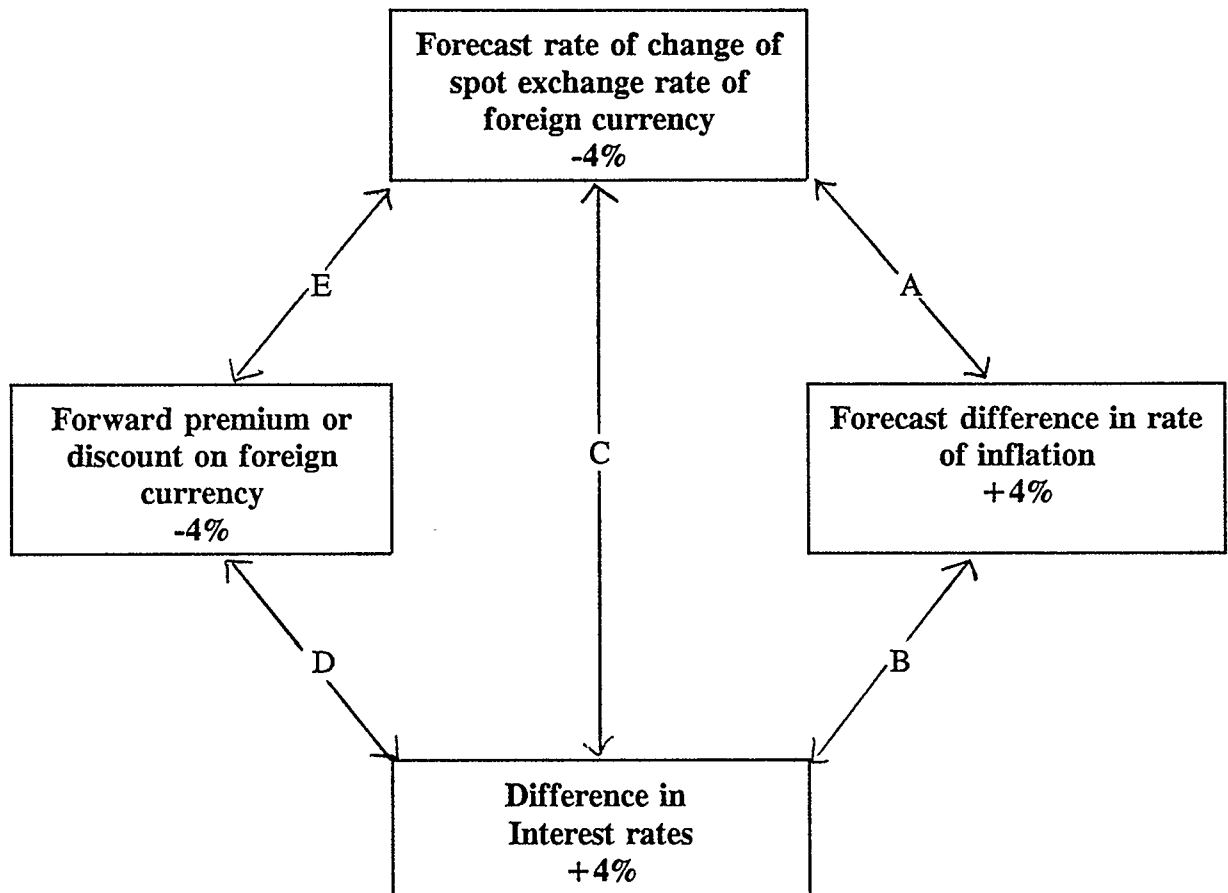
A basic tenet of accounting is that transactions and events should be recorded in a manner consistent with their substance. For foreign trade and financial transactions, accountants have examined substance relative to the theories of purchasing power parity ("PPP") and the international Fisher effect.

The PPP theory (relationship A in Figure 1) describes an inverse relationship between the difference in the forecast rates of inflation in two currencies and the forecast rate of change in their spot exchange rate. The essence of the theory is that arbitrage tends to force goods to the same real price in all currencies. Accountants have invoked this theory to argue that non-monetary items are not at risk with regard to fluctuations in foreign exchange rates.

The Fisher effect (relationship B) describes a direct relationship of the interest rate differential for two countries to the forecast difference in their inflation rates. Its corollary, the international Fisher effect (relationship C), describes an inverse relationship between the difference in interest rates of two currencies and the forecast rate of change in their spot exchange rate. The essence of Fisher's theories is that arbitrage in financial markets tends to force the same real rate of interest in all currencies. Accountants have invoked this theory to argue that interest-bearing monetary instruments are not at risk with respect to fluctuations in foreign exchange rates.

Figure 1

Theoretical Relationship Among Spot Exchange Rates,
Forward Rates, Interest Rates and Inflation Rates



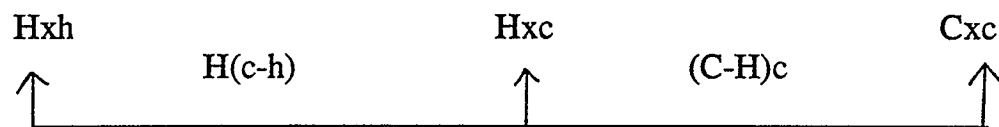
- A - Purchasing power parity
- B - Fisher effect
- C - International Fisher effect
- D - Interest rate parity
- E - The forward rate is an unbiased predictor of the future spot rate

Source: David K. Eiteman, Arthur I. Stonehill, and Donald R. Lessard, Multinational Business Finance, Fourth ed. (Reading, Massachusetts: Addison-Wesley Publishing Company, 1986), 128.

The remaining two relationships, interest rate parity (relationship D) and the forward rate as an unbiased predictor of the future spot rate (relationship E) depict the inter-relationship of the forward market with the trade and financial sectors of the economy. These relationships are not of interest in this study.

Translation Methods

When the accounting records of a foreign operation are maintained in foreign currency, they must be restated to domestic currency before consolidation with domestic information. In this restatement process, called foreign currency translation, each component of the foreign financial statements is multiplied by a conversion factor. In the historic cost accounting model, historic cost is the primary basis of valuation (H), with current value (C) used in limited circumstances. The foreign valuation may be converted to domestic currency using the historic exchange rate (h), the current exchange rate (c) or some other index. In the six translation methods of concern here, (described in Table 1) three combinations of valuations and exchange rates are used.



The first kind of difference in the numbers occasioned by the methods, $H(c-h)$, is due to a change in exchange rate while the second, $(C-H)c$, is due to changes in specific values assigned to the assets and liabilities. However, given the inter-relationship of economic variables depicted in Figure 1, the two differences are also inter-related.

Table 1

Comparison of Translation Methods

	Historic Rate	Closing Rate	Current Non Current (CNC)	Monetary Non Monetary (MNM)	Temporal	Current Rate
(Valuation# x Exchange Rate##) BALANCE SHEET ACCOUNTS						
Current M**	Hxh	Hxc	Hxc	Hxc	Hxc	Hxc
Current NM* (Historic cost)	Hxh	Hxc	Hxc	Hxh	Hxh	Hxc
Current NM (market)	Cxh	Cxc	Cxc	Cxh	Cxc	Cxc
Long term M	Hxh	Hxc	Hxh	Hxc	Hxc	Hxc
Long term NM	Hxh	Hxc	Hxh	Hxh	Hxh	Hxc
Equity	Hxh	Hxc	Hxh	Hxh	Hxh	Hxh
INCOME STATEMENT ACCOUNTS						
Revenue (current)	Hxh	Hxc	Hxc	Hxc	Hxc	Hxc
Revenue (deferred)	Hxh	Hxc	Hxc	Hxh	Hxh	Hxc
Expenses (current)	Hxh	Hxc	Hxc	Hxc	Hxc	Hxc
Expenses (allocated)	Hxh	Hxc	Hxh	Hxh	Hxh	Hxc

#H = historic cost; C = current cost

##h = historic exchange rate; c = current exchange rate

*NM = non-monetary items

**M = monetary items

Balance Sheet Accounts

For non-monetary items, H_{xh} , is consistent with the implication of the PPP theory that non-monetary items are not at risk to exchange rate fluctuations. The first difference, $H(c-h)$, encompasses general price level changes and deviations of exchange rates from parity. Hence when PPP holds, H_{xc} is equivalent to a general price level adjusted valuation. The second difference, $(C-H)_c$, represents the change in relative prices of specific items. If PPP holds, and the GPL index is representative of the particular item, the value of the item will move inversely with the exchange rate such that C_{xc} will equal H_{xh} .

For monetary items, H_{xh} is literally consistent with the implication of the international Fisher effect that monetary items are not at risk to exchange rate fluctuations. When the international Fisher effect holds and inflation rates remain constant, two scenarios are possible. If the interest rate differential remains constant, the exchange rate will not change and H_{xc} equals H_{xh} . If the interest rate differential changes, it will be offset by a change in the current exchange rate. Hence, the difference $H(c-h)$ represents a valuation adjustment for the change in the interest rate differential.

The difference $(H-C)_c$ arises from the change in market value of a monetary instrument as a consequence of a change in discount rate. When the discount rate is unchanged, the current value of the monetary instrument equals its historical value and C_{xc} equals H_{xc} . For foreign currency denominated monetary items, the discount rate used in the current value calculation is related to the foreign interest

rate. Hence, a change in the foreign interest rate affects both the current exchange rate and the current value of the monetary item. The two effects are not offsetting as the nominal rather than the real interest rate is used in the calculation. A change in the domestic interest rate will affect the foreign exchange rate but not the current value.

In historic cost accounting the change in value of domestic debt in response to an interest rate change is not recognized. Interest expense is based on the nominal interest rate ignoring the substance of interest payments as both a return component and an implicit return of principal (i.e. an adjustment for the change in purchasing power). When the Fisher effect holds, a change in the nominal interest rate is directly related to a change in the inflation rate, such that the change in value of the monetary item offsets a general purchasing power gain or loss.

The restatement of a foreign currency denominated monetary instrument to domestic currency at the current exchange rate recognizes the effect of an exchange rate change which may have been caused by a change in either the interest rate or the inflation rate differential. Under historic cost accounting for domestic operations, a change in the interest rate or the inflation rate is not an accounting event.

When accountants record foreign currency transactions at nominal interest rates, the substance of exchange gains and losses of an adjustment for an interest rate differential, a change in purchasing power, and a gain or loss caused by

deviations from parity is not recognized.³

In summary, for monetary items, H_{xh} is consistent with the non-exposure implication of the international Fisher effect; H_{xc}, argued by some authors to defy logical interpretation,⁴ in limited circumstances represents historical cost adjusted for the interest rate differential; and, C_{xc} represents current value, an economic concept used by accountants primarily in the initial recording of transactions. Changes in the foreign interest rate affect both the current value and the current exchange rate. The two differences occasioned by the methods are not offsetting. In historic cost accounting the change in value of foreign debt due to changes in the foreign exchange rate is recognized, but the related change in value due to changes in the interest rate is not recognized.⁵

Income Statement Values and Gains or Losses

For foreign operations, revenues and expenses arising from current transactions are restated to domestic currency at the current exchange rate (i.e. the rate in effect at the time the related transaction occurred). Revenues and expenses which had been deferred or prepaid are treated as non-monetary items, and the preceding discussion of non-monetary balance sheet items is applicable.

To maintain the balance sheet identity, each adjustment to restate a balance

³ John W. Houghton, Jr., "Foreign Long-Term Debt Translation," Management Accounting (September 1974): 17-18.

⁴ William Beaver and Mark Wolfson, "Foreign Currency Translation and Changing Prices in Perfect and Complete Markets," Journal of Accounting Research 20, no. 2, Part II (Autumn 1982): 528-550.

⁵ E. Bruce Fredrikson, "The Valuation of Noncurrent Foreign Currency Monetary Claims," The International Journal of Accounting Education and Research 9 (Fall 1973): 149-158.

sheet account is offset by a potential exchange gain or loss. Accounting for the balancing adjustment should reflect its nature, as monetary or non-monetary,⁶ and the probability of its occurrence. Probability may be assessed for individual transactions by invoking economic theories or for the firm as a whole by invoking financial theory.

To be consistent with economic theory, gains and losses arising from non-monetary items should be assessed relative to the PPP theory⁷ or, in imperfect markets, a ratio of price level indices,⁸ which eliminates the effects of deviations from parity. Gains and losses arising from interest-bearing monetary items should be recognized immediately in accordance with the international Fisher effect.⁹ An alternative position for monetary items, is that exchange gains or losses should be recognized only when there is systematic movement in exchange rates.¹⁰

Consistent with economic theories for individual items, two translation

⁶ Harold E. Wyman, "Analysis of Gains or Losses from Foreign Monetary Items: An Application of Purchasing Power Parity Concepts," The Accounting Review 51, no. 3 (July 1976): 545-558.

⁷ Robert G. Ruland and Timothy S. Douppnik, "Foreign Currency Translation and the Behaviour of Exchange Rates," Journal of International Business Studies 19, no. 3 (Fall 1988): 461-476.

⁸ Richard B. Klein, "Inter-Country Purchasing Power Index Numbers," Management Accounting (August 1972): 28-32; and a series of articles by Dennis H. Patz, "A Price Parity Theory of Translation," Accounting and Business Research 8 (Winter 1977): 14-24; "A Price Parity Theory of Translation: a Reply," Accounting and Business Research 9 (Winter 1978): 66-72; "Price Parity Translation: Methodology and Implementation," Accounting and Business Research 11 (Summer 1981): 207-216; "Alternative Realities and Price Parity Translation," Accounting and Business Research 18, no. 71 (Summer 1988): 239-47.

⁹ William Beaver and Mark Wolfson, "Foreign Currency Translation Gains and Losses: What Effect Do They Have and What Do they Mean?" Financial Analysts Journal 40, no. 2 (March/April 1984): 28-36.

¹⁰ Ruland and Douppnik, 461-476.

methods, the historic rate and the closing rate, do not recognize foreign exchange rate changes as accounting events. In Table 2 the balance sheet values and the income statement components of the remaining four translation methods are examined for consistency with the implications of the PPP theory and international Fisher effect. When a method is consistent with the implication in only one of the two statements, a deferred balance representing neither an asset nor a liability is created to maintain articulation of the financial statements.

Under the CNC, MNM, and temporal methods, exposure is independently assessed for each component. Except for inventory, under CNC, all values are consistent with PPP. The MNM and temporal methods are inconsistent with the implication of the international Fisher effect, but are consistent with the essence of the theory if interest rates are constant and the international Fisher effect holds. This paradoxical situation arises from using nominal interest rates in historic cost accounting.

