THE UNIVERSITY OF HULL

MANAGEMENT OF ANNUAL REPORTED INCOME IN THE U.K.:

THE SEARCH FOR INDICATORS

being a Thesis submitted for the Degree of

Doctor of Philosophy

in the University of Hull

by

Salem Ismail El Hossade

BA University of Garyounis, Libya, 1974
MA Ball State University, U.S.A., 1978

August 1987

SUMMARY

Summary of Thesis submitted for Ph.D. degree

by Salem Ismail EL-HOSSADE

on

Management of Annual Reported Income in the U.K.:

The Search for Indicators

The main purpose of this research was to ascertain whether users of reported income are receiving measurement of past activity that is free from management bias.

This research consisted of two major parts, namely the theoretical and the empirical.

In the theoretical part, attempts were made: (i) to determine the roots of the theoretical propositions for empirical investigation and (ii) to examine, theoretically, the assertion that managers are able to manipulate reported results through acceptable accounting means.

In this part, it was argued that managers of listed firms are more likely to smooth reported income and bias their accounting policies towards income-increasing methods, while managers of unlisted firms are more likely to bias their accounting policies towards income-decreasing methods. Also it was argued that managers are able to manipulate reported income through acceptable accounting means.

In the empirical part, an attempt was made to determine the relative adherence of listed and unlisted firms to one of three reporting strategies, namely smoothing of, increase of and decrease of reported income. In this regard, two principal

hypotheses were developed and tested.

The first hypothesis stated that the proportion of listed firms with relatively smooth income streams is significantly higher than that of unlisted firms. The empirical findings are consistent with this hypothesis for all objects of smoothing considered in this research. Furthermore, the results suggest that ordinary income is the most common object of smoothing among listed firms.

The second hypothesis was that there is a significant difference in the means of the profitability rate between the two sets of firms.

The empirical findings are consistent with this hypothesis. Also, the magnitude and the direction of the differences in the profitability rates indicate that listed firms report higher profitability rates than unlisted firms and the observations of the profitability rates among listed firms are more concentrated around their means than those of unlisted firms.

Based on the findings of this research, it is justifiable to conclude that users of reported income are receiving measurement of past activity that is not free from management bias.

In the Name of God, Most Gracious, Most Merciful

Dedicated to my Father and Mother

ACKNOWLEDGEMENTS

I wish to express my sincere gratitude to Mr. David S. Simon for his supervision, invaluable guidance and above all his friendship throughout the course of this study.

I would also like to extend my gratitude to Professor Richard J. Briston in whose department this work was carried out.

I am also indebted to all those people whose contributions have enabled me to complete this thesis, in particular the staff of the Computer Centre at the University of Hull and to Mrs. Jill L. Sparkes for her skillful typing.

I am thankful to the people of my country, Libya, and to the Faculty of Economics and Commerce of the University of Garyounis at Benghazi for the financial support during the course of this research.

Finally, I wish to express my deepest gratitude and love to my wife Gamila, my daughter Sara and my sons Sami and Mohamed for their sacrifices and patience.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

The main purpose of this research was to ascertain whether users of reported income are receiving measurement of past activity that is free from management bias.

This research consisted of two major parts, namely the theoretical and the empirical.

In the theoretical part, attempts were made: (i) to determine the roots of the theoretical propositions for empirical investigation and (ii) to examine, theoretically, the assertion that managers are able to manipulate reported results through acceptable accounting means.

In this part, it was argued that managers of listed firms are more likely to smooth reported income and bias their accounting policies towards income-increasing methods, while managers of unlisted firms are more likely to bias their accounting policies towards income-decreasing methods. Also it was argued that managers are able to manipulate reported income through acceptable accounting means.

In the empirical part, an attempt was made to determine the relative adherence of listed and unlisted firms to one of three reporting strategies, namely smoothing of, increase of and decrease of reported income. In this regard, two principal hypotheses were developed and tested.

The first hypothesis stated that the proportion of listed firms with relatively smooth income streams is significantly higher than that of unlisted firms. The empirical findings are consistent with this hypothesis for all objects of smoothing considered in this research. Furthermore, the results suggest that ordinary income is the most common object of smoothing among listed firms.

The second hypothesis was that there is a significant difference in the means of the profitability rate between the two sets of firms.

The empirical findings are consistent with this hypothesis. Also, the magnitude and the direction of the differences in the profitability rates indicate that listed firms report higher profitability rates than unlisted firms and the observations of the profitability rates among listed firms are more concentrated around their means than those of unlisted firms.

Based on the findings of this research, it is justifiable to conclude that users of reported income are receiving measurement of past activity that is not free from management bias.

Chapter 1

INTRODUCTION

In modern accounting, the income determination process involves two steps:

1. Identification of the revenues properly attributable to the period reported upon, and
2. The matching of the corresponding costs with the revenues of that period.

However, these two steps are governed by generally accepted accounting principles which are far from uniform, and much leeway exists in their selection, interpretation and application. In fact R. Chambers estimated that it is possible to measure the income of a given firm by using any one from as many as 30,000,000 figures all determined according to acceptable accounting principles.[1] Of course, there have been changes, since then, towards narrowing acceptable accounting principles, but the number of possible combinations still remaining is large. This diversity of accounting alternatives has produced the concept of accounting risk upon which L. Bernstein has had the following to say:

> "This risk is inherent in the existence of alternative accounting principles, the loose criteria which define

---

1. Chambers, R., "A Matter of Principle", The Accounting Review, 41, (July 1966), p.443-57

> them, and the consequent loose standards of practice. This lack of assurance about the principles used or the method and rigor of their application may lead to a wide variety of results and hence to a great degree of uncertainty."[1]

The existence of such a type of risk had led some observers to suggest that management may seek to and succeed in distorting reported income.[2] The idea behind such distortions is that management may present their results as they want them to be, rather than portraying economic results in the fairest or least biased fashion. Thus the environmental problem, to which this study is related, is the income distortion that may be occurring if management set out to and succeed in managing reported income. The presence of this potential problem means that users of reported results may be misinformed, and hence the conclusion follows that firms' reports may contain information of dubious quality. Such conclusions could have at least two related consequences:

---

1. Bernstein, L., Financial Statement Analysis Theory Application and Interpretation, R. Irwin, Inc. 1974, p.33.

2. For example see:

   - Gordon, M., "Postulates, Principles and Research in Accounting", The Accounting Review, April 1964, p.251-63.

   - Schiff, M., "Accounting Tactics and the Theory of the Firm", Journal of Accounting Research, vol. 4, No.1, Spring 1966.

   - Smith, E., "The Effect of the Separation of Ownership from Control on Accounting Decisions", The Accounting Review, Oct. 1976.

   - Dhaliwal, D., Salamon, G., Smith, E., "The Effect of Owner Versus Management Control on the Choice of Accounting Methods", Journal of Accounting and Economics, 4, 1982.

1. The immediate usefulness of such reports will be questionable, and
2. Lack of information is widely regarded as a source of market imperfection and hence such misinformation will hinder the mobilisation of resources and their allocation to socially productive uses. In this regard, we can argue that investors will not be able to compare alternative investments and hence they cannot maximise their expected wealth.

Purpose of the Study

The central purpose of this study is to ascertain whether users of reported income are receiving measurement of past activity that is free from management's bias. Accordingly, an answer is sought to the following main question of this study:

Do managers act to use accounting alternatives to serve non-accounting ends?

In this regard, literature suggests that there are at least three possible non-accounting ends which might be sought as follows:

1. Managers may seek to increase early reported income at the expense of the future reported income.
2. Managers may seek to decrease early reported income to benefit the future reported income.
3. Managers may seek to smooth reported income so as to report a stream of income with a smaller variation from a

predetermined trend than would otherwise have appeared.

The aim of this study is, therefore, to investigate whether the above ends are in fact sought and whether they appear actually to be obtained. Consequently, the following related questions are also addressed in this study:

1. Why, theoretically, might managers seek to "manage" reported income in the three manners outlined above?
2. Can, theoretically, such behaviour be expected to be successful?
3. Is there empirical evidence to suggest that such behaviour occurs?

Significance of the Study

Economic theory emphasises the important role of information when searching for the most efficient use of resources by simply assuming that perfect knowledge of the market is available. In this regard, S. Ozga has suggested the possibility that:

> "... knowledge may not be perfect has never been seriously faced up to".[1]

On the other hand, lack of information has been widely regarded as a source of market imperfection. For example, Leftwich has stated that:

---

1. Ozga, S., "Imperfect markets through lack of knowledge", Quarterly Journal of Economics, February 1960, p.29.

> "Investors make mistakes when they lack knowledge of alternative investment opportunities... Lack of knowledge also may prevent potential resources from being channelled into resource supply categories in which they will contribute most to net national product".[1]

The important role of accounting information for investment analysis in the U.K. has been re-emphasised in a recent study by J. Arnold and P. Moizer (1984). They concluded that:

> "As might be expected, the most influential sources are perceived to be the company's annual profit and loss account and balance sheet and its interim results."[2]

The study is about the quality of accounting information and hence, if it can be shown empirically that managers manipulate reported results, then it can be suggested that market imperfection may exist. To support the above assertion, we may argue that, just as the lack of information has been widely regarded as a source of market imperfection, so too are the limitations in the quality of available information where decision-makers may not only be informed or uninformed, they may unknowingly be misinformed.

In the past three decades, management manipulation of reported results has been the subject of a growing number of

---

1. Leftwich, R., The Price System and Resource Allocation, Holt, Rinehart and Winston, New York, 1966, p.300.

2. Arnold, J. and Moizer, P., "A Survey of the Methods used by U.K. Investment Analysts to Appraise Investment in Ordinary Shares", Accounting and Business Research, Summer 1984, p.202.

accounting and non-accounting studies, especially in the U.S.A. The early two contributions in this area were the works of S. Hepworth (1953) and M. Gordon (1964). Hepworth argues that owners and creditors of an enterprise will feel more confident towards a corporate management which is able to report stable earnings than towards those reporting unstable ones.[1] Although not advocating income manipulation, Gordon stated that:

> "... a management should, within the limits of its power, i.e. the latitude allowed by accounting rules, (1) smooth reported income, and (2) smooth the rate of growth in income."[2]

A number of empirical studies have followed, for example, Copeland and Licastro (1968)[3], Cushing (1969)[4], Simpson (1969)[5], White (1970)[6], Morris and Breakwell (1975)[7], Imhoff

---

1. Hepworth, S., "Smoothing Periodic Income", The Accounting Review, January 1953, p.33.

2. Gordon, M., op.cit. p.262.

3. Copeland, R. and Licastro, R., "A Note on Income Smoothing", The Accounting Review, July 1968.

4. Cushing, B., "An Empirical Study of Changes in Accounting Policy", Journal of Accounting Research, Autumn 1969.

5. Simpson, R., "An Empirical Study of Possible Income Manipulation", The Accounting Review, October 1969.

6. White, G., "Discretionary Accounting Decisions and Income Normalisation", Journal of Accounting Research, Autumn 1970.

7. Morris, R. and Breakwell, H., "Manipulation of Earnings Figures in the United Kingdom", Accounting and Business Research, Summer 1975.

(1977)[1], Eckel (1981)[2], Penno and Simon (1986)[3]. These and other related studies attempted to investigate whether or not managers intentionally manipulate reported results. Considerable numbers of such studies seem to indicate that managers behave "as if" they are manipulating reported income. Other studies such as Gonedes (1972)[4], Beidleman (1973)[5], Lambert (1984)[6] aimed at advocating income manipulation by considering income smoothing as a rational behaviour.

However, on the empirical side, it is surprising that little has been done in this area in the U.K. Morris and Breakwell (1975) provide a summary of U.K. studies and an empirical study of income manipulation in the U.K. Their results indicate that:

> "There is no evidence at all of widespread doctoring of earnings figures, though this does not rule out the possibility that a very small minority may have

---

1. Imhoff, E., "Income Smoothing - A Case for Doubt", Accounting Journal, Spring 1977.

2. Eckel, N., "The Income Smoothing Hypothesis Revisited", ABACUS, vol. 17, No.1, 1981.

3. Penno, M. and Simon, D., "Accounting Choices: Public Versus Private Firms", Journal of Business Finance and Accounting, 13(4), Winter 1986, p.561-569.

4. Gonedes, N., "Income Smoothing Behaviour Under Selected Stochastic Processes", The Journal of Business, Oct. 1972.

5. Beidleman, C., "Income Smoothing: The Role of Management", The Accounting Review, October 1973.

6. Lambert, R., "Income Smoothing as Rational Equilibrium Behaviour", The Accounting Review, October 1984.

> resorted to such tactics to boost their results when profits were falling."[1]

A similar result was reported by Dev and Webb (1972) when they examined the accuracy of prospectus forecasts.[2] But the methodologies of these two research papers are totally different from the methodology proposed in the present study and hence different conclusions may be reached. Furthermore, Ashton states that:

> "On the empirical side there is a dearth of U.K. studies on the effect of changes in accounting policies on the stock market prices of those firms concerned and nonknown to this author on substantiating, or otherwise, the 'income smoothing hypothesis'. Future research should therefore cover both the theoretical and empirical issues."[3]

This has been a brief introduction to the empirical literature on income manipulation and a more detailed discussion of this literature will be conducted in the next two chapters of the present study. However, there are two conclusions that can be drawn at this stage:

1. Because of inconclusive findings, there is not yet a general agreement about whether managers manipulate reported results or not and hence further research is required.