Recall that in perfect markets both the real prices of non-monetary goods and real interest rates are equal in all currencies. (i.e. individual items are not at risk to fluctuations in foreign exchange rate changes.) Hence, exposure arises either from market imperfections or from the interaction of components, an aggregate perspective. Aggregate exposure arises from the mismatching of either cash flows (i.e. denomination in unrelated currencies) or assets and liabilities (i.e. portfolio

with mixed sensitivities to inflation) as discussed by Glick and Heckman.¹¹

Table 2
Consistency of Translation Methods With The
Implications of Economic Theories

PURCHASING POWER PARITY (non-monetary)		
Translation Method	Balance Sheet	Income Statement
Current/non-current	Consistent except for inventory	Consistent except for inventory
Monetary/non-monetary	Consistent	Consistent
Temporal	Consistent	Consistent
Current Rate	Inconsistent	Consistent**
INTERNATIONAL FISHER EFFECT (monetary)		
Translation Method	Balance Sheet	Income Statement
Current/non-current	Consistent except for interest-bearing short-term monetary items	Various practices
Monetary/non-monetary	Inconsistent*	Various practices
Temporal	Inconsistent*	Consistent
Current Rate	Inconsistent*	Consistent**

* except for non-interest-bearing monetary claims (In limited circumstances these values are consistent with the substance of the theory.)

** gains and losses are deferred in equity

¹¹ Reuven Glick, "Market Neutrality Conditions and Valuation of a Foreign Affiliate," *Journal of Business Finance & Accounting* 13, no. 2 (Summer 1986): 239-249; Christine R. Heckman, "Measuring Foreign Exchange Exposure: A Practical Theory and its Applications," *Financial Analysts Journal* 39, no. 5 (September/October 1983): 59-65.

The substance of aggregate exposure is assessed relative to value from either an entity or proprietary viewpoint. In financial theory, the proprietary interest, equity, is valued as the present value ("PV") of expected future cash flows¹² and the entity is valued as the value of the equity plus bonds. For foreign operations valuation models are modified to incorporate expectations of foreign exchange rates.¹³

The valuation of an entity following an exchange rate change must incorporate both the new exchange rate and changes in other variables in response to the exchange rate change. Exposure to fluctuations in exchange rates is a function of the firm's competitive position in its input and output markets and the respective currencies of denomination in those markets; differences in national rates of inflation, elasticities of demand, substitutability of other products, physical capital and technology.¹⁴

¹² Mark R. Eaker, "Denomination Decision for Multinational Transactions," Financial Management (Autumn 1980): 23-29.

¹³ The valuation of foreign operations is discussed by Raj Aggarwal and James C. Baker, "Using Foreign Subsidiary Accounting Data: A Dilemma for the Multinational Corporation," Columbia Journal of World Business 10 (Fall 1975): 83-92; L.D. Booth, "Hedging and Foreign Exchange Exposure," Management International Review 22 (1982): 26-42; Jess H. Chua and Murray Davis, "Foreign Currency Translation: Economic Reality or Accounting Uniformity?" Unpublished paper, University of Calgary. (January 1982.); Gunter Dufey, "Corporate Finance and Exchange Rate Variations," Financial Management 1, no. 2 (Summer 1972): 51-58; Mark R. Eaker, "The Numeraire Problem and Foreign Exchange Risk," Journal of Finance (May 1981): 419-27; Helmut Hageman, "Anticipate Your Long-term Foreign Exchange Risks," Harvard Business Review 55 (March/April 1977): 81-88; Alan C. Shapiro, "Exchange Rate Changes, Inflation and the Value of the Multinational Corporation," The Journal of Finance 30 (May 1975): 485-502.

¹⁴ This is discussed by Adrian Buckley, "Does FX Exposure Matter?" Accountancy 99, no. 1123 (March 1987):116-18; "The Risks of FX," Accountancy 99, no. 1122 (February 1987): 80-82; Frederick D.S. Choi, "Price Level Adjustments and Foreign Currency Translation: Are they Compatible?" The International Journal of Accounting Education and Research 11 (Fall 1975): 121-143; Eugene Flood, Jr. and Donald R Lessard, "On the Measurement of Operating Exposure to Exchange Rates: A Conceptual

The current rate method reflects an aggregate perspective from a proprietary viewpoint. Net assets, as reported in the financial statements, is used as a surrogate for equity value. The aggregate perspective deviates from the transaction basis of accounting and generates uninterpretable values for individual balances. Furthermore, under accounting standards recommending the current rate method, gains and losses are deferred in equity, in violation of the all inclusive concept of income. Ratio analysis is complicated when an aggregate perspective is used.¹⁵

The preceding analysis demonstrates that the MNM and temporal methods are consistent with PPP and deviate from the international Fisher effect only due to the constraints of historic cost accounting. The CNC method deviates from PPP in the treatment of inventory and from the international Fisher effect in the treatment of interest-bearing short-term monetary items. The current rate method deviates from both PPP and the international Fisher effect.

Analysis

The validity of the economic theories, their applicability to accounting entities, and their mutual consistency will be examined.

Approach," Financial Management (Spring 1986): 25-36; Hageman 81-88; Laurent J. Jacque, "Management of Foreign Exchange Risk: A Review Article," Journal of International Business Studies (Spring/Summer 1981): 81-101; and Rita M. Rodriguez, "Measuring and Controlling Multinationals' Exchange Risk," Financial Analysts Journal 35, no. 6 (November/December 1979): 49-55.

¹⁵ Eugene Zieha and Oraphin Duangploy, "Manifestations of FAS No. 52: Placement of the 'Translation Adjustment' is Questioned," Woman CPA 46, no. 3 (July 1984): 18-25.

PPP

The evidence of ex post studies of PPP indicates that the theory has validity in the long run, although there may be a time lag. Test results have differed with the development stage of the country studied,¹⁶ and the methodology, including the time period, sample size and spacing of the observations.¹⁷ However, the PPP theory is a macro theory premised on a general price index ("GPL") while accounting is a micro activity reporting on individual business entities. Thus, the GPL may not be representative of individual assets or asset portfolios of reporting entities. Furthermore, as discussed by Dufey and Srinivasulu, and Giddy the theory implicitly assumes no transportation costs, trade barriers, or time lags, and that all products can be traded.¹⁸ For many accounting entities these assumptions are invalid.

International Fisher Effect

In studies of the international Fisher effect, evidence was found that the theory does not generally hold.¹⁹ Of interest to this study is the evidence of Cumby and

¹⁶ Robert Z. Aliber and Clyde P. Stickney, "Accounting Measures of Foreign Exchange Exposure: The Long and Short of It," The Accounting Review 50 (January 1975): 44-57.

¹⁷ Andrew Bevan, "Exchange Rate Determination: The Dollar -- A Case Study," Midland Bank Review (Winter 1985): 15-23; Buckley, "Does FX Exposure Matter?" 116-18; Buckley, "The Risks of FX," 80-82; Thomas W. Hall, "Inflation and Rates of Exchange: Support for SFAS No. 52," Journal of Accounting, Auditing and Finance 6, no. 4 (Summer 1983): 299-313; Jacque, 81-101.

¹⁸ Gunter Dufey and S.L. Srinivasulu, "The Case for Corporate Management of Foreign Exchange Risk," Financial Management (Winter 1983): 54-62; Giddy, 23-33.

¹⁹ L.D. Booth, "Hedging and Foreign Exchange Exposure," Management International Review 22 (1982): 26-42.

Obstfeld that Fisher parity does not hold for the Canadian dollar relative to the U.S. dollar but does hold for the U.K. Pound sterling ("pound") relative to the U.S. dollar.²⁰ This finding is consistent with earlier evidence of Burt *et al.* that the Canadian dollar appears to be incorrectly priced relative to the U.S. dollar, although the Deutschmark and the British pound are correctly priced.²¹ These findings provide a possible rationale for the Canadian practice of deferring and amortizing exchange gains and losses arising from long term monetary items (i.e. it may be misleading to recognize ephemeral changes relating to long term items).

The evidence regarding Fisher parity may be explained by tax factors,²² the impact of domestic inflation on the real discount rate,²³ and the possibility that the market was not in equilibrium at the time of borrowing. The increasing popularity of currency swaps suggests that managers either perceive interest-bearing monetary items to be at risk or that they are managing their financial reports rather than their economic risks. Fisher's theories describe the behaviour of real interest rates and should not influence practice in an accounting model based on nominal interest rates.

²⁰ Robert E. Cumby and Maurice Obstfeld, "A Note on Exchange-Rate Expectations and Nominal Interest Differentials: A Test of the Fisher Hypothesis," *The Journal of Finance* 36, no. 3 (June 1981): 697-703.

²¹ John Burt, Fred R. Kaen, and G. Geoffrey Booth, "Foreign Exchange Market Efficiency Under Flexible Exchange Rates," *The Journal of Finance* 32, no. 4 (September 1977): 1325-1330.

²² Eaker, "Denomination Decision for Multinational Transactions," 23-29.

²³ Booth, 26-42.

Mutual Consistency

In Figure 1, on page 5, the inter-relationship of the two theories is depicted as a simultaneous determination of interest rates, inflation rates and the foreign exchange rate. Hence, in perfect markets, the theories are mutually consistent.

However, markets are not perfect, and some authors, including Choi, and Aggarwal and Baker, argue that foreign exchange rate fluctuations cannot be explained solely by economic theories.²⁴ They argue that political, administrative, behavioral and random factors also influence exchange rates. Political factors include domestic fiscal and monetary policy; administrative factors include foreign fiscal and monetary policy; and behavioral factors include strategic and tactical measures to reduce future exposure and cover existing exposure, respectively.²⁵ Random factors encompass structural changes such as technological change, mineral discoveries and changes in taste. Recent evidence suggests that shocks account for the real variability in foreign exchange rates.²⁶

In economics, the effects of fiscal and monetary policy on domestic interest rates and inflation are well understood. However, in international economics, there is evidence that currencies are substitutable commodities so that the monetary

²⁴ Choi, 121-143; Aggarwal and Baker, 83-92.

²⁵ For a discussion of behavioural factors refer to Steven H. Kohlhagen, "A Model of Optimal Foreign Exchange Hedging Without Exchange Rate Projections," *Journal of International Business Studies* (Fall 1978): 9-21, and Donald R. Lessard, "Financial Management of International Operations," in *International Financial Management, Theory and Applications* 2nd ed. (New York: Wiley 1985), 285-294.

²⁶ Allesandro Penati, "The Sources of Movements in Interest Rates," *Journal of Banking and Finance* 10, no. 3 (October 1986): 343-360.

policies of one country may be confounded by those of another.²⁷ Further study is needed to quantify the effects of substitutability²⁸ and to examine the implications of fiscal policy.

As to behavioural factors, there is empirical evidence that managers are not risk neutral,²⁹ and that they attempt to eliminate exposure when losses are anticipated. This behaviour is logical if their compensation is tied to corporate performance as measured by accounting numbers. There is also evidence that the actions of management of multinational corporations impact foreign exchange markets both directly and indirectly.³⁰ Again, further study is needed to understand the effects of this phenomenon.

The economic theories examined provide a static description of the simultaneous determination of inflation, interest rates and foreign exchange rates in perfect markets. However, in our present economic environment of imperfect markets an alternative approach is needed to explain the complex process by which foreign exchange rates are determined. The portfolio balance framework, based

²⁷ Ronald I. McKinnon, "Currency Substitution and Instability in the World Dollar Standard," The American Economic Review 72, no. 3 (June 1982): 320-333.

²⁸ John Burt, Fred R. Kaen, and G. Geoffrey Booth, "Foreign Exchange Market Efficiency Under Flexible Exchange Rates: Reply," The Journal of Finance 34, no. 3 (June 1979): 791-793.

²⁹ Ike Mathur, "Attitudes of Financial Executives Toward Foreign Exchange Issues," Financial Executive (October 1980): 22-26.

³⁰ Rita M. Rodriguez, "Corporate Exchange Risk Management: Theme and Aberration," Journal of Finance 36 (May 1981): 427-438.

on the international accounts, serves this purpose.³¹

In the international accounts, trade and financial transactions impact the balance of payments in the current and capital accounts respectively. An imbalance in the current account must be offset either by an imbalance in the capital account or a change in reserves. Changes in reserves provide only temporary solutions and are limited by the wealth of the country. Changes in the capital account will accommodate an imbalance for the short term but will put pressure on interest rates and the foreign exchange rate. As interest rates and the foreign exchange rate respond to short-term pressure, the current and capital accounts will approach a balanced position. Hence, in the long term, equilibrium is achieved.

Within this framework, real goods affect the current account, while financial instruments affect the capital account. Given that PPP and the international Fisher effect describe price behaviour in the real and financial sectors, the two theories are mutually consistent.

Summary

The preceding review demonstrated that although the PPP theory has validity at the macro level it is inappropriate for the purposes of accountants who deal with individual companies. The international Fisher effect was demonstrated to be of questionable validity and to be inappropriate as a standard in the historic cost accounting model. It was further demonstrated that the theories are mutually

³¹ Bevan, 15-23.

consistent in either a static or dynamic framework.

Although the economic theories have been demonstrated to be imperfect for the purposes of accounting, from a practical perspective, they are the best available.

Within the historic cost accounting model accountants have three options:

- (1) maintain consistency with the model, while failing to recognize the substance of an exchange rate change from an aggregate perspective (the temporal method is closest to this);
- (2) apply methods which correct for certain limitations of the historic cost accounting model (the use of Hxc for non-monetary items is an example of this); or
- (3) recognize the substance of an exchange rate change on an aggregate basis by applying methods which deviate from the model (balance sheet values using the current rate method are an example of this).

The accounting profession has resisted fundamental changes to the historic cost accounting model³² and to accounting practices for foreign operations. If an alternative accounting model such as that proposed by Chambers or Staubus were adopted, accounting for foreign operations would be simplified.³³ Alternative

³² Robert K. Elliott, "Dinosaurs, Passenger Pigeons, and Financial Accountants," World 20, no. 5 (1986) (repr. The Accountants Digest (1987): 40-45.

³³ R.J. Chambers, Accounting, Evaluation and Economic Behaviour (1966; (repr. Houston, Texas: Scholars Book Co., 1974); George J. Staubus, "The Market Simulation Theory of Accounting Measurement," Accounting and Business Research (Spring 1986): 117-132.

methods of accounting for foreign operations including those proposed by Chambers and Rosenfield have not been seriously considered by the standard-setters.³⁴

The analysis in this section demonstrates that non-economic forces are important in the determination of foreign exchange rates, and introduces accountants to a framework with which to study the determination of foreign exchange rates.

³⁴ R.J. Chambers, "Accounting for Foreign Business," Abacus 19, no. 1 (1983): 14-28; Paul Rosenfield, "Accounting for Foreign Operations," Journal of Accountancy (August 1987): 102-112.

CHAPTER 3

Literature Review

Historical Review

U.S. Experience

The current non-current ("CNC") method of translating financial statements of foreign operations was adopted in 1931 in AICPA Bulletin No. 12 and reaffirmed in all pronouncements to and including Accounting Research Bulletin 43 in 1953. Under the CNC method, a firm's exposure to an exchange rate change equals its working capital. Consistent with the conservatism convention, which had become popular following the stock market crash, gains were deferred and losses recognized immediately.

Following World War II European currencies were devalued relative to the U.S. dollar. After a significant time lag the monetary non-monetary method (MNM) was adopted in Accounting Principles Board ("APB") Opinion No. 6 in 1965. Under this method the different exposures of monetary and non-monetary items were recognized. The significant change in practice under this method was that long term debt (non-current) was revalued in addition to current items. In the environment of devaluing currencies a gain resulted on revaluation. In accordance with APB Opinion No. 6 the gain was recognized in net income, contrary to the conservatism convention, which become a lesser influence in more prosperous times.

By 1968, Europe had recovered from World War II and European currencies were appreciating relative to the U.S. dollar. In 1971 the U.S. abandoned the gold standard and by 1973 major exchange rates were floating. Within a model premised on a stable monetary unit, the loss in purchasing power of the U.S. dollar and the corresponding increase of purchasing power of foreign currencies were inconsequential. However, when the MNM method was used to translate foreign financial statements, losses were recorded. The reporting of losses was paradoxical when the foreign investment was expected to increase in value in U.S. dollars. For practical reasons, the Accounting Principles Board proposed a short term solution of deferring exchange losses. The proposal, which was never implemented, would have eliminated the negative impact on net income while the issue was being studied. Connor and Deupree were critical of this band-aid measure advocating greater use of current exchange rates.³⁵

In 1975 the APB's successor, the Financial Accounting Standards Board ("FASB"), issued Statement of Financial Accounting Standards ("SFAS") NO. 8, in which the temporal method combined with immediate recognition of exchange gains and losses was recommended. Given the net liability exposure under this method, the impact on net income was counter to the expected change in value of foreign investment.³⁶

³⁵ Connor, 39-44; Marvin M. Deupree, "Translating Foreign Currency Financial Statements to U.S. Dollars," Financial Executive (October 1972): 48-68.

³⁶ Raymond H. Alleman, "Why ITT Likes FAS 52," Management Accounting (July 1982): 23-29; Marvin M. Deupree, "Is FASB #8 the Best Approach?" Financial Executive (January 1978): 24-29.

In response to criticisms of SFAS No. 8,³⁷ the FASB issued SFAS No. 52 in December 1981, recommending a "situational approach" of either the temporal or current rate method. Under this approach, the selection of a functional currency (using criteria which reflect the economic exposure of the entity),³⁸ determines the translation method.

Accounting exposure, under the current rate method, equals net assets with the consequence that gains and losses calculated are consistent with the direction of the expected change in value of the foreign operation. In accordance with SFAS No. 52 these gains or losses are not recognized in net income but are deferred in equity until liquidation.

Early reaction to SFAS No. 52 was mixed.³⁹ The dollar was strong with the consequence that gains were calculated and reported in income when the temporal method was used while losses were calculated but recorded as debits to equity when the current rate method was used. Evidence in studies by Benjamin *et al.* and Brown suggests that many companies postponed adoption of the standard

³⁷ Thomas G. Evans and Timothy S. Douplik, Foreign Exchange Risk Management under Statement 52, Stamford, Connecticut: FASB (1986): 2; Yaw M. Mensah and Louis F. Biagioni, "The Predictive Ability of Financial Ratios Using Alternative Translation Methods for Foreign-Currency Financial Statements: A Simulation Study," The International Journal of Accounting Education & Research 16 (Fall 1980): 221-245.

³⁸ Lawrence Revsine, "The Rationale Underlying the Functional Currency Choice," The Accounting Review 59, no. 3 (July 1984): 505-514.

³⁹ Abdel M. Agami, "The New Standard for Foreign Currency Translation," The National Public Accountant (January 1983): 27-33; Alleman, 23-29; "FAS 52: Son of FAS 8 is Controversial Too," Management Accounting (May 1982): 66-67; Stanley R. Wojciechowski, "DuPont Evaluates FAS 52," Management Accounting (July 1982): 31-35.

because of the depressing effects on net income.⁴⁰ The U.S. dollar continued strong. By 1984 large debit balances had accumulated on many corporate balance sheets⁴¹ and some early supporters of SFAS No. 52 changed their views.⁴²

U.K. Experience

In the U.K., the historic rate method was used exclusively until 1968, when the Institute of Chartered Accountants of England and Wales ("ICAEW") revised its position to accept either the historic rate method or the closing rate method. In contrast with the methods accepted in the U.S., under these methods foreign exchange rate changes are not accounting events. The difference in practice may be attributed to the British custom of denominating foreign transactions in domestic currency and the early stability of the pound relative to the currencies of trading partners. The impetus for the change in position in 1968 appears to have been experimentation with the closing rate method by some prominent companies in 1967 following the large devaluation of the pound.⁴³ Although neither method has

⁴⁰ James J. Benjamin, Steven D. Grossman, and Casper E. Wiggins, "The Impact of Foreign Currency Translation on Reporting During the Phase-in of SFAS No. 52," Journal of Accounting, Auditing & Finance 1, no. 3 (Summer 1986): 177-184; James J. Benjamin, Steven D. Grossman, and Casper E. Wiggins, "Early Implementation of New Foreign Currency Rules: An Evaluation of Annual Reports," Akron Business and Economic Review 14, no.3 (Fall 1983): 37-40; Betty Coffee Brown, "An Empirical Investigation Into Differences Between Companies That Elected an Early Compliance with SFAS 52 and Companies Not Electing an Early Compliance," (Ph. D. dissertation Virginia Polytechnic Institute and State University, 1985).

⁴¹ Louis Braiotta, Jr., "How Currency Adjustments are Eroding Stockholders' Equity," Directors & Boards 10, no. 2 (Winter 1986): 34-35.

⁴² Charles M. Wurst and Raymond H. Alleman, "Translation Adjustments for a Strong Dollar," Financial Executive (June 1984): 38-41.

⁴³ Connor, 39-44.

an accounting exposure, ratio analysis based on financial statements prepared using the two methods would differ significantly.

With the floating of major world currencies, the translation issue was re-examined in Britain. Three controversial exposure drafts,⁴⁴ preceded the issuance of Statement of Accounting Policy ("SAP") 20, (effective April 1, 1983) in which a "situational approach" was recommended. As a member of the IASC, the ICAEW recommended a practice in conformity with IAS Exposure Draft 23 (March 1982) which was later adopted as IAS 21 (July 1983). The literature following SAP 20 addressed practical issues of implementation.⁴⁵

Canadian Experience

Prior to 1978, the CNC method was most commonly used in Canada. The CICA had not endorsed a particular method but required disclosure of both the method used and the value of long term debt when translated at the current rate. In this environment of minimal accounting guidance, management could select the translation method and treatment of exchange gains or losses which, in their opinion, most fairly reported the company's foreign activities. This situation was in contrast to the more strictly regulated environment of the U.S., where specific recommendations were in effect and those who were dissatisfied lobbied for change.

⁴⁴ Diarmuid Hegarty, "Getting to Grips with SSAP 20," Accountancy (July 1983): 99-102.

⁴⁵ Istemihan Demirag, "Overseas Profits: Can We Find a Happy Medium?" Accountancy (August 1984): 80-81; Hegarty, 99-102.

In 1978 the CICA issued section 1650 of the CICA Handbook recommending the temporal method with the deferral of exchange gains and losses. Prior to its implementation, however, section 1650 was suspended (February 1979) and the issue continued unresolved until 1983, when a new section 1650 was issued. In the revised section a "situational approach", of the temporal method with deferral of gains and losses or the current rate method was adopted. The criterion for selection was exposure to exchange rate changes.

Reaction to the revised section 1650 was mixed. Some accountants challenged the deferral and amortization of exchange gains and losses as an income-smoothing technique.⁴⁶ In empirical studies of earnings volatility and success in predicting the settlement value of debt, of three alternatives: historical valuation, revaluation with income recognition, and revaluation with deferral and amortization, the authors concluded that revaluation with deferral and amortization best served the objectives tested.⁴⁷ Their conclusions cannot be generalized to other time periods.

Critical Literature

Criticisms of accounting practice should be evaluated in the context of the environment in which they were raised. During the period of study significant changes occurred. The international monetary system moved primarily to floating

⁴⁶ Johnathan M. Kligman, "Foreign Currency Translation: From Exposure Draft to Standard," CA Magazine (June 1983): 57-62.

⁴⁷ Ronald M. Copeland and Robert W. Ingram, "An Evaluation of Accounting Alternatives for Foreign Currency Transactions," The International Journal of Accounting Education and Research 13 (Spring 1978): 15-27; Peter H. Edey, "Accounting Policies for Exchange Gains and Losses on Long Term Monetary Items," Accounting and Finance (November 1985): 19-40.

exchange rates, there was a world oil crisis, and the Financial Accounting Standards Board ("FASB"), an independent standard setting board, was created. The FASB influenced accounting thought with its proposed conceptual framework⁴⁸ and modified accounting practice with the issuance of many detailed standards. It was, however, criticized for taking a political approach to standard setting.⁴⁹

Significant criticisms of each method were raised in the historical review. In this section five classifications of criticisms will be examined. These classifications address five aspects of the common theme of failure to reflect the economic substance of the events reported.

The Reported Results are at Variance with Economic Reality⁵⁰

Financial reports prepared in accordance with the historic cost accounting model report the effects of completed transactions. No effort is made to value individual items or the entity as a whole. In financial reports incorporating foreign

⁴⁸ Reactions to the Conceptual Framework are discussed by Dennis R. Beresford, "The Challenges of Employing the Conceptual Framework: Examples from Contemporary Standards," Ohio CPA Journal 42, no. 4 (Autumn 1983): 169-72; Robert H. Sanborn, "An Evaluation and Critique of the Changes Provided by Statement of Financial Accounting Concepts No. 6," Accounting Horizons (September 1987): 41-48; and David Solomons, "The FASB's Conceptual Framework: An Evaluation," Journal of Accountancy (June 1986): 114-124.

⁴⁹ Examples of criticisms are found in Deupree, "Is FASB #8 the Best Approach?" 24-29; Grossman et al. "Translate-Restate vs. Restate-Translate: Pragmatism Overrides Theory," The Ohio CPA Journal 42, no. 3 (Summer 1983): 131-137; James A. Largay, III, "SFAS No. 52: Expediency or Principle?" Journal of Accounting, Auditing and Finance 7, no. 1 (Fall 1983): 44-53; and Curtis L. Norton and Gary A. Porter, "The Comprehensive Income Approach and FASB Statement No. 52: Are They Compatible?" Journal of Accountancy 154, no. 6 (December 1982): 94-96.

⁵⁰ Examples are Connor, 39-44, Thomas E. Graham 589-605 and Ross M. Skinner, Accounting Standards in Evolution (Canada:Holt, Rinehart and Winston of Canada, Limited, 1987), 387.

operations, no effort is made to measure value or to report income which reflects changes in value. Consequently this first category of criticisms amounts to a criticism of historic cost accounting generally.

The Practices Overlook the Inter-relationship Between
Inflation and Foreign Exchange Rate Changes⁵¹

Given the stable monetary unit assumption of historic cost accounting, inflation is not an accounting event. If inflation is not recognized in financial reports, it is not possible to recognize its interaction with foreign exchange rate changes. Hence the criticism is also aimed at historic cost accounting.

Certain Numbers Do Not Correspond With Economic Concepts⁵²

This criticism refers to historic cost values restated at the current exchange rate, Hxc. It applies to non-monetary items under the current rate method and is argued to apply to monetary items under the MNM, temporal and current rate methods. When foreign currency balances are restated at the current exchange rate, the foreign currency unit is the unit of measure. Some accountants argue that measurement in the foreign currency unit is incompatible with capital maintenance

⁵¹ Examples are Aggarwal and Baker, 83-92; F.D.S. Choi, "Resolving the Inflation/Currency Translation Dilemma," Management International Review 27 (1987/2): 26-34; M.A. Fekrat, "Multinational Accounting: A Technical Note," The International Journal of Accounting Education and Research 15 (Fall 1979): 95-103; Nobes, 421-431; and R. MacDonald Parkinson, Translation of Foreign Currencies (Canada: CICA Research Study, 1972)

⁵² Examples are Beaver and Wolfson, "Foreign Currency Translation and Changing Prices," 528-550; Largay, 44-53; Thomas I. Selling and George H. Sorter, "FASB Statement No. 52 and Its Implications for Financial Statement Analysis," Financial Analysts Journal (May/June 1983): 64-69; and John K. Shank and Gary S. Shamis, "Reporting Foreign Currency Adjustments: A Disclosure Perspective," The Journal of Accountancy 147 (April 1979): 59-65.

in domestic currency.

For non-monetary items, proponents of PPP argue that exchange gains are offset by value changes. When only one of two complementary effects of an event is recognized, the reported value is incomprehensible. For monetary items, as discussed in the previous chapter, when Fisher parity holds, Hxc is consistent with the substance of the theory but not with the accounting implication of non-exposure.

These first three categories are a consequence of the underlying historic cost accounting model and demonstrate that attempts to correct for its limitations result in inconsistent reporting of domestic and foreign activities.⁵³

The Use of Exchange Rates is Inappropriate⁵⁴

It is argued that the restatement of foreign currency denominated financial statements to domestic currency via the current exchange rate implies conversion. When the foreign operation is a going concern, conversion is not expected and the resultant values are irrelevant. For reinvestment situations, restatement via indices is preferred.

⁵³ Russel W. Willey, "Foreign Currency Translation on the Shelf: It's Easier to Criticize than to Act," CA Magazine 112 (April 1979): 26-31.

⁵⁴ Examples are F.L. Clarke, "Patz on Parities, Exchange Rates and Translation," Accounting and Business Research 9 (Winter 1978): 73-77; John Flower, "A Price Parity Theory of Translation: a Comment," Accounting and Business Research 9 (Winter 1978): 64-65; R. MacDonald Parkinson, Translation of Foreign Currencies (Canada: CICA Research Study, 1972); Dennis H. Patz, "A Price Parity Theory of Translation," Accounting and Business Research 8 (Winter 1977): 14-24.