---

1. Morris, R. and Breakwell, H., op.cit. p.183.

2. Dev, S. and Webb, M., "The Accuracy of Company Profit Forecasts", Journal of Business Finance, 1972.

3. Ashton, R., U.K. Financial Accounting Standards A Descriptive and Analytical Approach, Woodhead-Faulkner Ltd., Cambridge, 1983, p.139.

2. On the empirical side this phenomenon has not yet been adequately studied in the U.K. situation where differences in environmental factors may play an important role in the existence of income manipulation.

Consequently, the uniqueness of the present study may reside in that:

1. The three potential behaviours have not yet been comprehensively investigated in the U.K. environment;
2. Never have all three behaviours been studied simultaneously: this procedure may provide insight into how widely, regardless of forms, management of reported earnings may be practiced;
3. This research relates theories of the firm and managerial finance to accounting theory and practice and hence, to this extent, it has a wider scope than previous research.

A Broad Statement of the Methodology

To investigate the possibility and modes of management of reported income by firms, three general approaches were suggested in the literature as follows:[1]

i) Through direct contact with management;

ii) Through contacting third parties such as public accountants;

or

---

1. Copeland, R., "Income Smoothing", Empirical Research in Accounting: Selected Studies, The Institute of Professional Accounting, Chicago and London, 1968, p.105.

iii) Through examining ex-post data.

Theoretically, it would appear that the first two approaches should provide more insights than the third approach, and hence they could be more appropriate. Unfortunately, the first two approaches do not seem to be feasible alternatives basically because management would be reluctant to reveal the needed information, while public accountants might consider such information confidential. As a result, most available studies in this area have applied different methods within the third approach. In this respect the present study does not differ from previous research.

Since many of the economists concerned with manager-controlled firms believe that changes in behaviour are expected merely by applying the self-interest axiom of the neo-classical theory of the firm to the new type of firms in which ownership is separated from operational control, alternative theories of the firm are of interest.[1] Such theories predict a difference between the behaviour of managers in manager-controlled (MC) firms and those in owner-controlled (OC) firms. Based on such a difference, several studies have used OC firms as a control group in their attempts to investigate the possibility of income

---

1. For example see:

   (1) Monsen, R. and Downs, A., "A Theory of Large Managerial Firms", The Journal of Political Economy, vol. LXXIII, June 1965, No.3.

   (2) Berle, A. and Means, G., The Modern Corporation and Private Property, Harcourt, Brace and World Inc., New York, 1968.

manipulation within the domain of publicly traded firms on the New York Stock Market.[1]

In the present study an attempt will be made to extend this area of research to listed and unlisted firms, knowing that all limited companies in the U.K. are subject to the Companies Acts with regard to financial reporting requirements. By doing so, management might have additional incentives to manage reported income beside that resulted from the extent of ownership control. For instance listed firms are more likely to be concerned about the impact of reported income numbers on their share prices, while unlisted firms are more likely to be concerned about the impact of reported income numbers on income tax. In the next chapter, it will be argued that if managers choose to manage reported income then:

1. listed firms are more likely to smooth and bias their accounting policies towards income - increasing methods to post their share prices, and
2. unlisted firms are more likely to bias their accounting policies towards income - decreasing methods to reduce current tax charges.

---

1. For example see:

   (1) Smith, E., op.cit.

   (2) Kamin, J. and Ronen, J., "The Smoothing of Income Numbers: Some Empirical Evidence on Systematic Differences Among Management-Controlled and Owner-Controlled Firms", Accounting Organisations and Society, vol. 3, No.2, 1978.

   (3) Salamon, G. and Smith, E., "Corporate Control and Managerial Misrepresentation of Firm Performance", The Bell Journal of Economics, Spring 1979.

Here if the empirical evidence of this research supports the above mentioned propositions, then it might be expected that the dichotomy of listed and unlisted firms could be a more powerful influence with respect to managing reported income than the division between OC and MC firms.

The Main Hypothesis:

The main hypothesis of the present study is that there are major differences between listed and unlisted firms regarding the criteria of choice among accounting alternatives, and hence differences should exist between certain properties of their reported results. If this hypothesis is accepted or proved to be true, the differences in the criteria of choice among accounting alternatives will lead to differences in the accounting rules of measurement which will be reflected in the reported results. Thus if managers choose:

1. to increase early reported income at the expense of the future reported income; or
2. to decrease early reported income to benefit the future reported income; or
3. to smooth reported income,

then these strategies will be reflected in their reported results. Therefore, it is feasible to investigate the main hypothesis of the present study by analysing the reported results of two comparable sets of firms whereby one represents listed firms, while the other represents unlisted firms. The aim of

such an analysis is empirically to examine the relative adherence of one set compared with the other to one or more of the above reporting strategies. This will be the broad approach with respect to the empirical part of this study. A detailed methodology of this part will be described in the fourth chapter which will include the data domain, the sampling process, the operational hypotheses, and the statistical methods.

However, the empirical part approached so far requires a theoretical background which will be discussed in the second and third chapters. The central objective of the second chapter is to identify the roots of the theoretical propositions that will be empirically investigated in the present study. Accordingly, the research domain is the literature on theories of the firm, relevant empirical studies and managerial finance. With regard to the third chapter, the main purpose is to assess, theoretically, the management's ability to manipulate reported income through acceptable accounting means. Accordingly, the research domain is the literature on the development of accounting rules of measurement and the state of accounting practice.

Plan of the Study

The development of materials for the present study is organised in the subsequent chapters as follows:

Chapter II:

The purpose of this chapter is to identify the roots of

the theoretical propositions that will be investigated in this thesis. Consequently, this chapter will include the following:

1. A brief review of theories of the firm.
2. Implications of the alternative theories of the firm with regard to:
   - Income smoothing strategy, and
   - increase and decrease strategies.
3. Further analysis of management incentives:
   - source of finance and management incentives.

Chapter III:

The purpose of this chapter is to assess, theoretically, the management's ability to manipulate reported income through acceptable accounting means. Consequently, this chapter will include the following:

1. The development of accounting rules of measurement, and
2. The state of accounting practice.

Chapter IV:

The purpose of this chapter is to describe the methodology of the empirical part of the present study. Consequently, this chapter will include the following:

1. The data domain;
2. The sampling process; and
3. The operational hypotheses and statistical methods.

Chapter V and VI:

These chapters will include the following:

- presentation of the results and
- analysis of the results.

The fifth chapter will be devoted to income smoothing strategy, while the sixth chapter will be devoted to increase and decrease strategies.

Chapter VII:

This chapter will offer an overall summary and a set of conclusions.

Terminology and Definitions

Terminology and Definitions

Accounting End... The measurement and presentation of results which portray economic events in the fairest or least biased fashion.

Income Objects (classifications):

1 - Adjusted Trading Profit... It is defined as gross profit after charging distribution, general and administrative expenses including depreciation, directors remuneration and audit fees. It should be noted that this income figure does not include exceptional items, other ordinary income, finance and tax charges. It is referred to as income I.

2 - Ordinary Income before Finance and Tax Charges... In the present study, the expression "Ordinary Income" is defined as profit on ordinary activities after taxes. This income figure is the result of ordinary income plus finance and tax charges and it is referred to as income I_1.

3 - Ordinary Income Before taxes... It is defined as income I_1 less finance charges and it is referred to as income I_2.

4 - Ordinary Income... It is defined as profit on ordinary activities after taxes. It is referred to as Income I_3.

5 - Net Income... It is defined as ordinary income after taking into account extraordinary items net of their taxes. It is referred to as Income I_4.

Management of Reported Results... The measurement and presentation of the results so as to conform as nearly as possible to management requirements rather than their portraying

economic events in the fairest or least biased fashion.

Manipulation of Reported Results... The ability to increase or decrease reported results at will within the limits of management power, i.e. the latitude allowed by accounting principles.

Manipulation Strategies:

1 - Income Smoothing... It is a strategy to report an income stream with a relatively lower degree of variation from a predetermined trend than would otherwise have appeared.
2 - Decrease of Early Reported Income... It is a strategy to report a lower measurement of current reported income in order to benefit the future reported income.
3 - Increase of Early Reported Income... It is a strategy to report a higher measurement of current income at the expense of the future income.

Profitability Rate... It is defined as reported income for a given year as a proportion of turnover for the same year.

Profitability Rates:

1 - Profitability Rate of Adjusted Trading Profit... It is defined as adjusted trading profit as a proportion of turnover and it is referred to as PRI.
2 - Profitability Rate of Ordinary Income Before Finance and Tax Charges... It is defined as ordinary income before finance and tax charges as a proportion of turnover and it is referred to as PRI_1.

3 - Profitability Rate of Ordinary Income Before Tax Charges... It is defined as ordinary income before taxes as a proportion of turnover and it is referred to as PRI_2.

4 - Profitability Rate of Ordinary Income... It is defined as ordinary income as a proportion of turnover and it is referred to as PRI_3.

5 - Profitability Rate of Net Income... It is defined as net income as a proportion of turnover and it is referred to as PRI_4.

Types of Control and Status:

1 - Manager-Controlled Firms... Those public firms with greater dilution of ownership with no evidence of one party owning sufficient voting power to exercise control.

2 - Owner-Controlled Firms... Those public firms which are more concentrated in terms of ownership with evidence of one party owning sufficient voting power to exercise control.

3 - Listed Firms... Those firms which have their shares listed on the London Stock Exchange.

4 - Unlisted Firms... Those firms which are either privately owned or their equity capital is not officially listed on the London Stock Exchange.

Chapter II

BACKGROUND AND PRIOR RESEARCH

The main purpose of this chapter is to identify the roots of the theoretical propositions that will be investigated in the present study. Accordingly, this chapter consists of three major parts.

In the first part, the literature on theories of the firm is reviewed because several empirical studies in this area of research was based on the assumption that alternative theories of the firm predict a difference between the behaviour of managers in firms with diffuse ownership and the behaviour of those in other firms.

In the second part, the implications of alternative theories of the firm are presented, as are previous studies which provide interpretations to those implications particularly related to accounting reports.

In the third part, further analysis of management incentives to manage reported income is conducted. In this analysis, the recent developments in the theory of the firm and certain properties of listed and unlisted firms are considered. Finally the propositions for empirical investigation are presented.

Theories of the Firm

While the focus of this study is on the implications of alternative theories of the firm, it may be appropriate to start

with a brief review of several theories of the firm.

This review begins with the neoclassical theory of the firm which is a logical beginning because modern theories of the firm have been advanced as modifications, revisions or substitutes to the neoclassical theory and it includes several alternative theories which have distinctive motivational foundations. In this review, an answer is sought to a number of questions, such as:

1. What is: (i) the main objective of the firm;
   (ii) the profit concept; and
   (iii) the firm's concept?
2. To what extent do managers have discretion under the corporate system?
3. What might be alternative objectives of the firm?
4. How does management achieve such objectives?

Neoclassical Theory of the Firm

The basic axiom of neoclassical theory is that firms maximise profits. Hence the theory assumes that the firm moves towards its objectives and selects those alternatives which will bring the firm nearer to profit maximisation. From this assumption, two concepts are of interest, namely the profit concept and the firm concept.

The Profit Concept: Economic profit may be defined as the excess of a firm's total revenue over its total costs where cost must be measured in terms of the alternative opportunities foregone by

the firm for all employed resources. This definition has been presented in the following mathematical form:

$$\pi = TR - TC$$

whereby (π) represents profits, (TR) is total revenue and (TC) is total cost.

To maximise profit, there are two necessary conditions:

1. The firm must operate with perfect knowledge: that is, the firm must know what TR and TC would be at all levels of activity to identify that level at which the excess of TR over TC is greatest; and
2. the firm seeks to maximise profit: that is, absolutely nothing that conflicts with profit maximisation yields any utility.

The second condition is of particular interest because it leads us to the firm's concept and its behaviour.

The Firm Concept: On the one hand, the theory considers the firm as a primitive concept, a device in an economically decentralised system for transforming input into output.[1] The firm is therefore a "black box" operated so as to meet the relevant marginal conditions with respect to inputs and outputs.[2] On the other hand, and to study the firm behaviour, the theory assumes

---

1. Crew, M., Theory of the Firm, Longman Group Limited, Essex, 1975, p.13.

2. Jensen, M. and Meckling, W., "Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure", Journal of Financial Economics, 3, 1976, p.306-307.

that a firm is the entrepreneur who is the owner of the firm. Also the theory assumes that the entrepreneur is rational in his movement towards the profit goal. On such rationality, McGuire has the following comment:

> "Rationality in the economic theory of the firm implicity assumes no action will be undertaken by the business enterprise that will move it away from its goal of profit maximisation."[1]

Meanwhile, the assumption of profit maximisation has allowed the theory to ignore the characteristics of firms - such as differences in size and internal organisation - because if all firms have such a single objective then all firms will reach their decisions on the same basis.

In summary, the fundamental motivation of the entrepreneur, according to this theory, is to extract maximum profit from his activities. The entrepreneur is the owner or ownersof the firm, and owners make all decisions concerning the firm. The environment is certain and the movement towards the objective of profit maximisation is rational. Differences in size and internal organisation are irrelevant and the only constraints are the technical limitations of production and distribution. The criterion of choice among alternatives is the profit maximisation.