The Recognition of Exchange Gains and Losses is Arbitrary⁵⁵

Exchange gains and losses is an ambiguous term describing amounts arising from completed transactions (realized); restatement of monetary claims (unrealized); and translation of foreign currency financial statements (translation).⁵⁶ Only translation gains and losses are of interest in this thesis.

Since monetary and non-monetary items are not equally at risk to foreign exchange rate changes, the source of foreign exchange gains and losses should be distinguished.⁵⁷ Exchange gains and losses arising from non-monetary items compensate for the inflation differential whereas those arising from monetary items compensate for the interest rate differential. However, since neither inflation nor interest rate change is recognized in accounting for domestic operations, recognition for foreign operations would be inconsistent. Furthermore, if economic variables interact, the distinction is arbitrary.

Beaver and Wolfson argue that if interest rate parity is close to holding, gains and losses arising on monetary items should be recognized in net income

⁵⁵ Examples are Beaver and Wolfson, "Foreign Currency Translation Gains and Losses," 28-36; Michael Earl and Dean Paxson, "Value Accounting for Currency Transactions," Accounting and Business Research 8 (Spring 1978): 92-100; Paul A. Griffin, "Foreign Exchange Gains and Losses: Impact on Reported Earnings," Abacus 18, no. 1 (June 1982): 50-69; Nathan Kahn and Allen Schiff, "Tangible Equity Change and the Evolution of the FASB's Definition of Income," Journal of Accounting, Auditing and Finance 9, no. 1 (Fall 1985): 40-49; Shank and Shamis, 59-65; S.L. Srinivasulu, "Classifying Foreign Exchange Exposure," Financial Executive 51, no. 2 (February 1983): 36-44; and Wyman, 545-558.

⁵⁶ Beaver and Wolfson, "Foreign Currency Translation Gains and Losses," 28-36.

⁵⁷ Wyman, 545-558.

immediately.⁵⁸ For non-monetary items, gains and losses arising from restatement at the current exchange rate are uninterpretable and hence have no logical treatment.

Under historic cost accounting the treatment of exchange gains and losses should reflect the probability of their occurrence, consistent with accounting recognition criteria. The substance of exchange gains and losses is firm-specific and may not be recognized under current standards.

Ruland and Doupnik propose that accounting for foreign operations should be based on two criteria (i) whether PPP holds, and (ii) whether there is a trend of exchange rate movement. When PPP holds, the temporal method of translation should be used. When PPP does not hold, financial statements should be restated using PPP indices and gains and losses on non-monetary items, which arise from deviations from parity, recognized in net income. The second criterion determines the treatment of exchange gains and losses arising from monetary items.⁵⁹ Advantages of their proposed method, over current practice, are that four rather than two situations are distinguished, both translation methods are consistent with historic cost accounting, and the treatment of gains and losses is consistent with accounting recognition criteria.

⁵⁸ Beaver and Wolfson, "Foreign Currency Translation Gains and Losses," 28-36.

⁵⁹ Ruland and Doupnik, 461-476.

Comparative Studies

Cross-sectional Studies of Accounting Practice

With the trend toward globalization of capital markets, researchers sought criteria to classify national accounting practices and factors to distinguish among different patterns of accounting development. Explanatory factors identified were economic; social, encompassing cultural characteristics such as business ownership and the development and status of the accounting profession; and political, encompassing legal and tax systems.⁶⁰ Wygal *et al.* argue that policy makers should look through differences in accounting practices to identify their underlying conceptual basis.⁶¹ Other authors have cautioned that because business practices differ with culture financial statements must be interpreted carefully.⁶²

In a comparative study of accounting practices, Choi and Bavishi observed that accounting practices for foreign activities differed.⁶³ This observation is consistent with the evidence in Evans'⁶⁴ study of industrialized nations,

⁶⁰ Ian Berry, "The Need to Classify Worldwide Practices," *Accountancy* (October 1987): 90-91; Frederick D.S. Choi and Gerhard G. Mueller, *International Accounting* (New Jersey: Prentice-Hall Inc., 1984) 41-45; Therese Tremblay, "Toward Accounting Without National Boundaries," *CA Magazine* (October 1986): 54-59.

⁶¹ Donald E. Wygal, David E. Stout, and James Volpi, "Reporting Practices in Four Countries," *Management Accounting* (December 1987): 37-42.

⁶² Choi *et al.* "Analyzing Foreign Financial Statements: The Use and Misuse of International Ratio Analysis," *Journal of International Business Studies* (Spring/Summer 1983): 113-131; Mike Timms, "Operating Abroad: More to it than Knowing SSAP 20," *Accountancy* (July 1984): 114-117.

⁶³ Frederick D.S. Choi and Vinod B. Bavishi, "Diversity in Multinational Accounting," *Financial Executive* (August 1982): 45-49.

⁶⁴ Thomas G. Evans, "Foreign Currency Translation Practices Abroad," *CPA Journal* 44 (June 1974): 47-50.

Graham's⁶⁵ study of the European Economic Community and the preceding historical review.

In the complementary field of management accounting Demirag found evidence that managers in U.S. firms placed greater emphasis on foreign currency results than their British counterparts.⁶⁶ This finding may be due to the accounting standards in effect at the time of the study. U.S. firms were using the temporal method under SFAS No. 8, while U.K. firms were using primarily the closing rate method. When income statements are translated under the closing rate method the foreign currency relationships are maintained.

Cross-sectional Studies of Accounting Standards

Three of the "Seven Ages of Development" for accounting standards proposed by Carrington⁶⁷ and two of the four baselines of standard-setting observed by Daley and Mueller⁶⁸ are relevant to this study.

The standard-setting process in the U.S. is described as a mixed public/private approach or the age of intervention and in Canada and the U.K. it is described as a private/professional approach or the age of integration. Zeff attributes the relative involvement of public and professional organizations to the role of the

⁶⁵ Neil Graham, "Europe's Divers (sic) Routes to Exchange Rates Problem," Accountancy (December 1982): 118-121.

⁶⁶ Istemi S. Demirag, "The Treatment of Exchange Rates in Internal Performance Evaluation," Accounting and Business Research (Spring 1986): 157-164.

⁶⁷ Referenced in Choi and Mueller, International Accounting, 26-28.

⁶⁸ Lane A. Daley and Gerhard G. Mueller, "Accounting in the Arena of World Politics," Journal of Accountancy (February 1982): 40-50.

central government in the economy and the importance to society of privacy of communications and due process.⁶⁹

The direction of the future, an age of innovation, envisaged by Carrington, will see research into new methods of generating and communicating information. Financial reporting may encompass data bases, ranges of values, and probabilities as anticipated by Ryan, and Johnston and Watt.⁷⁰ In such an environment, multiple values of foreign assets and most probable values of foreign exchange gains and losses could be reported.

Cross-temporal Studies

In an examination of U.S. accounting practices during the period of fixed exchange rates, Connor attributed the shift from the CNC method to the MNM method and the proposal to defer exchange losses to downward pressure on the U.S. dollar.⁷¹ Fahmy studied alternative treatments of exchange gains and losses and their theoretical justification.⁷² He identified conservatism, matching, and objectivity, as the underlying rationales. The change in the nature of the supporting arguments from a convention to a principle to a qualitative characteristic suggests that the evolution of accounting theory may have influenced

⁶⁹ Stephen A. Zeff, "Setting Accounting Standards - Some Lessons from the U.S. Experience," The Accountants Magazine (December 1987/January 1988): 26-28/20-22.

⁷⁰ John Ryan, "Back to Basics," Australian Accountant (October/November 1988): 41-44; 30-36; Archie Johnston and Eric Watt, "We've Seen the Future and ...," CA Magazine 121, no. 9 (October 1988): 32-39.

⁷¹ Connor, 39-44.

⁷² Samir B. Fahmy, "Foreign Exchange Accounting," Review of Business no. 4 (Spring 1983): 5-8.

changes in practice.

While examining accounting practices for foreign operations in Canada, the U.S. and the U.K., Rickard observed that, during the period of fixed exchange rates, accountants followed generally accepted accounting principles and adhered to the all-inclusive concept of income while in the period of floating exchange rates, deferrals were common and practices were increasingly evaluated for practical reasons and economic effects.⁷³

Efficient Markets Research

The long period of debate regarding foreign currency accounting practices and the large number of discrete events provided a unique opportunity for market efficiency research. Evidence of negative reactions to SFAS No. 8 was found in a study by Ziebart and Kim⁷⁴ while conflicting evidence regarding SFAS No. 52 was found. Garlicki et al. found evidence of no reaction⁷⁵ while Ziebart and Kim found evidence of a positive reaction. Scepticism regarding the findings is appropriate, as the methodology of similar studies has been criticized.⁷⁶ Furthermore, Shank et al. found evidence that all MNC's were negatively affected

⁷³ D.R. Rickard, "Currency Translation," Australian Accountant (January/February 1980): 10-11.

⁷⁴ David A. Ziebart and David H. Kim, "An Examination of the Market Reaction Associated with SFAS No. 8 and SFAS No. 52," The Accounting Review 62, no. 2 (April 1987): 343-357.

⁷⁵ T. Dessa Garlicki, Frank J. Fabozzi, and Robert Fonfeder, "The Impact of Earnings Under FASB 52 on Equity Returns," Financial Management 16, no. 3 (Autumn 1987): 36-44.

⁷⁶ Frances L. Ayres, "A Comment on Corporate Preferences for Foreign Accounting Standards," Journal of Accounting Research 24, no. 1 (Spring 1986): 166-169; Beaver, 144.

at the time of SFAS No. 8.⁷⁷

Since foreign exchange rates are used to translate foreign financial statements, research on market efficiency regarding accounting for foreign activities is really a joint test of efficiency of the securities market, the foreign exchange market, which is subject to imperfections⁷⁸ and the model itself. Furthermore, it must be recognized that the real exposure to exchange rate changes was not controlled in the studies. Real exposure depends on management's actions in anticipation of an exchange rate change and the actions of management, workers and government in response to an exchange rate change.⁷⁹

There are four possible explanations of the evidence regarding SFAS No. 8 and SFAS No. 52:

- (1) the securities markets are not efficient;
- (2) the securities markets are generally efficient but investors were confused by the interaction with foreign exchange markets;
- (3) management altered real exposure in response to accounting standards and investors astutely interpreted this information; or
- (4) the methodology was flawed.

⁷⁷ John K. Shank, Jesse F. Dillard, and Richard J. Murdock, "FASB No. 8 and the Decision Makers," Financial Executive, 48 (February 1980): 18-23.

⁷⁸ Dufey and Srinivasulu, 54-62.

⁷⁹ Francesco Caramazza, "The Interaction Between Exchange Rate Changes and Inflation." Bank of Canada Review (July 1986): 3-14.

Classification Systems

Accounting for foreign operations is an issue primarily for Multinational Corporations ("MNC"). MNC's have matured and adapted to their changing environment.⁸⁰ Evidence suggests that their management reacts quickly to changes in markets⁸¹ as in changing invoicing practices in response to currency exposures⁸² and hedging practices in response to changed economic conditions.⁸³

A distinguishing characteristic of MNC's, as for domestic corporations, is the degree of management centralization. One widely accepted classification of MNC's has focused on management's perspective, the determinant of the degree of centralization:

Ethnocentric: Home country oriented

Polycentric: Host country oriented

Geocentric: Globally oriented⁸⁴

⁸⁰ Tremblay, 54-59.

⁸¹ Shapiro, 485-502.

⁸² Linda Bernier, "Here's Why More Companies are Opting for the ECU," International Management 41, no. 2 (February 1986): 46-48; John K. Makin, "Portfolio Theory and the Problem of Foreign Exchange Risk," The Journal of Finance (May 1978): 517-534.

⁸³ Idris A. El-Refadi, "Foreign Exchange Risk Management in U.S. Multinationals Under FASB No. 52: Change in Management Decision Making in Response to Accounting Policy Change," (Ph. D. dissertation, North Texas State University, 1986); Evans and Doupnik, 12; Carol Olson Houston and Gerhard G. Mueller, "Foreign Exchange Rate Hedging & SFAS No. 52 - Relatives or Strangers?" Accounting Horizons (December 1988): 50-57.

⁸⁴ Permuttler referenced in Thomas H. Beechy, Canadian Advanced Financial Accounting Second Edition (Canada: Holt, Rinehart and Winston of Canada, Limited, 1990), 583-586.

The three classifications parallel the life cycle of the MNC, with many companies beginning foreign operations as extensions of domestic operations (ethnocentric), decentralizing to a host country perspective (polycentric), and eventually centralizing to a global perspective (geocentric).

The foregoing classification of MNC's corresponds with the taxonomy of economic exposure proposed by Flood and Lessard.⁸⁵ Ethnocentric corporations correspond to import and export operations; polycentric corporations correspond to local firms characterized by local inputs and local sales markets; and geocentric corporations correspond to the world market firm characterized by global input markets and global sales.

Until the issuance of SFAS No. 52 in 1981, a single translation method was recommended under each U.S. accounting standard. Given the diversity of MNC's, it is not surprising that each standard was subjected to criticism.

The "situational approach" to accounting for foreign operations, adopted in SFAS No. 52, IAS 21, CICA 1650 and SAP 20, distinguishes two classifications for foreign operations. Using the terminology of the CICA, an integrated operation parallels an ethnocentric corporation and the self-sustaining operation corresponds to the polycentric corporation. Geocentric firms are more similar to integrated than self-sustaining operations, but the domestic perspective does not reflect the economic exposure of the entity to exchange rate changes. Militello was alluding to this shortcoming when he argued that there was no way to reflect

⁸⁵ Flood and Lessard, 25-36.

a centralized financial function⁸⁶ (reported by 71% of MNC's surveyed by Mathur⁸⁷).

Table 3 portrays the correspondence of the accounting classifications of foreign operations to the classifications of international business and economic exposure.

Table 3
Classifications of Multinational Corporations

Inputs Purchased In	Classification	Outputs Sold In	
		Local Market	World Market
Local Market	Finance:	Local Market Firm	Exporter
	International Business:	Polycentric	Ethnocentric
	Accounting:	Self-sustaining	Integrated
World Market	Finance:	Importer	World Firm
	International Business:	Ethnocentric	Geocentric
	Accounting:	Integrated	NONE

⁸⁶ Frederick C. Militello, Jr., "Statement No. 52: Changes in Financial Management Practices," Financial Executive 51, no. 8 (August 1983): 48-51.

⁸⁷ Mathur, 22-26.

For the geocentric or world firm, decisions are made from a global perspective. Financial reports prepared in the domestic currency (or any other single currency) will differ from the basis of decision-making and should not be used in assessing management stewardship.

Jacobi⁸⁸ recommends that a basket currency unit such as the Special Drawing Right ("SDR") of the International Monetary Fund,⁸⁹ should be the unit of account for MNC's. The substitutability of currencies observed by McKinnon⁹⁰ and the evidence that basket currencies reduce the variability of real returns⁹¹, support Jacobi's proposal. For geocentric corporations, financial statements prepared using the SDR would be consistent with centralized decision making; for polycentric corporations, decision making is based on multiple currencies so that aggregation in a basket currency unit is appropriate; for ethnocentric corporations, on the other hand, decisions are made in domestic currency so its use in financial reporting is appropriate. A precedent for an alternative unit of account was reported by Clarke.⁹²

⁸⁸ Michael H. Jacobi, "The Unit of Account in Consolidated Financial Statements of Multinational Enterprises," The International Journal of Accounting Education & Research 15, no. 2 (Spring 1980): 17-34.

⁸⁹ John Cooper, "The SDR as an Artificial Currency Unit," Accountancy (May 1987): 72-74.

⁹⁰ McKinnon, 320-333.

⁹¹ Jacque, 81-101.

⁹² F.L. Clarke, "Inflation Accounting and the Accidents of History," Abacus 16, no. 2 (December 1980): 79-99.

Summary and Analysis

The historical literature review suggests that the change in U.S. accounting practices for foreign operations was significantly influenced by the relative strength of the U.S. dollar and the correspondence between the reported impact on net income and the expected change in value of the foreign operation. The latter issue was raised primarily after 1973, a year distinguished by two significant events: the floating of exchange rates, when the risk of foreign exchange rate change shifted from the central banks to the individual companies,⁹³ and the creation of the FASB. Practice in both Canada and the U.K. developed independently during the era of fixed exchange rates but conformed to international practices following the floating of exchange rates and the creation of the IASC.

Discussion in the literature suggests that two other factors, of lesser importance, also influenced accounting standards for foreign operations: business practices, and accounting theory. In the absence of recognized objectives of accounting or standards against which to evaluate practice, controversy was inevitable.

The analysis of the critical literature suggests that the characteristics of the historic cost accounting model have limited the scope of available alternatives. The absence of generally accepted objectives of accounting and the inadequacy of economic theory for the purposes of accounting have hampered both the

⁹³ Samuel I. Katz, "Exchange Risk Under Fixed and Flexible Exchange Rates," The Bulletin 83-84 (June 1972) New York University, Graduate School of Business Administration, Institute of Finance.

development and evaluation of alternatives. Within the constraints of the historic cost accounting model, only pragmatic solutions are possible. However, when the economic environment changes, the methods may not be equally useful.

One criticism, that the recognition of exchange gains and losses is arbitrary, has been applied to the four translation methods with accounting exposure. The treatment of exchange gains and losses should be re-examined using the formally recognized recognition criteria. The proposal by Ruland and Doupnik should be seriously considered.⁹⁴

The comparative studies suggest the importance of economic, social and political characteristics in both the development of accounting theory and the process of setting accounting standards. The three countries of interest are relatively similar in these factors, with the U.S. having greater political input into the economy and accounting standards.

The research regarding the efficiency of securities markets, following the issuance of SFAS No. 8 and No. 52 was inconclusive. The review of literature in complementary disciplines suggests that accounting classifications are not exhaustive. If, as Taussig argues,⁹⁵ lasting accounting practices must be derived from mercantile practices, the accounting profession should develop a third classification of foreign operations to correspond to the geocentric corporation or

⁹⁴Ruland and Doupnik, 461-476.

⁹⁵ Russel Taussig, "Impact of SFAS No. 52 on the Translation of Foreign Financial Statements of Companies in Highly Inflationary Economies," Journal of Accounting, Auditing and Finance 6, no. 2 (Winter 1983): 142-156.

world firm, characterized by a centralized management function, and should encourage the use of a decision-making unit of account, such as the SDR.

CHAPTER 4

Contemporary Accounting Theories and Evidence

Introduction

The historical review of the literature provided evidence that changes in accounting standards for foreign operations followed economic events that affected financial statements or financial ratios. In this chapter, the groundwork for the thesis that economic events motivated the changes is developed. Four kinds of contemporary accounting research lend support to the hypothesis: agency theory, economic consequences, positive accounting and market efficiency.

Agency Theory

Agency theory examines managers' behaviour as agents. The firm is viewed as a group of related contracts (either implicit or explicit) with managers acting as agents of the owners or in broader interpretations as agents of owners, creditors and the public.⁹⁶ It is assumed that managers are motivated to maximize their utility. Since management's motivations may be in conflict with the wishes of owners, it is argued that information used in contracting with managers, must be clearly defined. When management compensation is related, either explicitly or implicitly, to reported net income, managers are argued to select (and support) accounting practices to maximize their utility. Hence, agency theory provides a

⁹⁶ For a succinct discussion of agency theory refer to Ross M. Skinner, Accounting Standards in Evolution (Canada: Holt, Rinehart and Winston of Canada, Limited, 1987), 638.

causal link between an economic event and a subsequent change in accounting practice.

Economic Consequences

Economic consequences refers to the impact of accounting reports on the behaviour of investors, creditors, and decision makers in business, government, and unions.⁹⁷ It is assumed that the common objective of management, in selecting accounting practices, and of interested parties, in lobbying for accounting standards, is to maximize their wealth.

Financial information is presumed to have economic consequences at both the micro and macro levels. Individual investors may be affected by a redistribution of wealth, and a change in aggregate risk and its allocation. Societal consequences include the reallocation of funds between consumption and production, alternative allocation of resources and a reallocation of funds between regulation and information sources.⁹⁸ Economic consequences affect various constituencies differently; hence, the setting of accounting standards is sometimes described as a social choice. Solomons cautions that while accounting standard-setters should be aware of the consequences of accounting standards, the standards should not be politically motivated.⁹⁹

⁹⁷ Stephen A. Zeff, "The Rise of 'Economic Consequences'," The Journal of Accountancy (December 1978): 56-63.

⁹⁸ William H. Beaver, Financial Reporting: an Accounting Revolution, Second ed. (New Jersey: Prentice-Hall, 1989); Zeff, "The Rise of 'Economic Consequences'," 56-63.

⁹⁹ David Solomons, "The Social Impact of Accounting," Financial Executive (October 1986): 20-23.

Although arguments based on economic consequences have been advanced in the discussion of accounting practices and standards since the 1940's, they were masked as arguments concerning "accounting theory" or "public interest." In empirical studies, the evidence regarding managers and government has been consistent with the thesis,¹⁰⁰ while evidence regarding standard-setters has been inconclusive.¹⁰¹

The theory of economic consequences provides a second rationale for a cause and effect relationship between an economic event and a subsequent change in accounting practice. Hence, it supports the thesis of this paper.

Positive Theory of Accounting Standards

Positive accounting theory explains the determination of accounting standards.¹⁰² Watts and Zimmerman argue that accounting theories are economic goods subject to the laws of supply and demand.¹⁰³ They identify three sources of demand: pedagogic demand to synthesize accounting practices; information demand, to predict the effects of accounting procedures on management's and auditors' welfare; and justification demand, to allow auditors, politicians and bureaucrats to support the positions they advocate. Their theory of demand builds

¹⁰⁰ Ross L. Watts and Jerold L. Zimmerman, "Towards a Positive Theory of the Determination of Accounting Standards," The Accounting Review (January 1978): 112-134; Stephen A. Zeff, "The Rise of 'Economic Consequences'," 56-63.

¹⁰¹ Sandra Felton, "Positive Thinking in Accounting Research," CA Magazine (March 1982): 60-64.

¹⁰² Watts and Zimmerman, "Towards a Positive Theory" 112-134.

¹⁰³ Ross L. Watts and Jerold L. Zimmerman, "The Demand for and Supply of Accounting Theories: The Market for Excuses," The Accounting Review 54, no. 2 (April 1979): 273-305.

on agency theory (pedagogic demand) and arguments of economic consequences (justification demand).

On the supply side, they assert that those with vested interests in accounting standards subtly influence accounting research through funding so that theories are developed to justify the positions they have taken. They describe accounting literature as "a literature in which the concepts are altered to permit accounting practices to adapt to changes in political issues and institutions".¹⁰⁴

Although positive theory is not without its critics¹⁰⁵ it has received considerable support in the literature. Griffin developed a self-interest model which successfully predicted two-thirds of managers' preferences for SFAS No. 52.¹⁰⁶

The supply side assertion of Watts and Zimmerman, that theories justify positions taken,¹⁰⁷ does not appear to be supported by the evidence regarding accounting for foreign operations. The MNM method adopted in 1965 was first proposed in the literature by Hepworth in 1956,¹⁰⁸ the merits of the temporal method adopted in SFAS No. 8 in October 1975 had already been thoroughly

¹⁰⁴ *Ibid*, p. 289.

¹⁰⁵ Charles Christenson, "The Methodology of Positive Accounting," *The Accounting Review* 58, no. 1 (January 1983): 1-22.

¹⁰⁶ Paul A. Griffin, "Management's Preferences for FASB Statement No. 52: Predictive Ability Results," *Abacus* 19, no. 2 (December 1983): 130-138.

¹⁰⁷ Watts and Zimmerman, "The Demand for" 273-305.

¹⁰⁸ Nobes, 421-431.

debated in the literature;¹⁰⁹ and, with respect to the most controversial practice, the current rate method, the articulation of the theory clearly preceded its acceptance.¹¹⁰ If theory were developed to justify a position already taken, it would lag the position taken. Proponents of positive theory would argue that although the theories were available they gained ascendancy only when they were needed politically. From this perspective, the evidence is argued to support positive theory.

Positive accounting theory incorporates agency theory and economic consequences in its explanation of the determination of accounting standards. It also supports the thesis of this paper.

Market Efficiency

Securities markets are said to be efficient with respect to some specific information if prices fully reflect the return implications of the item, instantaneously. Three significant characteristics of the theory are that it focuses on the aggregate market price, it is an ex ante link between security returns and information, and it is defined with respect to specific information items.¹¹¹

¹⁰⁹ Leonard Lorensen, "Misconceptions about Translation," Canadian Chartered Accountant (March 1973): 18-25; and "The Temporal Principle of Translation," The Journal of Accountancy (August 1972): 48-54; Don Parkinson, "Whose Misconceptions?" 25-29; and Translation of Foreign Currencies (Canada: CICA Research Study, 1972); Paul Rosenfield, "Accounting for Foreign Branches and Subsidiaries," The International Journal of Accounting Education & Research 7 (Spring 1972): 35-44.

¹¹⁰ Ibid.

¹¹¹ For discussion of the theory see William H. Beaver, Financial Reporting: an Accounting Revolution Second ed. (New Jersey: Prentice-Hall, 1989), 130-171; and George Foster, Financial Statement Analysis Second ed. (New Jersey: Prentice-Hall International, 1986), 144-147.

Both the assumption of market efficiency and its implications have proved controversial.¹¹² Empirical research preceded the development of a sound theory and terminology is not clearly defined. Research studies have been criticized for using indirect tests, using tests which lack power, for limited interstudy comparability, and for the self-selection bias of the firms tested.¹¹³

Authors who challenge the assumption of market efficiency have been unconvincing. Early criticisms were based on anecdotal evidence, while later criticisms were inferred from indirect evidence. Indirect criticisms such as those of Mao, Pennar, and Wyatt, have been refuted as being attributable to other factors.¹¹⁴ Recent evidence of systematic differences in returns based on size, price-earnings ratios and market ratios is ascribed to an element of risk not reflected in the capital asset pricing model.¹¹⁵

Felton contends that management preferences for accounting practices are not intended to fool the market, but are motivated by potential cost savings in record keeping, income taxes, and political costs.¹¹⁶ In response to Wyatt's concern

¹¹² Solomons, "The Social Impact of Accounting," 20-23.

¹¹³ Edward E. Williams and M. Chapman Findlay III, "Beyond Neoclassical Economic Theory as a Foundation for Financial Accounting," Abacus 16, no. 2 (December 1980): 133-141; Beaver, 144-147.

¹¹⁴ James C.T. Mao, "Understanding the Foreign Exchange Market," CMA Magazine 63, no. 4 (May 1989): 34-39; Karen Pennar, "Can Investors Really Beat the Market - Without Cheating?" Business Week no. 2977 (December 15, 1986): 82-83; Arthur R. Wyatt, "Efficient Market Theory: Its Impact on Accounting," Journal of Accountancy (February 1983): 56-65.

¹¹⁵ Beaver, 144.

¹¹⁶ Felton, 60-64.

regarding the anomaly that management appears to ignore the efficient market assumption,¹¹⁷ Beaver argues that market efficiency does not require that corporate managers believe in it. Proponents of market efficiency argue that the market is efficient partly because many believe it is not.

Market efficiency is consistent with the thesis of this paper.

Summary

The historical review of the literature in Chapter 3 demonstrates that changes in accounting practices followed economic events. The review in the present chapter demonstrates that agency theory, economic consequences and positive accounting theory, provide the rationale for a cause and effect relationship between an economic event and a subsequent change in accounting practice. Moreover, the thesis is consistent with the assumption of market efficiency.

¹¹⁷ Wyatt, 56-65.

CHAPTER 5

Research Method

The literature on accounting for foreign operations, international accounting, and the complementary literatures in economics, finance and international business were reviewed.

This paper advances two theses. The first, that observed differences between accounting practices and economic theories are warranted, is examined in Chapter 2 using theoretical arguments. The second, and primary thesis, that change in accounting standards for foreign operations was triggered by economic events which negatively impacted reported net income or financial ratios is examined by analysis and visual presentation. Its corollary, that cross-sectional differences in accounting practice will exist only in different economic circumstances, is empirically examined. Since the primary thesis was deduced from a review of practices in industrialized countries of similar cultural and political characteristics, both the theory and its corollary are qualified to apply only in similar circumstances.

Primary Hypothesis

In the historical review of accounting literature, in Chapter 3, a relationship between economic events and change in accounting practice was observed. The examination of contemporary accounting theory, in Chapter 4, provides a cause

and effect link explaining this relationship.

The hypothesis is analyzed for each of the U.S., the U.K. and Canada. A graphical presentation of foreign exchange rate changes and accounting standards is presented for each country.

Some accountants had argued that change in accounting standards was due to change in the relative value of the U.S. dollar. Rather than attempt to define "relative values" in precise terms, a judgmental analysis is made using a graphical presentation of a sample of exchange rates.