However, the neoclassical theory of the firm has been heavily criticised by several economists. To serve the purpose

---

1. McGuire, J., Theories of Business Behaviour, Prentice-Hall, 1964, p.56.

of this study, the dissatisfaction with the neoclassical theory as a result of the separation of ownership from control is of special interest. Hence the focus of this section must be on such dissatisfaction.

The separation of ownership from control became an issue with the publication of the study by Adolf Berle and Gardiner Means. In their revised edition Berle and Means distinguished between three functions: that of having interests in an enterprise, that of having power over it, and that of acting with respect to it.[1] They argue that the owner position, under the corporate system, has been reduced to that of having a set of legal and factual interests in the enterprise, while managers are in the position of having legal and factual power over it.[2] With managers having such kind of power, Berle and Means questioned the assumption that managers would choose to operate the enterprise in the interests of owners.[3] Moreover, several modern theories of the firm have recognised the discretionary power of management and they suggest that managers may seek to maximise their own utility by simply applying the self interest axiom in the neoclassical theory to a new type of firm.

To this extent, the basic criticism of the neoclassical theory is that it cannot explain how the divergences of the

---

1. Berle, A. and Means, G., The Modern Corporation and Private Property, Harcourt, Brace & World Inc., New York, Revised Edition (1968), p.112.

2. ibid., p.112-113.

3. ibid., p.113.

conflicting interests of the members of the diffused ownership firm are brought into equilibrium in such a way as to maximise profit. In dealing with such dissatisfaction, economists have proposed several alternative theories. Basically, these theories postulate that the divorce of ownership and management allows discretion to the managers in goal setting.

The next section includes a brief review of some of these theories.

Alternative Theories of the Firm

In modern organisations, the role and power of management have contributed to the search for alternatives to the neoclassical theory of the firm. Several alternatives have been proposed in the literature and principally these alternatives suggest that firms are more complex organisations and hence they should not be considered as "black boxes" operating in the neoclassical mode. These theories conceive the firm as a "coalition" of several parties and the most important member of such "coalition" is top management because of its power in decision-making and access to information. Such theories may be grouped into:

(i) managerial theories of the firm, and

(ii) other alternative theories of the firm.

1. Managerial Theories of the Firm

Owing to the special importance of management in modern firms, several alternative theories are, not surprisingly, called managerial theories of the firm. The basic axiom of such

theories is that managers maximise their own utility, subject to a minimum profit constraint to satisfy the stockholders and for satisfactory operations of the firm. However, there is no consensus among the managerial theories as to how the maximisation of managements' utility will be attained. Consequently three theories of managerialism are presented in this study, namely Baumol's theory of "sales Revenue Maximisation", Marris's theory of "Managerial Capitalism", and Williamson's theory of "Managerial Discretion".

BAUMOL'S THEORY: Baumol's views originated from his own experience as a consultant to large firms where he found that managers are preoccupied with maximisation of sales rather than profits. As a result, he indicates that management will bend its efforts to the augmentation of sales revenues rather than to further increases in profits, provided that profits are high enough to keep stockholders satisfied and contribute adequately to the financing of company growth.[1] Later in his book, he modifies this hypothesis in two respects:[2]

1. He considers maximisation of rate of growth of sales as a better approximation of management goals than maximisation of current level of sales;
2. In the long run, he considers profit to act as an instrumental variable - a means whereby management works

---

1. Baumol, W., Business Behaviour, Value and Growth, Harcourt, Brace & World Inc., New York, Revised Edition, 1967, p.49.

2. ibid., p.96.

towards its goal - rather than a constraint imposed from the outside.

He argues that a higher profit level will reduce the magnitude of firms' current operations, while too low a profit level will prevent future growth and hence the optimal profit stream will be that intermediate stream consistent with the largest rate of growth of output over the firm's life.[1] For empirical support, Baumol draws upon the study by McGuire et al.[2] and he concludes that managers attempt to increase the firm size because:

> "Executive salaries appear to be far more closely correlated with the scale of operations of the firm than with its profitability."[3]

With regard to the source of financing future sales expansion, Baumol indicates that firms will retain a greater proportion of earnings than stockholders would prefer.[4] Also Baumol indicates that the rise of separation of ownership from control has resulted in a more conservative management and managers may consequently seek to bring the year's earnings into line to avoid giving over-optimistic expectations to the stockholders.[5]

---

1. ibid., p.97.

2. McGuire, J., Chiu, J. and Elbing, A., "Executive Incomes, Sales and Profits", American Economic Review, 52 (September 1962).

3. Baumol, W., op.cit., 46.

4. Baumol, W., op.cit., p.52.

5. ibid., p.102-103.

Marris's Theory: Marris develops a theory of "managerial capitalism". His theory relies on two basic propositions.

1. The existence of a degree of monopoly power in the product market and hence the possibility that firms may have viable alternative objectives other than adopting profit maximisation, and

2. The existence of a lack of strict stockholders control in the capital market and hence management has considerable freedom of action.

Then he argues that management derives utility from size and growth because of the power, salary, status and security that come with them. In Marris's model, the firm's goal is the maximisation of the rate of growth in size, subject to a constraint imposed by the security motive.[1] Therefore, the managerial utility has two dimensions, namely growth and security. The former represents the increase in total assets and acts as an indicator of the several satisfactions with scale, while the latter represents the market valuation and the more positive utilities connected with market quotation.[2]

According to Marris, the manager finances such growth of total assets primarily out of retained earnings and the manager will increase retentions until he runs up against the minimum valuation constraint. But, increasing the rate of growth

---

1. Marris, R., The Economic Theory of "Managerial" Capitalism, MacMillan and Company Limited, London, Revised Edition, 1967, p.47.

2. ibid, p.107.

has two effects with opposite results on the share prices - the lower current dividend decreases the value of the shares, while the higher growth rate increases the value of the shares and these two effects need not exactly balance. In fact Marris indicates that:

> "... there are important possibilities for trading off between growth rate and variables on other dimensions of managerial utility. Growth may be traded for security and a similar though not identical effect arises if direct utility is obtained from the stock market quotation as such."[1]

Williamson's Theory: The basic rationale of Williamson's theory is perhaps more graphically summed up in his own words:

> "... in the absence of rigorous competition in the product market and where the separation of ownership from control is substantial, there is no compelling reason to assume that the firm is operated so as to maximise profit. On the contrary, such behaviour would appear to require an unusual variety of rationality - and one not widely found in human affairs - namely a complete detachment of individual interests from occupational decision makers."[2]

Accordingly, Williamson believes that managers will behave in a fashion that reflects their own interests. In his model, the manager seeks to maximise his utility function, subject to a minimum profit constraint and this minimum profit is that amount required to keep stockholders satisfied. According to Williamson, the manager's utility function includes:

---

1. ibid., p.107.

2. Williamson, O., The Economics of Discretionary Behaviour: Managerial Objectives in a Theory of the Firm, Markham Publishing Company, Chicago, 1967, p.55.

i) The size and salary of his staff;

ii) An emolument term "management slack" which refers to that portion of management salaries and perquisites which, if removed, would not cause the manager to seek other employment; and

iii) Discretionary profits which refers to that amount by which earnings exceed the minimum profit constraint.[1]

In Williamson's static analysis, salary is linked to the size of staff where an expanded staff is the path to promotion and larger salary.[2] But in a dynamic sense, staff size is linked to size related variables which will increase with firm's expansion. Also Williamson argues that the managers derive no satisfaction from dividends per se, but the manager retains earnings as a source of discretion.[3] Hence, the manager will turn over to the stockholders just the minimum level of dividends necessary to satisfy them. For reasons of stockholder relations, Williamson hypothesises that the managers exercise their control over the information released regarding firm performance.[4]

---

1. ibid., p.34-35.

2. ibid., p.34.

3. ibid., p.135.

4. Williamson, O., "A Dynamic Stochastic Theory of Managerial Behaviour", in A. Phillips and O. Williamson, eds., Prices: Issues in Theory, Practice and Public Policy, Philadelphia: University of Pennsylvania Press, 1967, p.11-13, [p.13].

2. Other Alternative Theories of the Firm

There have been two other approaches to develop a theory of the firm:

1. the behaviouralist approach, and
2. the agency approach.

Generally, the behaviouralist approach has two bases. The first basis is that instead of hypothesising about how rational decision makers respond to various situations or saying how they should respond, one should study how decision makers take decisions in practice. The second basis is the belief that one can no longer look at firms as being one major decision maker (e.g. entrepreneur), but instead one must look at firms as complex organisations with different goals and conflicts between these goals have to be solved within the firm. Examples of these theories are: (1) Simon's framework of Bounded Rationality Theory[1] and (2) Cyert and March's Behavioural Theory of the Firm.[2] Under these theories, the firm is conceived as a "coalition" of different groups and each group has its own set of goals and the criterion of choice is that the alternative selected meets all of the demands (goals ofthe "coalition"). Cyert and March indicate that conflicts between goals are not expected to be fully resolved within an organisation.[3] In

---

1. Simon, H., "Rational Decision Making", The American Economic Review, Vol. 69, No.4, September 1979.

2. Cyert, R. and March, J., A Behavioural Theory of the Firm, Prentice-Hall Inc., New York, 1963.

3. ibid., p.43

general, behaviouralists believe that satisficing is the ruleof the game rather than profit or utility maximisation.

In recent years, several studies that reject the classical model of the firm but assume classical forms of economic behaviour on the part of agents within the firm, have been developed.[1] These studies have viewed the firm as a complex compromise of conflicting demands reflecting a large constituency whose members act from self-interest but realise that their destinies depend to some extent on the survival of the team in its competition with other teams.[2] Based on this logic, a firm cannot have a well defined objective function, instead the firm is viewed as a set of individuals interested in maximising their own welfare through their choice of actions within the constraints specified by the set of contracts among them. Examples of these studies are the work of Alchain and Demsetz,[3] Jensen and Meckling,[4] and Fama.[5]

Jensen and Meckling consider the contractual relationships as the essence of the firm and hence in defining the firm, they stated that:

---

1. Fama, E., "Agency Problems and the Theory of the Firm", Journal of Political Economics, Vol. 88, No.2, (1980), p.289.

2. ibid., p.289.

3. Alchain, A. and Demsetz, H., "Production Information Costs, and Economic Organisation", American Economic Review, 62 (December 1972).

4. Jensen, M. and Meckling, W., op.cit.

5. Fama, E., op.cit.

> "It is important to recognise that most organisations are simply legal fictions which serve as a nexus for a set of contracting relationships among individuals."[1]

Also they indicate that if all parties to the relationship are utility maximisers, then there is good reason to believe that the agent will not always act in the best interests of the principal.[2] According to Jensen and Meckling, the principal can limit divergences from his interest by introducing appropriate incentives for the agent and by expanding resources on monitoring activities (i.e. auditing financial statements). Also they suggest that when the manager's compensation is conditional on the outcome of his decisions, suchproblems are alleviated.

Implications of Alternative Theories of the Firm

The foundation of alternative theories of the firm has led several economists and accountants to examine empirically some of the assumptions and implications of such theories. On the one hand, economists have attempted to find answers to a number of questions some of which are:[3]

1. Do owner-controlled firms have higher average profit rates (i.e. profit over total assets) than manager controlled firms?

---

1. Jensen, M. and Meckling, W., op.cit., p.310.

2. ibid., p.308.

3. The results of such empirical studies are summarised in: McEachen, W., Managerial Control and Performance, Lexington Books, 1975, p.21-56.

2. Do manager-controlled firms retain a higher proportion of earnings than owner-controlled firms?
3. Is the manager's income more related to the scale of the firm's operation than to the firm's profit or market value?
4. How effectively does the market for corporate control discipline managers?

On the other hand, several accountants and some economists have attempted to examine the hypothesis that managers in firms with diffuse ownership attempt to exercise control over the information contained in their annual accounting reports. This hypothesis has stemmed from two main sources:

1. Alternative theories of the firm suggest that managers in diffuse ownership firms have discretionary power to exercise almost total control over such a firm and, since they are motivated by their own self-interest, that often leads to a conflict of interests;
2. If there is a conflict between the managers and owners' interests, the availability of alternative accounting procedures gives an important advantage to the managers.

In this latter regard, Berle and Means state that:

> "The directors have another powerful weapon which may be combined with any or all of the foregoing. They have a large measure of control over the company's income account."[1]

---

1. Berle, A. and Means, G., op.cit., p.182.

Based on this hypothesis, several theoretical and empirical studies have been conducted. These studies may be classified into two groups: (1) those related to income smoothing, (2) those related to increase and/or decrease of early reported income.

Income Smoothing

Barnea et al define smoothing as:

> "The deliberate damping of fluctuations about some level of earnings considered to be normal for the firm."[1]

The early contribution in this area was the work of Hepworth,[2] while Gordon[3] has presented a formal exposition of what is known as the income smoothing hypothesis. Gordon's work is mainly an attempt to develop a criterion of choice among accounting alternatives. In the early part of his work, Gordon elaborates upon the usefulness of financial statements to the owners and he concludes that:

> "The primary role of the financial statements, the role peculiar to them, is to test the soundness of the general policies the owner has been following."[4]

---

1. Barnea, A., Ronen, J. and Sadan, S., "Classificatory Smoothing of Income with Extraordinary Items", The Accounting Review, January 1976, p.111.

2. Hepworth, S., "Smoothing Periodic Income", Accounting Review, January 1953.

3. Gordon, M., "Postulates, Principles and Research in Accounting", The Accounting Review, April 1964.

4. ibid., p.257

And as long as the owner's objective is to maximise his wealth, Gordon suggests that:

> "... in selecting among alternative principles to employ in preparing these statements the criterion the owner wants is the maximisation of his wealth."[1]

To implement this criterion, Gordon elaborated upon the impact of the income tax on accounting principles and concluded that:

> "The minimisation of reported current income, in so far as income reported to stockholders influence the figure accepted for tax purposes, maximises the wealth of a corporation."[2]

As a result of the separation of ownership from operating control, Gordon considers an alternative criterion of choice among accounting alternatives. With regard to such an alternative criterion, Gordon starts with four propositions in line with the aforementioned alternative theories of the firm. These propositions are as follows:[3]

Proposition I: The criterion a corporate management uses in selecting among accounting principles is the maximisation of its utility or welfare.

Proposition II: The utility of a management increases with (1) its job security, with (2) the level and rate of growth in the

---

1. ibid., p.256.
2. ibid., p.260.
3. ibid., p.261-262.

management income, and (3) the level and rate of growth in the corporation's size.

Proposition III: The achievement of the management goals stated in Proposition II is dependent in part on the satisfaction of stockholders with the corporation's performance.

Proposition IV: Stockholder satisfaction with a corporation increases with the average rate of growth in the corporation's income (or the average rate of return on its capital) and the stability of its income.

Based on these four propositions, Gordon proposes the following theorem:

> "Given that the above four propositions are accepted or found to be true, it follows that a management should within the limits of its power, i.e. the latitude allowed by accounting rules, (1) smooth reported income, and (2) smooth the rate of growth in income."[1]

Most prior research related to income manipulation was concerned with income smoothing as suggested by Gordon's work. The aim of previous empirical studies was to provide an answer to one or more of the following three questions:

1. does the income smoothing phenomenon exist?
2. How can such a practice be achieved?
3. Is such a practice justifiable?

---

1. ibid., p.262.

With regard to the first question, the findings of several studies - such as Dascher and Malcolm,[1] Barefield and Comisky,[2] Beidleman,[3] Ronen and Sadan[4] and Barnea et al,[5] suggest the existence of the income smoothing phenomenon, while other studies such as Gordon et al,[6] Dopuch and Drake,[7] Copeland and Licastro,[8] Imhoff[9] and Eckel,[10] are rather inconclusive. Furthermore, these studies have used different objects of smoothing, for example, net income was the object of smoothing in

---

1. Dascher, P. and Malcolm, R., "A Note on Income Smoothing in the Chemical Industry", Journal of Accounting Research, Autumn (1970).

2. Barefield, R. and Comisky, E., "The Smoothing Hypothesis: An Alternative Test", The Accounting Review, (April 1972), pp.291-298.

3. Beidleman, C., "Income Smoothing: The Role of Management", The Accounting Review, October (1973).

4. Ronen, J. and Sadan, S., "Do Corporations use their Discretion in Classifying Accounting Items to Smooth Reported Income?", The Financial Analyists Journal, September - October 1975.

5. Barnea, A., Ronen, J. and Sadan, S., op.cit.

6. Gordon, M., Horwitz, B. and Meyers, P., "Accounting Measurement and Normal Growth of the Firm", in JAEDICKE, IJIRI and NIELSEN, eds. Research in Accounting Measurement, (Evanston, 111: A.A.A. 1966), pp.221-231.

7. Dopuch, N. and Drake, D., "The Effect of Alternative Accounting Rules for Non Subsidiary Investments", Empirical Research in Accounting: Selected Studies, The Institute of Professional Accounting, Chicago, London, 1966.

8. Copeland, R. and Licastro, R., "A Note on Income Smoothing", The Accounting Review, July (1968).

9. Imhoff, E., "Income Smoothing - A Case for Doubt", Accounting Journal, Spring 1977.

10. Eckel, N., "The Income Smoothing Hypothesis Revisited", ABACUS, Vol. 17, No.1, 1981.

Dopuch and Drake[1] and Copeland and Licastro,[2] while ordinary income (income after tax, but before extraordinary items) was the object in Ronen and Sadan[3] and Barnea et al.[4] Most of the remaining studies have not specified the object of smoothing.

Regarding the second question, that is, how income smoothing can be achieved, the literature suggests three dimensions of smoothing as follows:[5]

A) Smoothing through events occurrence and/or recognition. In this dimension the focus is on the management's ability to time actual transactions in a way that would tend to dampen the variation of reported income over time. For example, management might control the timing of advertising expenses, research and development cost, and assets disposal, as well as changing its policy of shipments, etc.

B) Smoothing through allocation over time. The ability of management to smooth through allocation can occur in two different respects. Firstly, within the generally accepted accounting principles, in most countries there can be more than one alternative accounting policy for dealing with the same item (or transaction) - such as the variety of accounting policies regarding depreciation, stock valuation

---

1. Dopuch, N. and Drake, D., op.cit.
2. Copeland, R. and Licastro, R., op.cit.
3. Ronen, J. and Sadan, S., op.cit.
4. Barnea, A., Ronen, J. and Sadan, S., op.cit.
5. ibid., p.111.

etc. Secondly, the selection of one rather than another policy from generally accepted accounting alternatives still requires subjective judgement, for example, the rate of depreciation within a straight line method.

C) Smoothing through the classification of items in the income statement. If the object of smoothing is not the final net income, it is suggested that management may possess the ability to smooth through classifying intra-income statement items to reduce the variations over time. This dimension stems from the vague and inexact rules of accounting definition that can sometimes surround the way certain intra income statement items are classified.

Along with these dimensions, fairly recent researchers such as Imhoff[1] and Eckel[2] have emphasised the need for controlling natural smoothing in order to reach proper conclusions about intentional smoothing by management. In this regard, Imhoff suggested that:

> "... smoothing research studies which have identified firms as income smoothers, based on what is essentially the afore-mentioned definition (where smoothing is defined as a relatively low degree of variation about some income trendline), may have reached inconclusive results because of the inclusion of natural smoothers in the income smoother sample."[3]

Eckel provides the following statement on natural smoothing:

---

1. Imhoff, E., op.cit.
2. Eckel, N., op.cit.
3. Imhoff, E., op.cit., p.89.

> "A naturally smooth income stream simply implies that the income generating process inherently produces a smooth income stream."[1]

Regarding the general methods for identifying income smoothing behaviour, Copeland suggests three methods: (1) through direct contact with management; (2) through contacting third parties such as public accountants; or (3) through examining ex-post data.[2] Theoretically, it would appear that the first two methods will provide more insights and hence more valuable results. However, most researchers to date have selected the last method, basically because management might be reluctant to reveal needed information, while public accountants might consider such information confidential.

After presenting the possible dimensions and the common methods for identifying income smoothing, it is worth noticing that a great number of previous studies attempted to investigate the existence of the income smoothing phenomenon by first identifying one or more smoothing instruments, and secondly examining whether such instruments provide smoother income. For example, Barefield and Comisky[3] used the choice of cost or equity method, Barnea et al[4] used extraordinary items, Beidleman[5] and

---

1. Eckel, N., op.cit., p.28.
2. Copeland, R., "Income Smoothing", Empirical Research in Accounting: Selected Studies, The Institute of Professional Accounting, Chicago, 1968, p.105.
3. Barefield, R. and Comisky, E., op.cit.
4. Barnea, A., Ronen, J. and Sadan, S., op.cit.
5. Beidleman, C., op.cit.

Dascher and Malcolm[1] used several accounting variables - such as pension costs, R & D costs, dividend from nonconsolidated subsidiaries etc. Therefore, one of the problems that is occurring in the previous studies is that of identifying whether those instruments are used by management for smoothing. In practice, it is possible that management could achieve smoothing by a combination of variables other than those that have been used for testing. Alternatively, one variable may apparently smooth income, while others which have not been considered may counter the smoothing effects. Another problem inherent in several studies occurs where their methods of testing are incapable of discriminating between a naturally smooth income stream and one which is intentionally smoothed. Moreover, several studies tended to test only for smoothing in one period and hence they could not distinguish between random adjustment of profit on the one hand and income smoothing on the other hand. Imhoff's methodology provides sound solutions to some of these problems in the process of investigating the existence of the income smoothing phenomenon.[2] Therefore, the present study applies a methodology similar to that of Imhoff with the following extensions:

A) While Imhoff applies his method to one set of firms, the present study applies such methods to two sets of firms, namely listed and unlisted firms, where unlisted firms are

---

1. Dascher, P. and Malcolm, R., op.cit.

2. Imhoff, E., op.cit.

used as a control group. The reason for such an extension is to enhance the validity of our results by simply applying the same methodology to two sets of firms on the assumption that they have a different motivational foundation and this will be discussed later in this chapter.

B) The possibility of natural smoothing is examined using a different approach from that suggested by Imhoff.

C) Two expectancy models and several income objects will be considered in the present study rather than just one model and one object.

Regarding the third question concerning the justifiability of income smoothing, several reasons have been put forward for smoothing, beside that of maximisation of managements' utility, as suggested by Gordon.[1] Hepworth argues that smoothed income will lead to tax saving, better internal relations, and it can help to stabilise activity and maintain confidence in the economy.[2] To this extent, we can see no differences between unlisted and listed firms because both will attempt to save tax, experience better internal relations and operate under a stable economy. Hence that degree of smoothing recognised by Hepworth is expected to be exercised in both type of firms and, since we are using unlisted firms as a control group, our conclusion will be the more valid.

Beidleman argues that income smoothing can provide more

---

1. Gordon, M., op.cit., (1964).

2. Hepworth, S., op.cit., p.33.

relevant information to users than is available under a nonsmoothing strategy.[1] By allowing a certain leeway to enable managers to normalise an income trend, Beidleman believes that information in financial statements is made more realistic, useful and relevant to users. In this regard, we may argue that the present accounting practice is subjective enough as it is at present and a smoothing strategy would present an even greater demand on individual opinions. For instance, where are the lines to be drawn between interpretation and misrepresentation and what is it that allows a more realistic and relevant picture of the firm's performance? How is a certain degree of uniformity between firms to be imposed? Even with strict regulation there is still concern about a potential gap between what management may want to present and what is useful for the users. Accordingly, the justification of smoothing is questionable, at least from the implementation point of view.

Increase and Decrease of Reported Income

In the present study, increase of early reported income is defined as a strategy to report higher measurement of present income at the expense of the future reported income, while decrease of early reported income is the opposite strategy.

Alternative theories of the firm provide a variety of reasons that might lead management to adopt either one of these two strategies. On the one hand, Marris's theory suggests that management derives utility from growth and such growth will be

---

1. Beidleman, C., op.cit.

primarily financed out of retained earnings. Furthermore, Williamson argues that the managers will return to the stockholders just the minimum level of dividends necessary to satisfy them. Thus to the extent that managers seek to retain profit rather than pay dividends, managers might use accounting practices which lead to minimum profit reporting for reasons of stockholder relations.[1] On the other hand, alternative theories of the firm indicate that management's income is one of the major components of management's utility function. Also Jensen and Meckling suggest that when the manager's compensation is conditioned on the outcome of his decisions the conflict between owners and managers is alleviated. But Watts and Zimmerman[2] and Hagerman and Zmijewski[3] suggest that if a manager's income is related to accounting earnings, then one must expect that management has an incentive to use accounting practices that increase accounting earnings. Thus management might use accounting practices which lead to higher measurement of early profit. In this regard, Larner investigates the relations between the income of top executives and the profitability, size and growth of their firms. His conclusion is as follows:

---

1. For example see: Hall, M. and Weiss, L., "Firm Size and Profitability", The Review of Economics and Statistics, 49 (Aug. 1967), p.321.

2. Watts, R. and Zimmerman, J., "Towards a Positive Theory of the Determination of Accounting Standards", The Accounting Review, January (1978), p.118.

3. Hagerman, R. and Zmijewski, M., Some Economic Determinants of Accounting Policy Choice", Journal of Accounting and Economics, 1 (1979), p.145.

> "The results suggest that the corporation's dollar profit and rate of profit are the major variables explaining the level of executive remuneration and compensation."[1]

Additionally, Lyle Jacobsen proposes a flexible reporting theory as an attempt to describe modern accounting practices. His theory suggests that two general techniques have been presented under the accrual system, namely mini-measurement of revenue and maxi-measurement of expense. He refers to the combination of these two techniques as optimeasurement of income and he concluded that:

> "... optimeasurement in good years, and change in accounting method in less profitable years, combine to produce a flexible reporting theory."[2]

According to Jacobsen, such presentation is misleading where he indicates that:

> "... These techniques raise issues about the role of accounting in discouraging misleading financial reporting."[3]

Empirical Evidence:

Morris and Breakwell investigated whether changes in accounting practice are related to a firm's profitability in such a way that profitable firms will use accounting changes to reduce

---

1. Larner, R., Management Control and the Large Corporation, New York: Dunellen Publishing Company Inc., 1970, p.61.

2. Jacobsen, L., "The Rise of the Profit Deferral Notion", The Accounting Review, 38 (April 1963), p.292.

3. Jacobsen, L., op.cit., p.290.

profit, while less profitable firms will use accounting changes to increase profit. They conclude that there is no empirical evidence of such a relation, although a small minority of firms may have resorted to such tactics when profits were falling.[1] Thus, with accounting changes, profitable firms did not decrease reported income, while some of the less profitable firms increased their reported income. Copeland and Wojdak examine the choice between purchase and pooling methods to see whether managers account for mergers in a manner which maximises reported income. Their results indicate that managers adopted the method that yields the highest future accounting income.[2] Other earlier studies which suggest that management manipulates reported earnings include Schiff[3] and Simpson.[4] The relatively recent studies which used owner-controlled firms as a control group include Smith,[5] Salamon and Smith[6] and

---

1. Morris, R. and Breakwell, H., "Manipulation of Earnings Figures in the United Kingdom", Accounting and Business Research, Summer 1975, p.1983.