During the fixed exchange rate era, the U.S. dollar was the standard against which other currencies were measured. In studies of the period 1960-1980, McKinnon¹¹⁸ identified three substitutable currencies: the U.S. dollar, the Deutschmark and the Japanese yen. These currencies, the French franc and the pound are the components of the Special Drawing Right of the International Monetary Fund ("SDR"). Based on the importance of these currencies, in both the fixed and floating rate eras they were initially selected to indicate the relative value of the pound and the U.S. dollar. The French franc, an unusually volatile currency, was replaced by the Swiss franc, a more stable currency, important for its use in international reserves.¹¹⁹ It is important to maintain representation of European currencies, as these were argued to have caused the adoption of the MNM method in the U.S. The Canadian dollar is not used as a standard as there

¹¹⁸ McKinnon, 320-333.

¹¹⁹ Ibid.

is evidence, as mentioned in Chapter 2, that it may be incorrectly priced relative to the U.S. dollar. The U.S. dollar is used as the standard for the Canadian dollar as approximately 85 % of Canada's international trade is with the U.S.

Three economic shocks of international significance occurred during the period of concern: World War II, from 1945 to 1949, the change in the international monetary system from primarily fixed to primarily floating exchange rates, which culminated in 1973 and the oil crisis of 1981. As a reasonability test of the use of foreign exchange rates as a surrogate for "economic events" the behaviour of foreign exchange rates at the time of these three events is examined.

The issuance of an accounting standard is preceded by research of the topic, and, since the mid-1970's, distribution of an exposure draft to interested parties for comment. For contentious issues, such as accounting for foreign operations, two or three exposure drafts may precede an accounting standard. Hence, time lags of unequal length are expected between a change in the relative value of the currency and a change in accounting practice.

The foreign exchange rates and changes in accounting practice are arrayed on a time line for a judgmental appraisal of the hypothesis. For the U.S., studies which reaffirmed existing positions are also presented.

Foreign exchange rates were collected from two sources: The International Monetary Fund Statistical Yearbook (IMF Yearbook) and the Standard & Poor's Statistical Service (S&P). The clerical accuracy of the data was verified and the values were graphed for visual inspection.

Corollary

The only significant difference observed in the three countries of interest is the Canadian practice of deferral and amortization of exchange gains and losses, which is more permissive than practices recommended in SFAS No. 52, SAP 20 and IAS 21. To determine whether this difference in practice is supported by the economic circumstances, an empirical examination of certain economic characteristics of the three countries is undertaken.

The deferral and amortization practice would be justified on an absolute basis only if the Canadian dollar and the U.S. dollar fluctuated within a narrow trading range. However, to justify a difference in accounting practice, a relative difference in the economic circumstances is sufficient. The Canadian practice would be supported in two circumstances: if the Canadian dollar were more volatile than other currencies, causing ephemeral gains and losses to be reported; or if the international Fisher effect does not hold (but PPP does), so that gains and losses arising on monetary items do not represent adjustments for interest expense, (but the implicit assumption of no exposure for non-monetary items is supported). Both circumstances are examined.

Volatility

The volatility of the Canadian dollar relative to the U.S. dollar is of primary interest. However, since volatility measures are a joint test of the two components in the foreign exchange quotation, a standard for comparison is needed. Each of the three currencies of interest is examined relative to the SDR and to each of the

other two currencies. It is recognized that the SDR is an imperfect standard as both the U.S. dollar and the U.K. pound are component currencies (the U.S. dollar is the most heavily weighted component).

The variance measures the variability of a distribution. The equality of the variances of the distributions of the currencies relative to the SDR will be tested in pairs using the F test. The null hypothesis is that the variances of the two distributions are equal. The results are interpreted as a one tailed test for the Canadian dollar relative to the U.S. dollar and the U.K. pound and as a two tailed test for the U.S. dollar relative to the U.K. pound.

The F test is sensitive to deviations from normality and in particular to high values in the tails and skewness. The distributions are examined for kurtosis, skewness, symmetry and a composite test of normality. Kurtosis is a measure of the heaviness of the tails and in a normal distribution has a value of three. Higher values describe peaked distributions or distributions with heavy tails; lower values describe flatter distributions or distributions with smaller tails. Kurtosis is measured as:

$$\text{Kurtosis} = M_4 / M_2^2$$

where $M_4 = \sum_{i=1}^n (y_i - \bar{y})^4 / n$

$$y_i = \text{the } i^{\text{th}} \text{ observation of } Y$$

$$\bar{y} = \sum y_i / n$$

$$n = \text{the number of observations}$$

$$M_2 = \sum_{i=1}^n (y_i - \bar{y})^2 / n$$

Skewness refers to the absence of symmetry of a distribution about its mean.

It is measured as the third moment:

$$\text{Skewness} = \frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^3$$

Since there is no standard interpretation for this statistic (which is sensitive to other characteristics of the distribution), a visual inspection of a stem and leaf plot is used in conjunction with the statistic. Values of less than one are generally interpreted as moderate skewness. Since skewness is a lack of symmetry about the mean, it may also be assessed indirectly as the complement of a measure of symmetry.

The signed rank statistic is a measure of symmetry around the median. It is an imperfect complement to skewness when the mean and the median differ. The statistic is calculated as :

$$S = \sum r_i^+ - n(n+1)/4$$

where $r_i^+ = \text{rank } |x_i|$

n = non-zero observations

When n is greater than 20, a T value is calculated and interpreted as a two tailed test.

$$T = \frac{S\sqrt{n-1}}{\sqrt{nV - S_2}}$$

$$\text{where } V = \frac{n(n+1)(2n+1) - 0.5 \sum t_i (t_i + 1)(t_i - 1)}{24}$$

t_i = tied rankings

Given the sensitivity of the F test to normality, the variances will also be tested using the squared ranks test for nonparametric distributions.¹²⁰ The squared ranks test assumes random variables, mutual independence between samples and that the measurement scale is at least interval. Currency quotations are random variables measured on a ratio scale. Unlike tests in which the values of the observations are ranked and data is assumed to be measured on an ordinal scale, in this test the differences between values and the mean are ranked, requiring the assumption that the data is measured on at least an interval scale. The assumption of mutual independence between samples was questioned, but no appropriate test was found to examine its validity.

The squared ranks test is calculated as $T = \sum_{i=1}^n [R(U_i)]^2$

where $U_i = |X_i - \mu_1|$

R = the rank assigned to U_i

X_i = the i th value of X

$\mu_1 = \sum_{i=1}^n X_i / n$

The formula is modified when there are ties in the ranking.

The Shapiro-Wilks statistic is a composite weighting of the characteristics of a distribution used to assess normality.

Pricing of the Canadian Dollar

This analysis examines the pricing of the Canadian dollar relative to the U.S.

¹²⁰ W.J. Conover, Practical Nonparametric Statistics, Second Edition (New York, 1980) 239-241.

dollar using ex post tests based on the economic relationships of PPP and the international Fisher effect. The purpose of these tests is not to examine the validity of the theories, which have been extensively studied in economics and finance, but to examine the reliability of an accounting practice. Since financial statements are prepared on a monthly, quarterly or annual basis, tests are based on monthly observations. The period studied is from 1973 to 1989. The practice of deferral and amortization was introduced in the floating rate era, in the proposed Section 1650 of the CICA Handbook in 1978, and was reaffirmed in the revised Section 1650 issued in 1983. The period 1962 to 1989 is also tested to determine whether relationships differed in the fixed rate era.

The residuals from PPP and the international Fisher effect as calculated by Aliber and Stickney¹²¹ are examined.

$$\begin{array}{l} \text{Percentage deviations} = (P_{f,t}/P_{f,t-1})/(P_{d,t}/P_{d,t-1}) - 1 \\ \text{from PPP} \end{array} \quad \frac{E_t/E_{t-1}}$$

and

$$\begin{array}{l} \text{Percentage deviations from} = (1+R_{f,t-1})/(1+R_{d,t-1}) - 1 \\ \text{Fisher parity} \end{array} \quad \frac{E_t/E_{t-1}}$$

where

- P_f = Foreign commodity price
- P_d = Domestic commodity price
- R_f = Rate of interest of a foreign currency denominated security
- R_d = Rate of interest of a domestic currency denominated security
- E = Exchange rate
- t = Present time
- $t-1$ = The previous time period

¹²¹ Aliber and Stickney, 44-57.

The consumer price index (CPI) is used to represent the commodity price. The CPI is an imperfect measure as it fails to recognize changes in quality, spending patterns and the market basket coverage. The data for Canada and the U.K. were obtained from the IMF Yearbook and for the U.S. from S&P.

Consistent interest rate data were not readily available for the period under study. The U.S. Federal Reserve Bank of New York discount rate, obtained from S&P; the U.K. treasury bill rate obtained from the IMF Yearbook; and the Canadian bank rate obtained from the IMF Yearbook were used. The residual analysis may be biased by the selection of interest rates.

The percentage deviations from PPP and the international Fisher effect for the Canadian dollar relative to the U.S. dollar are graphed for visual examination and analyzed by a univariate procedure. Since the tests are based on residuals, a mean of zero and a normal distribution indicate that the relationship holds.

For the floating rate era, the data is tested for symmetry using the signed rank test discussed previously. The Q statistic for autocorrelation is calculated for lags of up to five months. If the Q statistic shows serial correlation of the errors, generalized differencing techniques will be applied to transform the data.

$$Q = T \sum_{k=1}^k \hat{p}_k^2$$

where T = number of observations, and

$$\hat{p}_k = \frac{\sum_{t=1}^{T-k} (y_t - \bar{y})(y_{t+k} - \bar{y})}{\sum_{t=1}^T (y_t - \bar{y})^2}$$

k = the time lag

CHAPTER 6

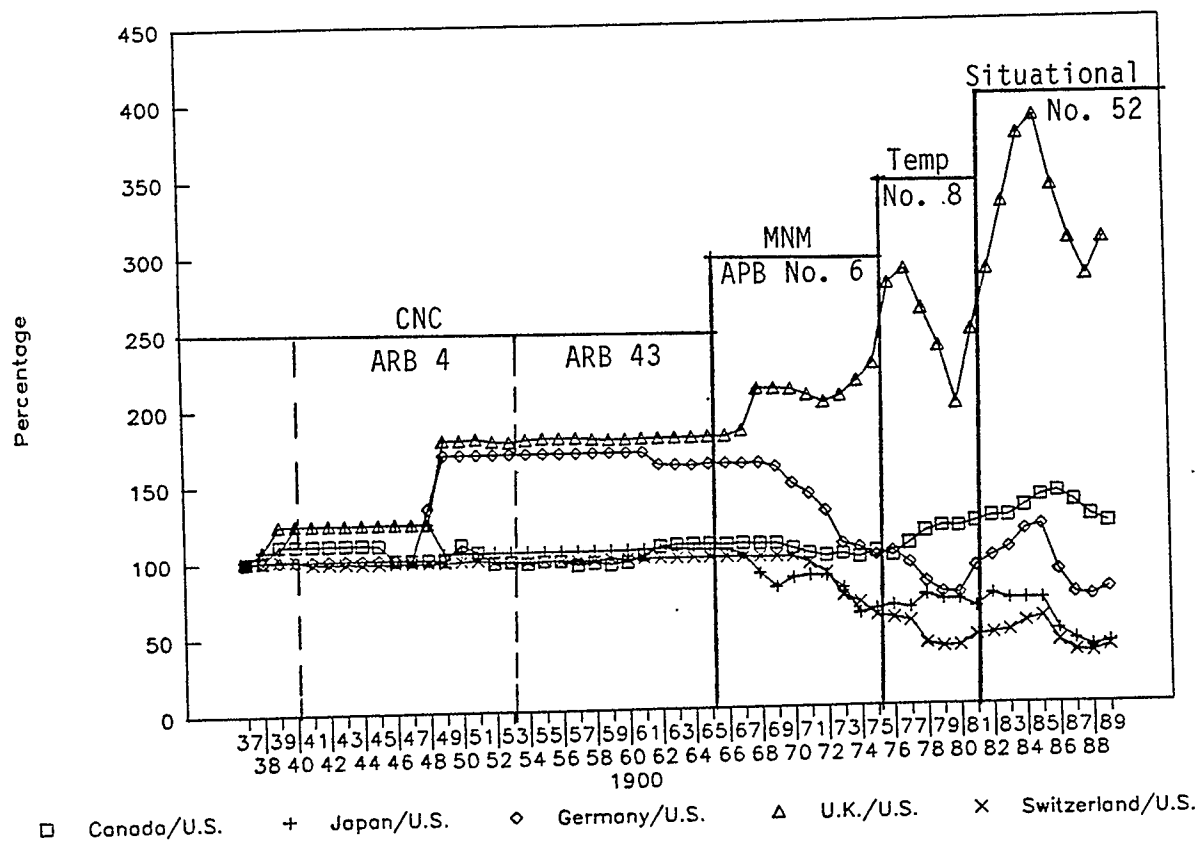
Results

Primary HypothesisUnited States

Figure 2 depicts foreign currencies relative to the U.S. dollar.

Figure 2

Foreign Currency Percentage
of U.S. Dollars



Two of the three economic shocks are readily identifiable from the graph. The significant realignment of currencies from 1945 to 1949 corresponds with World War II, while the erratic behaviour from 1968 to 1973 corresponds to the transition of the international monetary system from primarily fixed to primarily floating exchange rates. (It is interesting that for both these global events, the currencies examined had mixed behaviours.) There is no unusual behaviour in foreign exchange rates to correspond to the world oil crisis. However, given that the countries selected are all net importers of oil, a change in the relative values of their currencies would not be expected. This analysis adds credibility to the use of foreign exchange rates to indicate economic events.

For each significant change in exchange rate behaviour, the effect on net income and financial ratios is analyzed. It is anticipated that events with a negative impact will be followed by a change in accounting practice.

A devaluation of foreign currencies relative to the U.S. dollar is observed from 1937-1939. In accordance with the then generally accepted CNC method the consequence was that small losses were recognized in net income. In a period of fixed exchange rates, the variations in exchange rates were viewed as transitory. Given the small magnitude and the perception that the losses were transitory in nature, there was little concern regarding their effect on net income. Following this period, Accounting Research Bulletin 4 (1939) reaffirmed the CNC method.

The mixed behaviour of foreign exchange rates observed from 1945 to 1949 caused small gains and losses to be recognized in net income. As in the previous

analysis the exchange gains and losses were viewed as transitory and using the CNC method of accounting, the change in exchange rates did not cause a significant negative impact on net income or financial ratios. A research study was undertaken with Chapter 12 of ARB 43 reaffirming the CNC method.

The stability of foreign currencies from 1950 to the early 1960's is followed by the adoption of the MNM method in 1965 Accounting Principles Board Opinion No. 6. Under the CNC method the gains on long term monetary items from devaluation of European currencies had not been recognized. Given the stability of European currencies during the preceding decade, it appeared that the realignment of currencies was permanent so that gains would be realized on the settlement of long term monetary items. Failure to recognize the gains as they accrued, had a negative effect on reported net income.