2. Copeland, R. and Wojdak, J., "Income Manipulation and the Purchase Pooling Choice", Journal of Accounting Research, Autumn (1969), p.193.

3. Schiff, M., "Accounting Tactics and the Theory of the Firm", Journal of Accounting Research, Vol. 4, No.1, Spring 1966.

4. Simpson, R., "An Empirical Study of Possible Manipulation", The Accounting Review, October 1969.

5. Smith, E., "The Effect of Separation of Ownership from Control on Accounting Policy Decisions", The Accounting Review, October 1976.

6. Salamon, G. and Smith, E., "Corporate Control and Managerial Misrepresentation of Firm Performance", The Bell Journal of Economics, Spring 1979.

Dhaliwal et.al.[1] The findings of Smith indicated that income smoothing is more prevalent in Manager-Controlled than in Owner-Controlled firms, while the findings of Salamon and Smith (1979) and Dhaliwal et.al. (1982) indicated that managers of Manager-Controlled firms present their operational results in a most favourable way. In fact Salamon and Smith went as far as suggesting that

> "The evidence of this paper provides support for the position of those parties who favour limiting management's discretion regarding decisions over accounting method changes and other accounting policy matters."[2]

Finally, the empirical findings of Penno and Simon[3] indicated that publicly traded firms are more likely to use income-increasing accounting methods than privately-held firms.

In so far, a brief review of several theories of the firm was conducted with particular emphasis on the motivational foundations of such theories. Also the broad implications of alternative theories of the firm were presented, as were previous studies which provide interpretations of those implications, particularly related to accounting reports.

This review was found to provide a number of insights into the incentives of management to manage reported income and

---

1. Dhaliwal, D., Salamon, G. and Smith, E., "The Effect of Owner Versus Management Control on the Choice of Accounting Methods", Journal of Accounting and Economics, 4, 1982.

2. Salamon, G. and Smith, E., op.cit., p.327.

3. Penno, M. and Simon, D., "Accounting Choices: Public Versus Private Firms", Journal of Business Finance and Accounting, (314), Winter 1986.

the findings of several studies indicate that managers manipulate reported income. When the variable of ownership control was introduced, the findings of several studies indicated that Manager-Controlled firms are more likely to smooth and bias their accounting policies towards income increasing methods than Owner-Controlled firms.

In the next part of this chapter, further analysis of management incentives to manage reported income will be conducted with more emphasis on the U.K. situation. Also certain properties of listed and unlisted firms will be considered and, hopefully, the propositions for empirical investigation will be stated.

Further Analysis of Management Incentives

The findings of Smith (1976), Salamon and Smith (1979) and Dhaliwal et.al. (1982) indicated that the management sensitivity to the discipline of shareholders is dependent upon the degree of management's ownership. These studies gave emphasis to those incentives which are the result of the separation of ownership from operational control.

However, recent literature on the theory of the firm appear to limit the area of conflict between owners and managers. For instance Jensen and Meckling (1976)[1] suggested that owners can solve most of the conflicts by appropriate incentives and expanding resources on monitoring activities, while Fama (1980)[2]

---

1. Jensen, M. and Meckling, W., op.cit.

2. Fama, E., op.cit.

suggested that primary monitoring of managers comes from the discipline of the market forces. Furthermore, Fama argued that a better understanding of modern corporations may be achieved with the separation of two functions usually attributable to the traditional entrepreneur, namely management and risk bearing. Also Fama suggested that managers are subject to the discipline and opportunities provided by the markets for their services both within and outside the firm, while shareholders have market for their services - capital markets - which allow them to shift their capital among firms with relatively low transaction costs.[1] Under these conditions, Fama suggested that the separation of ownership and control over the firm can be an efficient form of economic organisation.

Based on this logic, management may consider the impact of its decisions on the relationship with shareholders in a more positive way than that predicted by managerial theories of the firm. In this context, Samuels and Wilkes (1986) suggested that:

> "... investors can buy and sell the shares of whichever company they like, influenced by the returns they expect. They will move their funds to where they expect the highest returns, which may not even be in equity investments. This means that as long as some companies see their objectives as the maximisation of shareholders' wealth, it is difficult for other companies to survive, or at least to expand, with more socially-minded objectives... The theory of business finance is based on the assumption that the company should seek to maximise the wealth of the shareholder. The shareholders own the company and there is therefore some logic in the idea that it should be run in their interests."[2]

---

1. ibid., p.289-291.

2. Samuels, J. and Wilkes, F., Management of Company Finance, Van Nostrand Reinhold (UK) Co. Ltd., 1986, p.3.

Furthermore, the shareholders of publicly traded firms may rely on the stock market, which provides a tentative potential value of their firms, to judge the performance of management. If management fails to recognise the interest of shareholders, it may find itself worrying about survival and takeover.

Thus the study of the management of reported income may have to be in line with the assumption that the firm should seek to maximise the wealth of the shareholders and consequently, management must adhere very closely to this assumption. for management to manage reported income and adhere to the above assumption, incentives other than those resulted from ownership control need to be found. To this end, the literature of finance suggests that the theory of business finance and the theory of investment are intimately interdependent.[1] This is to say that the management of a firm should be concerned about its cash inflows even before being concerned about its cash outflows in the form of growth and expantion. Thus the area of business finance might provide insight into the management incentives to manage reported income. The task is therefore to identify two sets of firms where the management of each faces different situations to secure adequate financial resources. To this end, perhaps the most obvious distinction between firms is of being listed or unlisted in the stock market. This is certainly true in the U.K. situation where all limited companies are subject to the Companies Acts with regard to financial reporting requirements.

---

1. For example see: ibid., p.10.

To anticipate differences between listed and unlisted firms regarding the criteria of choice among accounting alternatives, the following reasons might be advanced:

1. Since listed firms are expected to be more diluted in terms of ownership than unlisted firms, any residual effect based on the separation of ownership from control is preserved.[1]
2. Listed firms are expected to be more dependent on external finance than unlisted firms and the management of a listed firm is expected to recognise the impact of share prices on its welfare and security. It will therefore be argued that managers of listed firms might have the incentives to smooth and increase reported income.
3. Unlisted firms are expected to be more dependent on internal finance than listed firms and the management of an unlisted firm is expected to recognise the impact of taxation on the financial resources available to the firm. It will therefore be argued that managers of unlisted firms might have the incentive to decrease reported income.

Here it is necessary to emphasise that the dichotomy of listed and unlisted firms makes it possible to relate the management of reported income to the motivations of their owners rather than being dependent upon the degree of management's ownership. This is particularly true in the U.K. situation where listed firms include a large number of companies that are OC. To

---

1. For example see: Penno, M. and Simon, D., op.cit., p.562.

elaborate further, listed firms, whether OC or MC, might behave similarly to enhance the corporate financial image through smoothing and increasing early reported income. In this respect, Gale listed the following advantages of promoting the financial image of a firm:[1]

i) a higher market value for the company's shares than would otherwise be the case,

ii) a greater availability of funds at lower cost,

iii) avoiding unjustifiable fluctuations in share prices,

iv) increasing the shareholders loyalty to the firm,

v) a stronger position against undesirable takeover activity, and

vi) favourable references for the use of credit and banking agencies.

In the following sections, the argument that listed firms are more likely to smooth and increase reported income, while unlisted firms are more likely to decrease reported income are presented in more detail.

Source of Finance and Management Incentives

Sound management of financial resources is necessary for a firm's survival and its growth. It is obvious that inadequate financial resources may not only jeopardise the firm's chances to growth and prosperity but it also may put itself into liquidation by creditors. It would therefore be expected that

---

1. Gale, S., Financial Management Handbook, Gower Press, 1972, p.321-322.

management might behave differently under different financial circumstances. In this section, an attempt is made to identify the sources of finance available to listed and unlisted firms, highlight the nature of the differences and identify the most likely incentives to manage reported income.

The firm's sources of finance may be broadly classified as internal and external sources. For most firms, internal resources are the primary source of finance and they arise from retained profits and depreciation allowances. On the other hand, external resources of finance are funds available to the firm through borrowing and/or through additional equity investments. However, the combination of the overall sources of finance available to listed and unlisted firms are expected to be different in nature and these are discussed in turn.

1. Unlisted firms:

By definition unlisted firms include private companies and those public companies not officially listed on the London Stock Exchange.

Private companies are prohibited by law from issuing shares, debentures or transferring shares to the general public. The Companies Act of 1980 has relaxed some of these restrictions by allowing private firms to raise funds from a very limited group of people who must satisfy certain conditions such as being a member of the family of existing owners or employees. Thus if a private company needs to raise equity funds, it has three choices: (1) the present owners accept the offer, (2) the offer must be carefully placed, or (3) the firm must go public.

Although there are other methods of external finance presumably available for a private firm, it may find that the financing of growth and expansion is very difficult.[1] For instance, the takeover of another company where the payment can be made in the form of shares may seem to be an alternative method of expansion, but the shares of a private company are not likely to be an acceptable method of payment simply because of their limited marketability. Furthermore, a private firm may be able to borrow funds from banks but there are short term implications of servicing these funds such as the requirement of interest, high liquidity ratios, appropriate capital structure etc.

The other form of unlisted companies are those which are public firms but not officially listed on the Stock Exchange. These firms face most of the above mentioned problems to obtain funds but they have certain advantages over private firms. Unlisted public firms may choose to trade on the Unlisted Securities Market, established in November 1980, where only 10% of the company's issued shares needs to be made available on the market. Also the firm can invite the public to subscribe for the company's shares.

However, unlisted firms often find even their internal growth limited by a shortage of funds because of limitations by status, problems of reputation, investors preference to the marketability of securities, etc. Therefore, the sources of

---

1. For example see: ibid., p.85.

external finance available to an unlisted company are either limited or difficult to obtain.

Under these circumstances, the management of an unlisted firm is left with no choice other than to make the most efficient use of its internal resources to finance growth and expansion. The management might therefore try to reduce or at least delay those cash outflows which are manageable. Perhaps the most obvious application of this policy would be found in the area of the taxation of corporate. Accordingly if unlisted firms choose to manage reported income, then the managers are more likely to bias their policies towards income-decreasing methods for the purpose of reducing current taxation changes.

2. Listed firms:

This group consists of firms listed on the London Stock Exchange. These firms have the advantage of being able to raise funds from a wide variety of external sources and this often is the main reason for seeking public status. For instance listed firms can raise funds through the issuing of debentures, the selling of new shares to present and/or potential investors and the borrowing of funds from a wide variety of financial institutions. This enables listed firms to finance growth and expantion more readily than in the case of unlisted firms.

However, the management of a listed firm must recognise that it is in competition for funds with other firms and with other forms of investments which are available to the suppliers of funds. Thus, to secure the flow of adequate funds, management must satisfy present shareholders and attract potential investors

and these will simultaneously increase its ability to borrow funds from other sources. For the management to achieve this end, it must consider the effect of its decisions on the share price. By failing to recognise the impact on share prices, management can put its welfare and security in danger. For instance, if equity investors are not satisfied with the movements in their share prices, management may be subject to various pressures which may lead to liquidity problems and may even lead management to worry about survival and takeover. Accordingly the most relevant question is how equity investors (or alternatively their financial analysts) value the shares of a firm?

Equity investors are the suppliers of ordinary capital and their interest is the riskiest of all which is usually referred to as the residual interest. Investors are expected to search for those shares which maximise the percentage return on their funds. They look to two principal rewards from their holdings, namely dividends and capital growth (i.e. increase in share prices). In the literature of finance, several reasons have been put forward which indicate that equity investors are more likely to be interested in capital growth rather than the current level of dividends. For instance, Keane (1986) examined the relevance of the pattern of dividend payments to shareholders by reviewing the literature on dividend policy. The author concluded that:

> "... there are strong reasons for believing that the taxation implications of dividend policy may under certain circumstances outweight any positive aspects of dividends and, even in the context of a clientele

structure in shareholder ownership, it would appear advisable for growth companies, certainly those in the tax exhaustion category, to bias their policy towards low payment ratios ... it would be desirable to strive after a stable, slowly growing pattern on the principal that, if companies do attract investor clienteles, an unpredictable payout stream is unlikely to appeal to any group seeking to plan its income preferences or its taxation strategies."[1]

It may therefore be argued that a change in the level of dividends is not necessarily dependent on the change in reported income and hence management might increase reported income without worrying about proportional increase in dividends. In fact Davies (1976) stated that:

> "In general, the better a company's future profits prospects are believed to be, the lower will be the current dividend which it needs to offer the investing public to persuade it to purchase an issue of its share."[2]

It should be noted that the above statement emphasises the importance of future earnings and the uncertainty regarding their estimations.