During the period 1968-1973, all currencies of interest, except the pound appreciated relative to the U.S. dollar. Under the MNM method, exposure is generally large and negative so that the appreciation of currencies has a negative impact on net income. Accounting for foreign operations was again studied with the temporal method adopted in SFAS No. 8 in 1975. The temporal method did not generally have a more positive effect on net income. It was a method adopted for its theoretical integrity, in a period of uncertainty.

Under the temporal method accounting exposure is generally large and negative so that the appreciation of currencies from 1973 to 1980 resulted in losses being reported in net income. This method, advocated for its theoretical integrity,

was adopted at a time when it caused a negative impact on reported net income. In response to criticisms of the temporal method, the FASB reconsidered accounting for foreign operations and in 1981 issued SFAS No. 52 recommending a situational approach. The situational approach introduced two scenarios for each exchange rate change. Entities translated under the temporal method have a negative exposure such that gains are reflected in income for an appreciation of foreign currencies. For entities translated under the current rate method, exposure is positive with the consequence that negative equity adjustments are recorded for appreciation of foreign currencies with a negative impact on financial ratios. Ironically, this standard was issued at a time when the U.S. dollar was again strong and many firms required to use the current rate method postponed adoption until the mandatory date.

Under the situational approach firms are affected differently so that changes in exchange rates after 1981 would not have a consistent effect on net income or financial ratios.

Each of the major realignments of currencies was followed by a study of accounting for foreign operations with a change in accounting practice following each change with a significant negative impact on net income. The only change which did not have the effect of creating a more favourable income figure was the adoption of the temporal method under SFAS No. 8. Recall that this method was adopted for its theoretical merits at the time the international monetary system was changing.

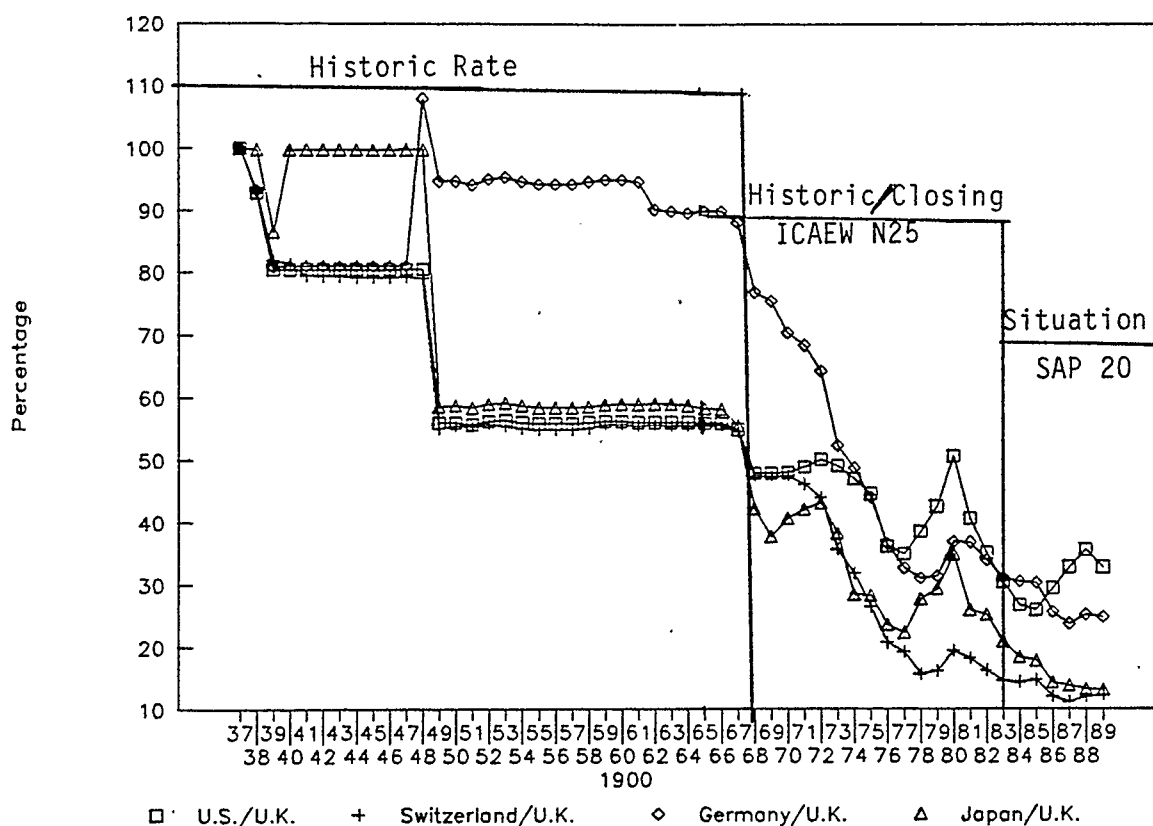
United Kingdom

Figure 3 depicts the relationship of foreign currencies relative to the pound.

As for the U.S. significant realignments of the currencies are observed corresponding to World War II (1945 to 1949) and the transition of the international monetary system (1967-1973). The latter realignment began one year earlier in the U.K. and may have been affected by some other factor. No major change in relationships was observed in 1981 during the oil crisis.

Figure 3

Foreign Currency Percentage of U.K. Pound Sterling



Under the historic rate method, in use in the U.K. prior to 1968, change in the foreign exchange rate does not impact net income. However, financial ratios are affected by change in the foreign exchange rate. In an environment of appreciating foreign currencies new debt issues denominated in a foreign currency would have a negative impact on the debt to equity ratio. With systematic movement of exchange rates, the cumulative effect would eventually impact financial ratios to the extent that management would be motivated to change the accounting practice.

Realignment of exchange rates is observed from 1937 to 1939, and from 1947 to 1949. The accounting profession did not initiate any change following either realignment. Possible reasons for this lack of reaction are the relative insignificance of foreign currency denominated debt at this time, the perception that the realignments of currencies were temporary, and the fact that net income was not affected by changes in foreign exchange rate changes.

The extreme appreciation of European currencies in 1967 conveyed the message that previous appreciations were more than transitory. Companies experimented with the closing rate method which had a favourable effect on financial ratios. The ICAEW responded immediately by modifying its position in statement N 25 to accept either the historical rate method or the closing rate method. Hence, during the transition of the international monetary system from 1968 to 1973 in which mixed behaviours of exchange rates were observed, both

the historic rate and closing rate methods were accepted. Neither has an accounting exposure but financial ratios differ with the method chosen. No further change to accounting practice occurred following this period, as there was no effect on net income and the choice of methods allowed managers to select the method which created a more favourable impact on ratio analysis.

During the period 1973 to 1977 the pound continued to depreciate relative to other currencies. In the new monetary system, realignments were no longer viewed as transitory. In a period of appreciation of foreign currencies the restatement of foreign currency denominated debt, as under the temporal method, would have a negative effect on net income. However, if exposure were defined as a net asset position, as in the current rate method, a favourable effect on net income would be achieved. The failure to recognize the potential positive effect of the appreciation may be interpreted as negatively impacting net income. Three exposure drafts: ED 16 (September 1975), ED 21 (September 1977) and ED 27 (October 1980) preceded the issuance of SAP 20 recommending a situational approach. In SAP 20, the closing rate method is redefined to translate net assets at the current rate, in substance the current rate method and the temporal method is also accepted.

Under the two methods of the proposed situational approach, entities would be affected differently by the change in foreign exchange rates.

The preceding analysis supports the hypothesis for the U.K. Changes in

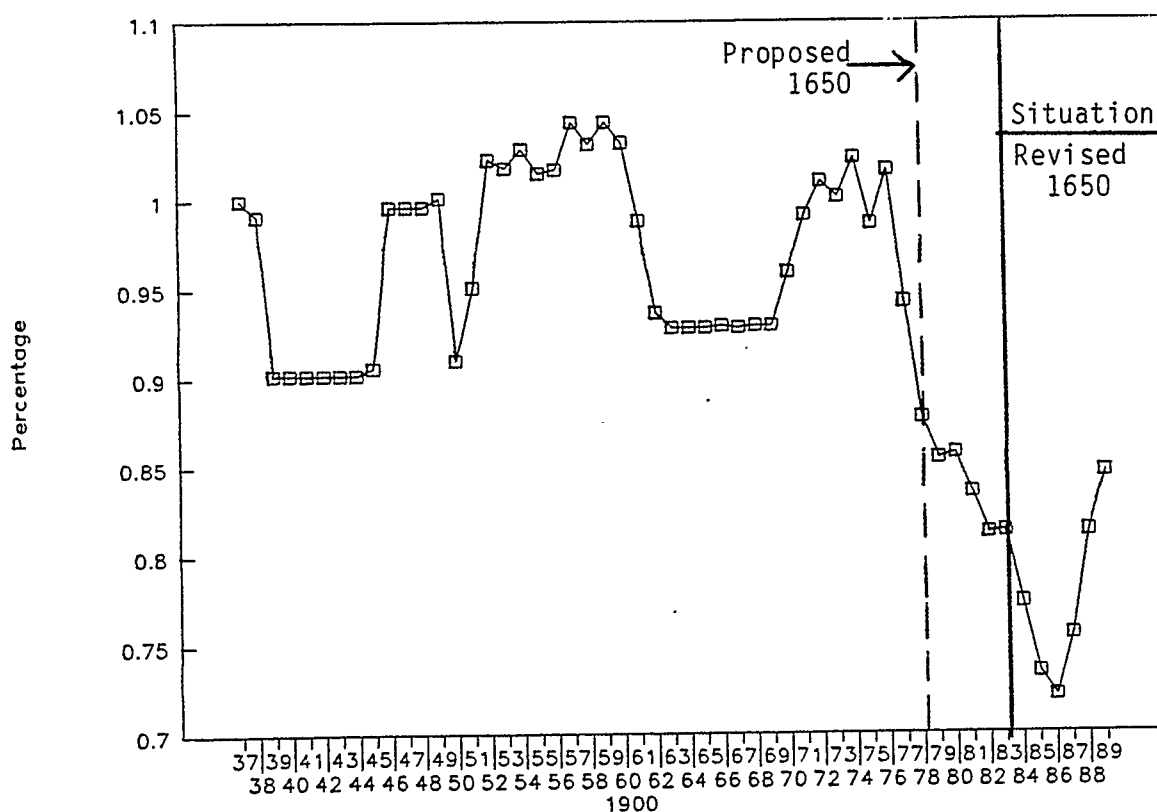
foreign exchange rates during the fixed exchange rate era had no effect on net income. The broadened scope of statement N 25 appears to have been motivated by its favourable effect on ratio analysis; the change to a situational approach had the effect of increasing net income via a change in method. The first exposure draft issued by the ICAEW preceded the issuance of an exposure draft on foreign operations by the IASC.

Canada

The relationship of the U.S. dollar to the Canadian dollar is depicted in Figure 4.

Figure 4

U.S. Dollars Per Canadian Dollar



The U.S. dollar appreciated relative to the Canadian dollar during World War II, and significant change in the exchange rate is observed in the period 1969 to 1975 corresponding to the change in the international monetary system. Again, the world oil crisis did not have a significant impact on the currencies as both countries are net importers of oil.

In an environment in which exchange rate changes are viewed as transitory, and judgment is exercised in the selection of both the translation method and the treatment of exchange gains and losses, no events are expected to have a consistently negative impact on reported net income or financial ratios.

The original Section 1650 of the CICA Handbook recommended the temporal method of translation with a permissive policy of deferral of exchange gains and losses. In substance, the temporal method with deferral is very similar to the historic rate method. This method was suspended, however, prior to its implementation. The reconsideration of the topic by the CICA corresponded closely to, and may have been prompted by an interest in the topic by the IASC which released ED 11 "Accounting for Foreign Transactions and Translation of Foreign Financial Statements" in April 1978.

The situational approach adopted in the revised CICA Handbook Section 1650 (1983) defines two scenarios with entities affected differently under the different methods.

Neither of the changes in accounting practice in Canada appear to have been motivated by their impact on net income or ratio analysis. The motivating influence appears to have been the advent of international accounting standards. The proposed section 1650 to the CICA Handbook was issued after the issuance of ED 11 and the revised section 1650 was released in the same year as IAS 21.

Corollary

The characteristics of the currency quotations are presented in Table 4. Each of the statistics is explained in detail in Chapter 5.

Variance	S^2 Measures the variability of the distribution
Kurtosis	Measures the heaviness of the tails
Skewness	Third moment; Refers to the absence of symmetry about the mean
Symmetry	Sign rank test; Measures the symmetry about the median
Probability of Normality	The Shapiro-Wilks test is a composite of other characteristics to assess normality.

Table 4

Characteristics of Currency Quotation Distributions

	SDR - QUOTATIONS			FOREIGN EXCHANGE RATES		
	U.S.	U.K.	CNDN	<u>CNDN</u> U.S.	<u>CNDN</u> U.K.	<u>U.K.</u> U.S.
Variance	.009824	.010987	.030548	.016463	.091185	.01271
Probability of Normality (Shapiro-Wilks)	.0001	.0001	.0001	.0000	.0178	.0001
Kurtosis	2.40168	1.88658	2.10693	1.9788	2.5354	2.9614
Skewness	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Symmetry	.0001	.0001	.0001	.0001	.0001	.0001
Log Transformation	Not Normal	Not Normal	Not Normal	Not Normal	Normal	Not Normal

The probability of normality is .0001 for all quotation except the CNDN/US for which it is even lower and the CNDN/UK for which it is .0178. The analysis of individual characteristics generally supports this assessment. The kurtosis of all measures relative to the SDR is below the normal value of three. This may be due to the composite nature of the SDR used as a standard. The kurtosis of the UK/US is normal (2.9614), while for the CNDN/UK it is slightly below normal (2.5354) and for the CNDN/US it is 1.9788 indicating small tails in the distribution. The low kurtosis could be the result of a managed float of the Canadian dollar relative to the U.S. dollar.

The analysis of skewness is complex given the distributions of the data. The statistic is below one and visual examination supports a moderate assessment. None of the distributions are symmetrical about their medians. Only the CNDN/UK logarithmic transformation generates a normal distribution.

Since the data are not normally distributed, the squared ranks test of the variances will be more reliable than the F tests. The null hypothesis of no difference in the variances of the distributions cannot be rejected for the UK/SDR relative to the US/SDR under the F test or the squared ranks test at a 5% level of significance. (These tests are described in detail in Chapter 5). The difference between the probability for the two tests demonstrates the greater power of the nonparametric test. For all other comparisons the null hypothesis is rejected. The results of the variance tests of currencies relative to the SDR are presented in Table 5 and of the foreign exchange rates in Table 6.

Table 5

Results of Tests of SDR Variances

	Cndn/U.S.		Cndn/U.K.		U.K./U.S.	
	F Test	Squared Ranks	F Test	Squared Ranks	F Test	Squared Ranks
F Value	3.11		2.78		1.12	
T Value		8.06		7.25		1.63
Probability	.0000	.0000	.0000	.0000	.4262	.0516

Table 6

Results of Tests of Variances of Foreign Exchange Rates

Squared Ranks Test	T Value	Probability
CNDN/US to CNDN/UK	9.56	.0000
CNDN/US to UK/US	3.31	.0000
CNDN/UK to UK/US	10.59	.0000

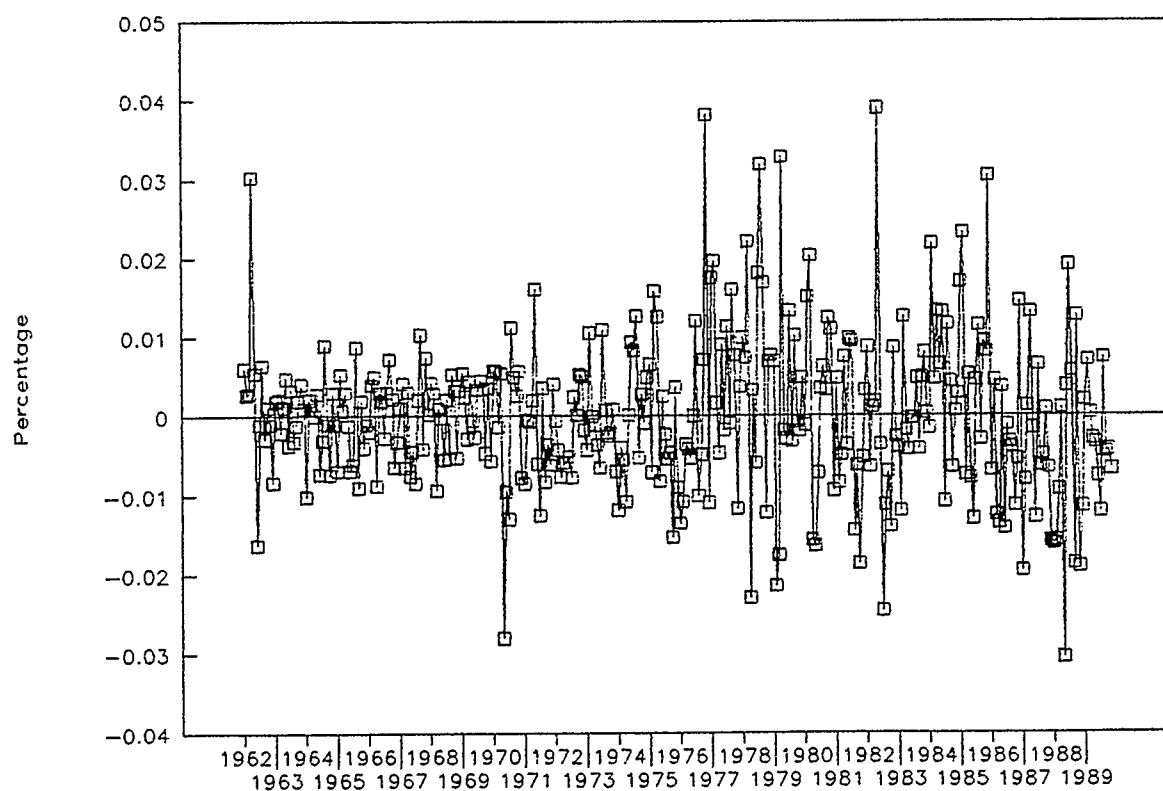
In Table 4, the variances of all quotations containing the Canadian dollar (CNDN/SDR = .030548; CNDN/UK = .016463; CNDN/US = .091185) are higher than those in which it is not a component (US/SDR = .009824; UK/SDR = .010987; UK/US = .01271). This evidence of variability, combined with the tests of variances, supports the assertion that the Canadian dollar is more volatile than the U.S. dollar or the U.K. pound.

Pricing of the Canadian Dollar

The deviations from PPP and the international Fisher effect are graphed in Figures 5 and 6, respectively. The pattern of differences for PPP suggests that movement is generally random with two large corrections during the fixed exchange rate era.

Figure 5

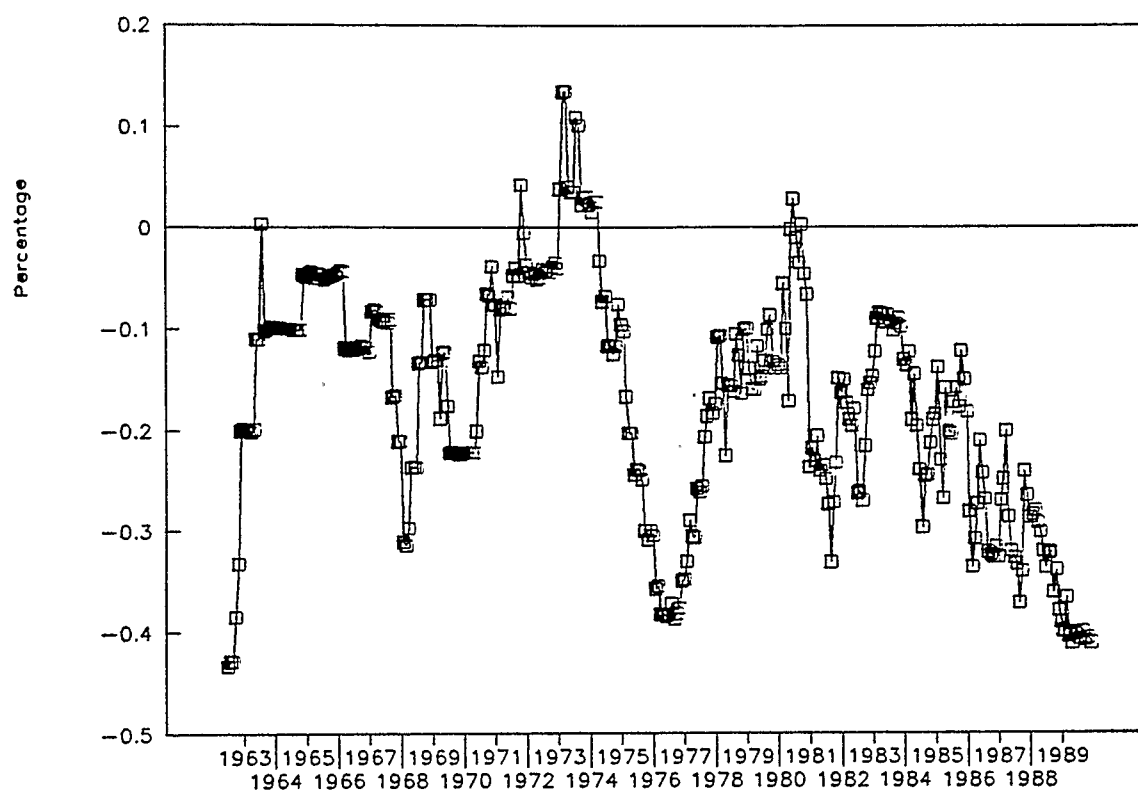
Deviations From Purchasing Power
Parity U.S./Canada



The pattern of differences for the international Fisher effect suggests either that the results are biased by the selection of the interest rate, or that there were restrictions on the free flow of monetary funds during the period.

Figure 6

Deviations from International Fisher
Effect U.S./Canada



The results of the univariate analysis of the percentage deviations from parity calculated for both PPP and the international Fisher effect are presented in Table 7. These statistics are explained in Chapter 5 and briefly summarized on page 78.

Table 7

Univariate Analysis of Residuals

	Purchasing Power Parity		International Fisher Effect	
	1962-1989	1973-1989	1962-1989	1973-1989
Significance level for $H_0: \mu=0$.9343	.6721	.0001	.0001
Probability of Normality (Shapiro-Wilks)	.0003	.1482	.0001	.0001
Kurtosis	5.0405	3.9306	2.5192	2.6435
Skewness	Moderate	Moderate	Moderate	Moderate
Symmetry (Sign rank test)	.5753	.9280	.0001	.0001

For the PPP residuals, the mean would be expected to equal zero in 93 % of samples of the total period, and in 67 % of samples during the floating rate era. The distributions differ in the two test periods. The probability of normality is .1482 in the floating rate period and only .0003 in the total period. The distribution is highly symmetrical during the floating rate era (.9280) and the Q statistic for autocorrelation is not significant.

The expectation was that if PPP were to hold, the mean would be zero and the distributions would be normal. The evidence indicates that the PPP relationship holds fairly well in both periods. There is a high probability the mean

is zero and for the floating rate era the distribution is normal.

With respect to the international Fisher effect, the mean of the residuals will equal zero in only one of 10,000 samples for both periods. This finding is consistent with the visual presentation and the concern of bias. An analysis of the distribution suggests that the problem is more comprehensive than bias in the interest rates. The probability of symmetry is .0001 in the floating rate era compared to .9280 for PPP in the same period. Kurtosis is slightly below normal, there is moderate skewness and the Q Statistic of autocorrelation is significant for lags of one to five periods.¹²² The evidence indicates that the international Fisher effect does not hold in either period. Possible explanations for this state are the monetary policies in the two countries, the relative size of their money markets, and investor preferences.

¹²² The Q statistic of autocorrelation for the first period is .936. Given its proximity to one, first differences were calculated and a linear regression performed. The results were not significant.

Summary

Primary Hypothesis

The analysis of the primary hypothesis is summarized in Table 8.

Table 8

Primary Hypothesis Results

<u>Primary hypothesis</u> The change in accounting practice is triggered by economic events which have a negative impact on net income or financial ratios.	
United States	supported by the analysis
United Kingdom	supported by the analysis
Canada	not supported by the analysis

The analysis supports the hypothesis for the U.S. and the U.K. but not for Canada. Confirmation suggests that there was significant political input to the standard-setting process during the period of interest.

The results for the U.K. are an anomaly. National standard-setting processes are argued to be dependent on culture, with the process in the U.S. described as a public/private approach, while in the U.K. and Canada the process is described as a private/professional approach. Two possible explanations are that accounting for foreign operations is more political than most issues, or that the subjective analysis was erroneous. For Canada, accounting practice for foreign operations was based on professional judgment. Hence, there was no reason for

accounting standards to be political.

For all three countries the current accounting practice is a situational approach (consistent with the practice recommended by the IASC) under which the impact on net income and financial ratios differs with the classification of the entity. Under such a standard the positive impact of a change in practice to one classification would be offset by a negative impact to the other classification. It would appear that politicization of accounting standards is less significant when judgment is involved in applying the existing standard.

An interesting topic for further study would be the number of entities in each classification. If this were to deviate substantially from a 50/50 split, a greater number of entities would be beneficially or adversely affected by a change in accounting practice. Other things being equal, accounting standards would be expected to change when change would be beneficial to the larger classification.

Following the issuance of IAS 21, none of the countries changed their accounting standards despite realignment of their currencies. This observation suggests that one benefit of international accounting standards is that practices in member countries cannot be politically influenced to the same extent as previously. Given the situational approach in accounting for foreign operations, this idea cannot be tested. However, it could be tested for other topics on which the IASC has issued restrictive standards.

Corollary

The evidence of the tests of residuals indicate that the PPP relationship holds. The implication of this is that translation of non-monetary items at the historic rate is appropriate. The evidence of the tests of residuals of the international Fisher effect demonstrates that the relationship does not hold and that there is autocorrelation of the errors. The implication of these findings is that translation of monetary items and the treatment of the related exchange gains and losses need not mirror the theory.

The tests of the Corollary are summarized in Table 9. The tests of volatility support the assertion that the Canadian dollar is more volatile than the U.S. dollar or the U.K. pound. The tests of the economic theories indicate that PPP holds while the international Fisher effect does not. Since the deferral practice applies to gains and losses arising on monetary items, the evidence regarding the greater volatility of the Canadian dollar and the evidence that the PPP relationship holds but the international Fisher effect does not hold, support the Canadian practice.

Table 9
Corollary Results

Is the Canadian practice of deferral and amortization supported by the economic circumstances?	
The Canadian dollar is more volatile than the U.S. dollar.	Yes - Supported
The Canadian dollar is more volatile than the U.K. pound.	Yes - Supported
The Canadian dollar is correctly priced relative to the U.S. dollar.	
PPP residuals	Yes - Supports treatment of Non-Monetary Items
Fisher parity residuals	No - Supports treatment of Monetary Items

CHAPTER 7

Conclusions

This study provides a comprehensive analysis of accounting practices for foreign operations. At the theoretical level, the six methods which have achieved general acceptance in one or more of the countries of interest at various times were compared to the economic theories of PPP and the international Fisher effect and the resulting financial statement numbers were examined for economic meaning. In examining the economic theories it was demonstrated that the assumptions of the PPP theory and the validity of the international Fisher effect make them imperfect standards to use in developing accounting practice. Furthermore, the application of the theories is constrained by the assumptions of the historic cost accounting model.

Accounting practices for foreign operations were examined in each of the United States, the United Kingdom and Canada for the period from 1937 to 1989. These countries were selected for their similar cultural, political and developmental characteristics. From this analysis an explanatory theory was deduced: Change in accounting practice for foreign operations was triggered by change in the economic circumstances, which, given extant accounting practice caused a negative impact on reported net income or financial ratios. The corollary to this theory is that differences in cross-sectional accounting practice will exist only in different economic circumstances.

For the U.S., the presentation in Figure 2 on page 62 of accounting

standards superimposed on a time line of foreign exchange rates clearly shows a relationship between movements in foreign exchange rates and change in accounting practice. For the U.K., a relationship is also apparent in the presentation in Figure 3 on page 66 but for Canada, as depicted in Figure 4 on page 69, no relationship is observed. The degree of correspondence is inversely related to the need to exercise of professional judgment under the accounting standard. The analysis supports the primary hypothesis for the U.S. and the U.K. but not for Canada.

With regard to the corollary, there is evidence that the Canadian dollar is more volatile than the U.S. dollar and the U.K. pound. The PPP relationship holds in both the fixed and floating rate eras but the international Fisher effect does not. Since the exchange gains and losses subject to the deferral and amortization policy relate to monetary items, the evidence regarding volatility and the international Fisher effect supports the Canadian practice.

The issuance of IAS 21 on Accounting for Foreign Operations has introduced a new era. The hypothesis developed in this thesis applies to an era of only national accounting standards; it may not be applicable to an era of both national and international accounting standards.

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