In the literature several share valuation models have been proposed to assist equity investors. These models may be classified into five groups dependent on their bases:

i) Dividends-based valuation

ii) Earnings-based valuation

---

1. Keane, S., Issues in Finance, Philip Allan, Oxford, 1986, p.87.

2. Davies, B., Business Finance and the City of London, Heineman ED. Books Ltd., London, 1976, p.4.

iii) Price-earnings ratios valuation

iv) Cash flows valuation

v) Capital asset pricing model.

Most of these models incorporate earnings, earnings growth, and earnings payout ratios as important factors. In practice, however, Arnold and Moizer (1986) found that over 80 per cent of a sample of financial analysts use the price-earnings ratio for share valuation.[1] But whatever model of share valuation is used by or for equity investors, the accuracy of their estimated values is a function of the quality of inputs used in such calculations. In this context, Samuels and Wilkes (1986) suggested that:

> "The information system between the company, its shareholders and its potential shareholders is far from perfect... The capital markets are faced with incomplete information, and they are influenced by the statements and actions of a company or its directors."[2]

Management may therefore believe that equity market is influenced by reported income numbers and hence it might choose to manage reported income as an attempt to post the price of its shares. To do so, management is expected to consider the attitudes and expectations of equity investors. And since equity investors seek to maximise their wealth, one would expect that their

---

1. Arnold, J. and Moizer, P., "A Survey of the Methods used by U.K. Investment Analysts to Appraise Investment in Ordinary Shares", Accounting and Business Research, Summer 1984, p.200.

2. Samuels, J. and Wilkes, F., op.cit., p.7.

satisfaction increases with higher earnings, reasonable rate of growth and the stability of earnings as a relative measure of the risk involved. Accordingly, if listed firms choose to manage reported income, then managers are more likely to smooth reported income and bias their accounting policies towards income-increasing methods.

In summary this chapter consisted of three major parts. In the first part, a brief review of several theories of the firm with particular emphasis on their motivational foundations was conducted. In the second part, the implications of such theories particularly related to accounting reports were presented, as were previous empirical studies which provided interpretations of such implications. In the third part, recent developments in the theory of the firm were considered and their implications on the present study were emphasised. Also certain properties of listed and unlisted firms were examined with emphasis on management's incentives to manage reported income.

In conclusion it was found that the separation of ownership from operational control within the domain of publicly traded firms has implications with regard to accounting choice where the findings of several empirical studies indicated that manager-controlled firms are more likely to smooth and bias their accounting policies towards income-increasing methods when compared with owner-controlled firms.

When this area of research was extended to listed and unlisted firms, the following two propositions were developed:

i) Managers of listed firms are more likely to smooth reported income and bias their accounting policies towards income-increasing methods

ii) Managers of unlisted firms are more likely to bias their accounting policies towards income-decreasing methods.

Accordingly the above two propositions will be empirically examined later in this thesis.

In the next chapter, the proposition that managers are able to manipulate reported results through acceptable accounting means will be theoretically examined.

Chapter III

ACCOUNTING RULES OF MEASUREMENT

The main purpose of this chapter is to examine, theoretically, the assertion that management is capable of managing reported income through acceptable accounting means. Accordingly, both the development of accounting rules and the state of accounting practice are of interest. This chapter will, therefore, include two major parts: (i) the development of accounting rules, and (ii) the state of accounting practice.

The Development of Accounting Rules

During the 19th Century, a series of related economic events gave rise to tremendous expansion of accounting, for example, the development of cost accounting to cope with the rapid growth of industry and the growth of railroads, which contributed to the clarification of the concepts of capital and income. Also, the development of corporations with limited liability gave rise to legal and accounting requirements. However, the outcome of such accounting expansion as far as the present study is concerned, may be described in the following statement by the American Accounting Association in 1936:

"... many of the simplest and most fundamental problems of accounting remain without an acceptable solution. There is no authoritative statement of essential principles available on which accounting records and statements may be based. Public accountants have been

asked to certify to the correctness and adequacy of accounting statements, where no satisfactory criteria of correctness and adequacy have been agreed to."[1]

In both the United States and the United Kingdom the development of accounting rules was subject to two periods of turmoil, namely the 1930's and the 1960's. In these periods, considerable pressure for change came from the public, accompanied by dissatisfaction with the extant situation by practising accountants and academics. The following two sections are, therefore, devoted to the development of accounting rules since the 1930's.

The Development of Accounting Rules prior to the 1960's

The winds of the 1929 financial collapse have produced a strong and decisive influence on the pace of accounting change. One of the results of such collapse was that financial statements should provide more adequate information to investors and shareholders and hence comparability came to focus. This led to the following changes in accounting thought:[2]

1. By adhering more closely to the going-concern concept, more emphasis has been placed on the income statement as opposed to the balance sheet,
2. the increased emphasis on a uniform concept of income,

---

1. American Accounting Association, "A Statement of Objectives", The Accounting Review, (March 1936), p.1.

2. Hendriksen, E., Accounting Theory, 3rd Edition, R. Irwin, Inc., 1977, p.55.

3. the need for full disclosure of relevant financial information, and
4. the increased emphasis on consistency in reporting rules.

Meanwhile, the expression 'generally accepted accounting principles' (GAAP) has come to play a significant role in the accounting profession.

Since the history of accounting standards setting in the U.S. is relevant and goes back further than that of the U.K., the development of accounting rules in both countries is discussed respectively.

1. The U.S. Case

During the 1930's, a general recognition of the fact that improvements in accounting rules and disclosure were overdue led to closer cooperation between the American Institute of Accountants (the American Institute) and the Committee on the Stock List of the New York exchange. The result of such cooperation was released in 1934 as an Institute Pamphlet.[1] It embodied a number of basic principles of accounting to be followed by listed companies and it has been suggested that it was the first recorded instance where the phrase "accepted accounting principles" was used. In the same period, the Securities and Exchange Committee (SEC) was created by an Act of Congress to administer several Securities Acts. This new body

---

1. American Institute of Accountants, Audits of Corporate Accounts, 1934, reprinted in G. May, Twenty-Five Years of Accounting Responsibility, 1911 - 1936, Vol. 1, p.112-144, Scholars Book Co., 1971.

has broad power to prescribe accounting procedures and form of accounting statements filed with it. In fact, the SEC engaged, during the years of 1936 to 1938, in heated controversy regarding whether or not it should promulgate a set of accounting principles to be followed by all firms filing with the SEC, but the SEC decided in 1938 to permit the profession to lead the way in the formulation of accounting principles.[1]

In 1938, the American Institute established a research department to put the effort of developing accounting principles on a permanent basis. To this end, the Committee on Accounting Procedures (CAP) was established, whose purpose it was to reduce the area of difference in accounting practice by narrowing the choices available in prevailing accounting principles. The CAP considered many accounting problems and issued pronouncements in the form of 51 Accounting Research Bulletins during the years from 1939 to 1959. These Bulletins have made significant contributions to accounting theory, but their contribution to the improvement of accounting practice has been less marked. In this regard, Hendriksen has stated that:

> "As evidenced by the topics of the Special Committees and Accounting Research Bulletins published by the Committee on Accounting Procedures prior to 1960, the (AICPA) devoted its attention almost entirely to resolving specific accounting problems and topics rather than developing general accounting principles."[2]

---

1. Hendriksen, E., op.cit., p.69.

2. ibid., p.66.

In 1959, the CAP was replaced by the Accounting Principles Board (APB), which will be discussed in more detail in the second period of accounting development.

2. The U.K. Case

In the U.K., there was much dissatisfaction with accounting practices in the 1930's.[1] Among other things, the Royal Mail Case, in 1932, brought attention to the ethics of the practice, when taken to the extreme, of covering up corporate collapse.[2]

In 1935, the Society of Incorporated Accountants and Auditors established a research committee which provided arrangements for the publication of monographs on professional subjects and the formation of research groups.[3] Also, the Accounting Research Association was established, having the following objectives:[4]

1. to promote research into the history and development of accounting,
2. to discover, in particular, how economic, social and legal

---

1. See for example, "Directors and Auditors", The Economist, April 11th, 1942, pp.507-508.

2. See for example, Davies, P. and Bourns, A., "Lord Kylsant and the Royal Mail", Business History, 1972.

3. Zeff, S., Forging Accounting Principles in Five Countries. A History and an Analysis of Trends, Arthur Anderson & Co., Lecture Series, 1971, p.4.

4. Accounting Research Association, The Accountant, (November 28th, 1936), pp.731.

changes have affected the development of accounting methods, and

3. to examine the present state of accounting theory and practice.

The English Institute became involved in the establishment of accounting principles in 1942 with the formulation of the Taxation and Financial Relations Committee. The objective of this committee was to formulate drafts of guidance statements for the consideration of the Institute Council. Between 1942 and 1969, the English Insitutute issued 29 recommendations which provided guidance on a number of accounting matters, and they were persuasive rather than mandatory. With regard to Scotland, the Scottish Societies merged, in 1951, to form the present Scottish Institute. However, its Council had elected not to issue guidance to members and so the matters were left to the integrity and judgement of the Institute's members until the early 1970's.

The statutory requirements of the Companies Act 1929 necessitated major reforms in financial reporting by limited companies, including the requirement of a profit and loss account for the first time. The Companies Act, 1948, required that both balance sheet and income statements should give a "true and fair view". Its provisions were largely confined to matters of presentation and disclosure rather than to accounting principles and auditing practices.

The Development of Accounting Rules Since the 1960's

1. The U.S. Case:

While the Accounting Research Bulletins made a significant contribution to the advancement of accounting theory, valid criticisms were directed at the Committee's approach as well as the complaint that some of the important controversial areas in accounting have been avoided. Among other things, the fear that the government would take over the direct control of the accounting profession resulted in the replacement of the Committee on Accounting Procedures by the Accounting Principles Board (APB) in 1959.[1] The objectives of the APB were to advance the written expression of generally accepted accounting principles, narrow the area of difference in accounting practices, and lead the discussion of unsettled controversial issues.[2]

During the years from 1959 to 1973, the APB issued 31 Opinions. These Opinions and the effective Accounting Research Bulletins were enforced primarily through the prestige of the American Institute until 1965, when the council accepted the recommendation which requires that all departure from these statements should be disclosed in footnotes or in the audit reports of members.

However, the force of re-examination and change, both within the profession and outside of it, continued to be active.

---

1. (1) Hendriksen, E., op.cit., p.75.
2. (2) ibid., p.77.

In 1972, a study group (known as the Wheat Committee) issued a report which recommended the establishment of the Financial Accounting Standards Board (FASB) with full-time paid members to increase the independence of the board members. Also, the report recommended that the FASB should include substantial representation from several groups of statement preparers and users in addition to members from the public accounting profession. The American Institute quickly adopted the recommendation of the Wheat report and the FASB began to function in mid-1973.

The FASB has issued more than 90 statements since 1973 and these statements have made a significant contribution to narrow the range of acceptable accounting principles, while much remains to be done in the future.

2. The U.K. Case

While the English Institute's recommendations of "best practice" continued during the 1960's, the financial market experienced a series of dramatic take-over battles and financial collapses. For example, the sudden collapse of John I. Bloom's Rolls Razor Ltd., in 1964, a few weeks following the publication of audited annual accounts that gave no indication of financial difficulties.[1] This collapse provoked some questions in the financial press regarding the adequacy of financial reports. So did the GEC and AEI battle, in which the General Electric Company

---

1. For example see, "Rolls Razor Calls it Quits", Business Week, July 25th, 1964, pp.114-118. Also, The Economist, July 25th, 1964, pp.399-401.

(GEC) succeeded in a take-over of Associated Electrical Industries Limited (AEI). AEI forecasts a profit of 10 million for 1967 (this forecast was made during the heat of the take-over). Yet in July of the following year, it was made public that the AEI segment of GEC had suffered in 1967 a loss of £4.5 millions. As a result of these and other events, the accounting profession came increasingly under attack.[1] In addition, an article was published in the Times on 11th September 1969 by E. Stamp entitled, "Auditing the Auditors".[2] According to R. Ashton, it is difficult to think of any article in accounting which had such a dramatic effect on the profession.[3]

Such a climate stirred up the English Institute's Council to announce a new and more stimulated approach to the development of accounting principles. This new approach started with the publication of a "Statement of Intent on Accounting Standards in the 1970's". This Statement set out a plan to advance the setting up of accounting standards along the following lines:[4]

---

1. For more examples, see Heller, R., "When is profit not a profit? The Observer, November 16th, 1969.

2. Stamp., "Auditing the Auditors", reprinted by E. Stamp and C. Marley, Accounting Principles and the City Code. The Case for Reform, Butterworths, 1970, pp.159.

3. Ashton, R., U.K. Financial Accounting Standards, Woodhead-Faulkner Ltd., 1983, p.2.

4. (ICAEW), Statements of Intent on Accounting Standards in the 1970's, reprinted in Accounting Standards, 1980, The Institute of Chartered Accountant in England and Wales, p.13.

1. narrowing the areas of difference and variety in accounting practice,
2. disclosure of accounting bases,
3. disclosure of departures from established definite accounting standards, and
4. wider exposure for major new proposals on accounting standards.

To this end, the Council announced the formation of the Accounting Standards Steering Committee, later renamed the Accounting Standards Committee (ASC). Both the Scottish and Irish Institutes joined the English Institute immediately, while the other bodies joined in later years. The ASC re-emphasised the need for and nature of accounting standards in a consultative document published in 1978 where the ASC stated:[1]

> "(a) Accounting standards are necessary and will continue to be necessary. One of their main aims should be to narrow the choice of accounting treatment so as to make financial statements reasonably comparable one with another.
>
> (b) Statements of Standards Accounting Practice (SSAP) should continue to be used as definitive principles for use in financial statements and not merely as a benchmark against which deviations can be measured.
>
> (c) A material departure from a SSAP should continue to be allowed only in those exceptional circumstances where to adhere would fail to give a "true and fair view" in a particular case, or because to follow the SSAP would be demonstrably inappropriate."

---

1. Accounting Standards Committee, Setting Accounting Standards, A Consultative Document, 1978, p.29.

During the years from 1971 to 1986, the ASC issued 23 Statements and several standing Exposure Drafts.

The Companies Acts 1967 and 1976 require that the directors of a company keep adequate accounting records and lay before the company audited balance sheets and profit accounts which give a "true and fair view of the company's affairs". Also, these documents, accompanied by the auditor's and directors' reports, must be filed with the Registrar of Companies, to be available for public inspection. The Companies Act 1981 provides a choice of two alternative sets of rules for the basis of financial statements: the historic cost and the alternative accounting rules. Also, it embodies a number of the principles contained in SSAPs in legislation, including the concept of accruals, consistency, going concerns, and prudence from SSAP No. 2; the stock valuation rules from SSAP No. 9, and the depreciation requirements of SSAP No. 12.[1] The Companies Act 1985 went further and laid down the minimum statutory requirements for the preparation of the accounts of companies in more detail. This Act implements the EEC's Fourth Directive on the Harmonization of Company Law which not only stipulated the form and content of company financial statements, but also defined the fundamental accounting concepts upon which financial accounts should be based.[2]

In summary it could be said that the development of accounting principles in both the U.S. and the U.K. is similar in

---

1. Companies Act 1981, Schedules 1 and 2.

2. Glautier, M., Underdown, B. and Clark, A., Basic Financial Accounting, Bath Press, Avon, 1985, p.244.

many respects. But it appears that there is a greater commitment in the U.S. to standardise accounting principles when compared with the U.K. situation. Additionally it is worth mentioning that Bromwich has stated:

> "The Accounting Standards Committee would seem to be especially vulnerable to the criticisms which were regarded as very important in causing the downfall of these sister bodies in the U.S.A. (i.e. CAP and APB)."[1]

With the main emphasis on the U.K., the development of accounting principles to be applied by the accounting profession can be divided into three distinct periods:

Firstly, the period of laissez-faire, when accountants were expected to apply their own judgement in determining the appropriate practice in each case. This period existed in England and Wales prior to the early 1940's and in Scotland to the formation of the ASC, in 1970;

Secondly, the period in which the English Institute established recommendations of "best practice" to be followed by members on a persuasive basis. This period existed in England and Wales from 1942 to 1969;

Thirdly, the period of authoritative practice, when accountants were expected to follow SSAPs which have existed since the formation of the ASC, in 1970.

Although there has been a real and substantial progress over the last fifteen years in narrowing the range of acceptable alternatives in accounting principles, the well-equipped user of

---

1. Bromwich, M., The Economics of Accounting Standard Setting, Prentice Hall International (UK) Ltd., 1985, p.36.

published accounts knows that much remains to be done in these areas.

The ASC has clearly stated that one major aim of setting accounting standards is:

> "... to narrow the choice of accounting treatment so as to make financial statements reasonably comparable one with another."[1]

The answer to the following question remains of interest:

> To what extent has the ASC succeeded in narrowing the choice of accounting treatment in practice?

Accordingly, we will consider the state of accounting practice.

The State of Accounting Practice

The financial statements published in corporate reports are prepared by, or under the direction of, the management of the corporation. The auditors examine the financial statements, along with the related records and other evidence and render an opinion as to whether the statements represent a "true and fair view" of the Company's affairs. But the most generally accepted interpretation of the phrase "true and fair view" in an accounting context is that accounts are true and fair if they are prepared and presented in accordance with generally accepted accounting principles. In this regard, Lee has provided the following definition:

---

1. Accounting Standards Committee, op.cit., p.29.

"Today, 'the true and fair view' has become a term of art. It is generally understood to mean a presentation of accounts, drawn up according to accepted accounting principles, using accurate figures as far as possible, and reasonable estimates otherwise; and arranging them so as to show, within the limits of current accounting practice, as objective a picture as possible, free from wilful bias, distortion, manipulation or concealment of material facts."[1]

Accordingly, the expression "Generally Accepted Accounting Principles" has come to play a significant role in the accounting profession. To the Accounting Principles Board, this expression incorporates:

> "... the consensus at any time as to which economic resources and obligations should be recorded as assets and liabilities, which change in them should be recorded, how the recorded assets and liabilities and change of them should be measured, what information should be disclosed and how it should be disclosed, and which financial statements should be prepared."[2]

Consequently, the mode in which such generally accepted principles are developed through official pronouncements is of a great interest to the purpose of this study.

The Mode in Standard Setting

In the literature of accounting, there have been two schools of thought regarding the mode in which accounting standards should be established through official pronouncements:

---

1. Lee, G., Modern Financial Accounting, T. Nelson and Sons Ltd., 1973, p.311.

2. AICPA, APBS No.4, Basic Concepts and Accounting Principles Underlying Financial Statements, New York, 1970, p.27.

1. The first school includes those who advocate that accounting rules should be developed so that the variations which cannot be justified by identified differences in circumstances should be eliminated, (fixed mode);
2. The second school includes those who advocate that accounting rules should be developed so that the firms have the choice to select the most appropriate accounting rules within authoritative broad guidelines (flexible mode).

The first school claimed that:

1. The wide variety of accepted accounting practice makes comparability among firms impossible or at least difficult,
2. The auditors have identified with the management by complying with the desires of the client,
3. Managements have used this freedom to achieve their own economic and social goals, and
4. If tne accounting profession does not take steps to achieve uniformity, the government may do so.[1]

The second school has dominated the process of developing accounting standards. To support this assertion two accounting variables are presented in the following sections as evidence of such a flexible mode.

---

1. Hendriksen, E., "Toward Greater Comparability Through Uniformity of Accounting Principles", in Keller and Zeff, Financial Accounting Theory II: Issues and Controversies, McGaw-Hill Book Co., 1969, p.161-62.

1 - Stock and Work in Process: In most firms the cost of goods or services sold is the single most significant cost category and to determine the cost of sales for a given accounting period, the problem of inventory valuation arises. In this regard, the ASC issued SSAP 9 which starts with the following remarks:

> "No area of accounting has produced wider differences in practice than the computation of the amount at which stocks and work in progress are stated in financial accounts. This statement of standard accounting practice seeks to define the practice, to narrow the differences and variations in those practices and to ensure adequate disclosure in the accounts."

According to SSAP 9, the basic principle of inventory valuation is that it be valued at "the total of the lower of cost and net realisable value of the separate items of stock and work in process or groups of similar items".[1] With regard to long-term contract work in process, the statement provides the following valuation rule.

> "... cost plus any attributable profit, less any forseeable losses, progress payments received and receivable."[2]

Although the basic principles of inventory may seem simple and straightforward, the complexities and the variety of alternatives to which these principles are subject are highlighted in appendix 1 of SSAP 9. Of special interest are those complexities and variety of alternatives related to the

---

1. SSAP9, Para. 26.
2. ibid., para. 27.

allocation of overheads, the methods of costing and the determination of the attributable profit to be included in the amount at which long-term contract work in process is stated in the accounts.

In spite of the variety of alternatives available to evaluate inventory and in spite of the importance of inventory valuation in the determination of reported income, the matters of what costs are included in inventory and what assumptions are made with regard to the flow of inventory costs through a firm are either rarely or very briefly discussed in published accounts. In this regard, the Survey of U.K. published accounts indicates that:

> "73% of the companies (included in the sample) did not state the method of arriving at cost."[1]

In addition, 30% of the companies included in the survey did not include any statement regarding the inclusion of overheads.[2] Furthermore, the most common phrase used by those firms which include a statement regarding overheads is "appropriate overhead charges are included". This phrase is of limited utility to the users of published accounts. Additionally, the timing of the recognition of profit on long term contract work in process and to some extent the amount of such a profit are always subjective issues and they are difficult

---

1. ICAEW, Financial Reporting 1984-1985: A Survey of UK Published Accounts, 1985, p.251.

2. ibid., p.252.

to assess without additional detailed information.

Thus the area of inventory valuation provides potential discretionary power to management with respect to:

1. The selection of the method of costing,
2. The allocation of overheads, and
3. The timing of the recognition, of and the amount of, attributable profit on long-term contract work in process.

2 -Fixed Assets and Depreciation: Fixed assets are those assets which have an expected life of a number of years and they are used in operations and not acquired for sale in the ordinary course of the business. In this regard, the valuation and the depreciation of fixed assets are discussed in turn.

With regard to the reported values of fixed assets, Griffiths states that:

> "The great thing about fixed assets is that their values are completely mobile. For many companies these assets are the backbone of the business, providing the foundation and framework which allows it to carry out its operations. Yet despite their importance the rules which govern the reported values of fixed assets are remarkably flexible."[1]

The first step in the valuation of an asset is the determination of the asset cost and, although this step may seem less open to manipulation, the fact of the matter is that there are no clear guidelines about what should or should not be

---

1. Griffiths, I., Creative Accounting, Firethorn Press, 1986, p.92.

included in the determination of such cost. Furthermore, there is a wide range of choice of figures available for reporting, after the determination of the asset's cost, as a result of the fact that management can adjust such cost almost at will.[1]

This value must be allocated to the accounting periods which benefit from the use of the asset. In practice, this process is governed by SSAP 12 which simply states that:

> "The management of a business has a duty to allocate depreciationas fairly as possible to periods expected to benefit from the use of the asset and should select the method regarded as most appropriate to the type of asset and its use in the business."[2]

In spite of the fact that many subjective assumptions enter in the determination of useful lives of assets and their scrap values and that alternative methods of depreciation co-exist which can result in a widely differing depreciation charges, the policy of accounting for depreciation has been left entirely to management. In this regard, Lewis et al. state that:

> "It is unfortunate that the ASC did not feel that it was able to provide more specific guidance in selecting the accounting policy for depreciation... If the profit figure is to have any meaning the choice of depreciation policy must be justifiable as something more than a random selection from a number of standard depreciation methods."[3]

---

1. ibid., p.92.

2. SSAP 12, para. 7.

3. Lewis, R., Pendrill, D. and Simon, D., Advanced Financial Accounting, Pitman, 1982, p.460.

It is therefore justifiable to conclude that both the valuation and the depreciation of fixed assets are left almost entirely to the management of the enterprise and hence there is a wide scope for creative accounting in these areas. In the following sections further examination of the flexible mode of standards setting will be conducted and the purpose of this examination is to highlight the major shortcomings of this mode and to provide further support for management's ability to manipulate reported results given the present state of accounting practice.

The Assumptions Underlying the Present Mode

As we move away from the area of the broad basic assumptions which underlie the periodic financial accounts of firms to accounting procedures which are the means of implementing the accounting standards, we encounter the major diversity in practice. More examples of such diversity are listed in SSAP 2 paragraph 13.

The basic argument behind this diversity is that management should choose the method which best reflects the unique circumstances of the situation and this should lead to better comparability than would be the case with more restricted rules. In addition, the independent auditor should ensure that management selects the most appropriate method for the presentation of a "true and fair view".

Accordingly, it seems that three assumptions underlie the case for diversity:

i) Management has no self interest in the outcomes of its accounting policy and hence the most appropriate accounting policy is expected to be applied;

ii) The various procedures and methods available to implement a given accounting principle are not alternatives, but merely constitute varying methods which are necessary to reflect varying sets of facts;

iii) There are no constraints regarding the auditor's position.

While the previus chapter of this research covers the first assumption, the other two will be considered in turn.

1. Accounting Alternatives in Practice

The assertion that different accounting alternatives are used in similar situations is beyond doubt. In fact, a sub-committee of the Accounting Principles Board declared:

> "The most important unsolved problem is the use of alternative accounting practices and methods under circumstances which themselves do not appear to be sufficiently different to justify different accounting treatments."[1]

This problem has led several writers to favour limiting management's discretion regarding accounting policy matters.[2] Moreover, Cadenhead elaborated on the phrase

---

1. American Institute of Certified Public Accountants (AICPA), A.P.B. Subcommittee Draft of opinion on "Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprise", New York, 1968, p.114-15.

2. For example see, R. Sterling, "Accounting Power", Journal of Accounting, (January 1973); also Salamon and Smith, The Bell Journal of Economics, (Spring 1979), (see Bibliography).

"differences in circumstances" which is commonly used in accounting standards and concluded that:

> "Until accounting principles are developed which rank the attributes to be measured and until accounting methods for measuring the attributes are formulated and accepted, it will be impossible to know whether the phrase "differences in circumstances" has reference to identifiable external conditions or is merely a cloak for idiosyncratic diversity."[1]

Various studies lend empirical support to our assertion. We may rely on a study of alternative inventory pricing methods by L. Chasteen. This study supported the hypothesis that there are no significant differences in economic circumstances among firms which use different methods of inventory valuation.[2] Also, R. Sterling reached somewhat similar conclusions to those of Chasteen regarding depreciation methods and useful life when he presented a hypothetical case to a group of public accountants.[3] In a recent study, Penno and Simon test the hypothesis that public firms are more likely to choose income - increasing accounting alternatives for financial reporting purposes than are private firms and their findings were

---

1. Cadenhead, G., "Differences in Circumstances: Fact or Fantasy?", Abacus, (September 1970), p.80.

2. Chasteen, L., "An Empirical Study of Differences in Economic Circumstances as a Justification for Alternative Inventory Pricing Methods", The Accounting Review, (July, 1971), p.508.

3. Sterling, R., "A Test of the Uniformity Hypothesis", Abacus, September, 1969.

consistent with this hypothesis for the choice of inventory and depreciation methods.[1]

The implication is that the present flexibility provides a wide range of choices, and that management might select the accounting methods which it believes best serve its own interest. Considering the auditor's position and based on the previous interpretation of the phrase "a true and fair view", one expects that there are as many true and fair views as there are acceptable accounting alternatives. Hence, management has a range of different true and fair views from which to select as long as they are within the domain of generally accepted accounting principles.

2. The Auditor's Position

The function of the auditor is to make an independent examination of the accounts prepared by the management and formulate and express his opinion as to whether or not the accounts give "a true and fair view" of the company's affairs. Paragraph 5 of Auditing Statement No. 1 includes:

> "Responsibility for the accounts and financial control of a company rests upon the directors, their statutory duties include responsibility for ensuring the maintenance of adequate records and the preparation of annual accounts showing the true and fair view required by the Act."[2]

---

1. Penno, M. and Simon, D., "Accounting Choices, Public Versus Private Firms", Journal of Business Finance and Accounting, (314), Winter 1986, p.561-62.

2. ICAEW, Statements on Auditing, Moorgate Place, London, 1976, p.18.

Hence, the management selects the system, the rules and prepares the accounts, while the auditor is assumed to act as a "watchdog" with the threat of a qualified report. But unless the company's accounts are clearly outside the boundary of that large area of generally accepted accounting principles, the auditor will be under a great deal of pressure to accept the management's views.[1] The following analysis by R. Sterling sums up the auditor's difficult position:

> "The major problem facing public accounting today is its lack of power. First, in comparing the power or authority to the responsibility, we find that responsibility far outweighs the authority. The public accountant must act judicially but he has not been given the power to enforce the rulings. His ultimate weapon is resignation and silence, which puts him in a conflict-of-interest position. No other profession that I know of is put in a position where it must make economic sacrifices in order to enforce judgements for which it is responsible. The authority is lessened for them by the existence of competition among accounting firms. Resignation from an engagement might be an effective means of enforcement if it were not for the fact that other firms may take the engagement and issue an opinion.
>
> Second, in comparing the power of the public accountant to that of management, we find that management's power far overweighs the accountant's. This imbalance is not considerable per se. When one considers that accountants must judge managements, however, it is not only undesirable, it is intolerable. It would wreck the legal system if litigants were able to hire and fire judges. It would be equally damaging to the legal system if litigants were able to select from diverse or flexible laws as they saw it. The same is true in regard to accounting: if accountants are to judge managements, then we must deny managements the power to hire and fire accountants and the power to select from diverse accounting principles as they see fit."[2]

---

1. Stamp, E., Marley, C., Accounting Principles and the City Code: The Case for Reform, Butterworths, 1970, p.122.

2. Sterling, R., "Accounting Power", Journal of Accountancy, January 1973, p.66.

It is not the writer's purpose to refute or justify such criticism, but it is reasonable to conclude that the present state of auditing is far from perfect.

A Hypothetical Case

For further elaboration upon the present mode of setting accounting standards, a hypothetical case is presented to show how management might affect the reported income, while its choice is still within the domain of generally accepted accounting principles.

The first column of Table III-1 shows the profit and loss account of an assumed company (A) that faces economic conditions realistically within the historical cost system and so reports its result using the appropriate accounting policies. Columns 2 to 7 show the effect of other accounting alternatives that are also generally accepted, while column 8 shows the combined effect of changes in the applied accounting policies on the reported income with no change in operations and it is presented as company (B). In this case, six accounting variables are presented, namely, inventory method, depreciation, research and development costs, pension costs, accounting for fixed investment and accounting for capital allowances. These accounting variables will be discussed in turn.

1. Inventory Method: Column 2 presents the effect of the change made with regard to the flow of inventory costs through the firm. While Company A uses the weighted average method in pricing inventory, Company B chooses to use the first in first out (FIFO) method. In periods of inflation, the FIFO method

Table III-1

A HYPOTHETICAL CASE: An Illustration of Diversity in GAAP

		Company B's Profits are Higher Because of						
	Company (A)	Use of FIFO	Use of 20% Rate	Capital-isation of 1/2 R.D.C.	Low P.V. of Pension C	Use of Cost Method	Use of Part D.T.	Company (B)
	Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8
	£000	£000	£000	£000	£000	£000	£000	£000
Turnover	17000							17000
Cost and Expenses								
Cost of Goods Sold	11000	(250)						10750
Selling, General and Administration	3000							3000
Depreciation	800		(160)					640
Research and Development Costs	200			(80)				120
Pension Costs	100				(40)			60
Other Expenses	100							100
Total Operation Costs and Expenses	15200	(250)	(160)	(80)	(40)			14670
Operating Profit	1800							2330
Other Income and Expenses								
Income (loss) from Fixed Investment	(100)					100		
Profit before Income Taxes	1700	250	160	80	40	100		2330
Less: Taxation								
Current Tax Charge (a)	650	125	80	40	20	50		965
Deferred Taxation (a)	150						(100)	50
Profit After Tax	900	125	80	40	20	50	100	1315
Earnings per Share - 1,000,000 Shares	£0.90	£1.02	£1.10	£1.14	£1.17	£1.22	£1.32	£1.32

See Explanation of Columns 2 to 7 (Table III-2)

(a) The assumed rate of tax is 50% of taxable profit. The Company has purchased an asset for 400,000 with an expected life of 4 years and eligible for 100% first year allowance: current charges = 50% (1700000 - 400,000) = 650,000
: D. Tax charges = 50% (400,000 - 100,000) = 150,000

Table III-2

Explanation of Applied Accounting Policies

Column	Company (A)	Company (B)	Remarks (Company B)
2	Uses weighed average in pricing inventory	Uses FIFO method	In periods of inflation, FIFO reduces the cost of goods sold
3	Uses 25% rate to depreciate fixed assets	Uses 20% rate to depreciate fixed assets	Lower current depreciation charges. Calculated as follows $800000 - \frac{800000 \times 20\%}{25\%} = 640000$
4	Charges R.D. costs to expenses currently	Capitalises and amortises half of R.D. costs over five years	Current charges $= 100000 + \frac{100000}{5} = 120000$
5	Uses conservative current funding of the pension scheme	Uses low current funding of the same scheme (low present value)	Lower current charges at the expense of the future reported income
6	Uses equity method	Uses cost method	Not to recognise share in losses or undistributed profits
7	Uses full provision method for deferred tax	Uses partial provision method for deferred tax	Less deferred tax transferred to coming year

reduces the cost of goods sold and hence it increases the reported income.

2. Depreciation: Column 3 presents the effect of the change made with regard to the depreciation rate. In this case, Company A depreciates a certain set of assets over four years (rate of 25%), while Company B depreciates the same set of assets over five years (rate of 20%).

3. Research and Development Costs: Column 4 presents the effect of the change made with regard to research and development (R and D) costs. Company A charges all development expenditure to profit and loss account of the year based on a certain degree of uncertainty, while Company B capitalises and amortises over five years a half of such expenditure.

4. Pension Cost: Column 5 presents the effect of the change made regarding the periodic contribution to the pension scheme. Company A predicted a higher present value of the future cash outflows and hence a higher current funding was required, while Company B predicted a lower present value of the future cash outflows of the same scheme and hence a lower current funding was charged to profit and loss account.

5. Fixed Investments: In this case, fixed investment constitutes shares in another company. Column 6 presents the effect of the change made in accounting for this investment. Company A treats the investment as an associated company and hence the equity method has been used, while Company B accounts

for the same investment as a simple investment using the cost method.

6. Capital Allowances: Column 7 presents the change made in accounting for capital allowance. It is assumed that an asset has been bought which is eligible for 100% first year allowance. Company A chooses to use full provision method, while Company B chooses partial provision method and hence lower deferred tax provision is transferred to the future.

In this case, Company B may choose any one of the presented set of earnings per share figures (i.e. from 0.90 to 1.32). Alternatively, the company may choose any other combination of the presented accounting variables and hence it has even a greater set of choices than is actually presented. Also, the case shows that, other things being equal, differences in accounting procedures are fully reflected in the reported results and it is clear that the management of Company B may seek to maximise the current income at the expense of the future reported income.

Therefore, it is of interest to highlight the possible factors which can contribute to the differences in the reported income between the two firms and to present the implication of such differences. In this regard, there are three possible factors which contributed to the differences in the reported income:

i) The availability of alternative accounting procedures;

ii) The management's desire to manipulate reported income and consequently earnings per share;

iii) The auditor's compliance with the desire of client.

Although it may be argued that the second factor far outweighs the other two, it can be argued that accountants are paid to meet the public's expectations which include preventing or at least reporting misrepresentation by management, and hence it is largely an accounting problem from the public's point of view.

Concerning the implication of such differences in the reported income, it may be argued that if investors or other users accept the accounting information in the form presented, without adjustments for the method of accounting used, then Company A and Company B, otherwise identical except for the accounting procedures employed, might receive inappropriate allocations of capital funds in the financial market. The implication is that the use of alternative accounting procedures could lead to a misallocation of resources in the economy. On the other hand, if investors attempt to make adjustments for the different accounting procedures in analysing the financial reports of various firms, then they face two problems:

i) An adjustment of this kind is not an easy task even for sophisticated users;

ii) In practice, the present disclosures of accounting policies are in many cases inadequate to provide the necessary information for complete adjustment.[1]

---

1. Perks, R. and Butler, L., "Accountancy Standards in Practice: The Experience of SSAP 2", Accounting and Business Research, No. 29 (Winter 1977), p.32-3.

Hence, a consistent and appropriate adjustment is either impossible or at least difficult and we may argue that the majority of investors will not properly be able to compare alternative investments, which will lead to sub-optimal investment decisions.

In conclusion, it appears that the present state of accounting practice provides management with potential power to exercise control over the information contained in the annual accounts. Accordingly the most relevant question is to determine whether management does exercise such power. This leads us to the main issue of the present study:

> Do managers act to use accounting alternatives to serve non-accounting ends?

In this and the previous chapter, we have elaborated upon this question, and the remaining chapters of the present study will set out to describe and pursue a methodology which will attempt to provide an answer.

Chapter IV

METHODOLOGY OF THE STUDY

This chapter consists of four parts. The first is devoted to a brief statement on the general approach adopted in this research. The second part specifies the data domain and the sources of the sample of firms as well as their financial data. The third part describes the sampling process and the data collection, while the fourth part includes the operational hypotheses and the statistical methods.

The General Approach

Basically, the present study is an empirical investigation of three reporting strategies that have been suggested in the literature. These are the smoothing of, increase of and decrease of reported income. In the U.S., several empirical studies suggested that these strategies arise from theories of the firm dependent upon the separation of ownership from operational control.* However, in the U.K. situation, an attempt is made to extend this area of research to listed and unlisted firms. By doing so, additional incentives to manage reported income beside those resulted from the extent of ownership control might be revealed. In this context, two

---

* See the second chapter of the present study p. 33-49.

propositions for empirical investigation were developed and these are*

i) listed firms are more likely to smooth and bias their accounting policies towards income-increasing methods, and

ii) unlisted firms are more likely to bias their accounting policies towards income-decreasing methods.

As previously stated, the main hypothesis of this research is that there are major differences between listed and unlisted firms regarding the criteria of choice among accounting alternatives. If this hypothesis is accepted or proved to be true, then differences should exist between certain properties of their reported results. Accordingly, the proposed approach is an analysis of the reported results of two sets of firms whereby one represents listed firms, while the other represents unlisted firms. The aim of such an analysis is to examine, empirically, the relative adherence of one set compared with the other to one or more of the above mentioned reporting strategies.

Data Domain

To serve the purpose of this research, the distinction between firms into listed and unlisted was based on the argument that listed firms are expected to be more dependent on external finance than unlisted firms, while the opposite is expected with respect to internal finance. It may therefore be appropriate to

---

* See the second chapter of the present study, p. 49-61.

exclude those firms which are unlisted on the London Stock Exchange but have access to another financial market (i.e. Unlisted Securities Market). This procedure is expected to enhance the validity of the above mentioned argument. Furthermore, in a recent study, Penno and Simon have used a sample of publicly traded firms and privately-held firms to examine the accounting choice of public versus private firms.[1]

It is therefore feasible to use private and quoted companies as the data domain of the present study. Figure IV-I presents a classification of limited companies in the U.K. Public and private companies are both subject to the Companies Acts with regard to financial requirements. Thus the data domain will contain quoted companies and large private companies, as is indicated in Figure IV-1 by the dotted line. The sample will therefore include two sets of firms as follows:

i) A set of firms will be selected from the top private companies (referred to as the set of unlisted firms). In this regard, Jordan's Survey of 1985 includes Britain's top private companies and hence it will be the source of this set of firms;

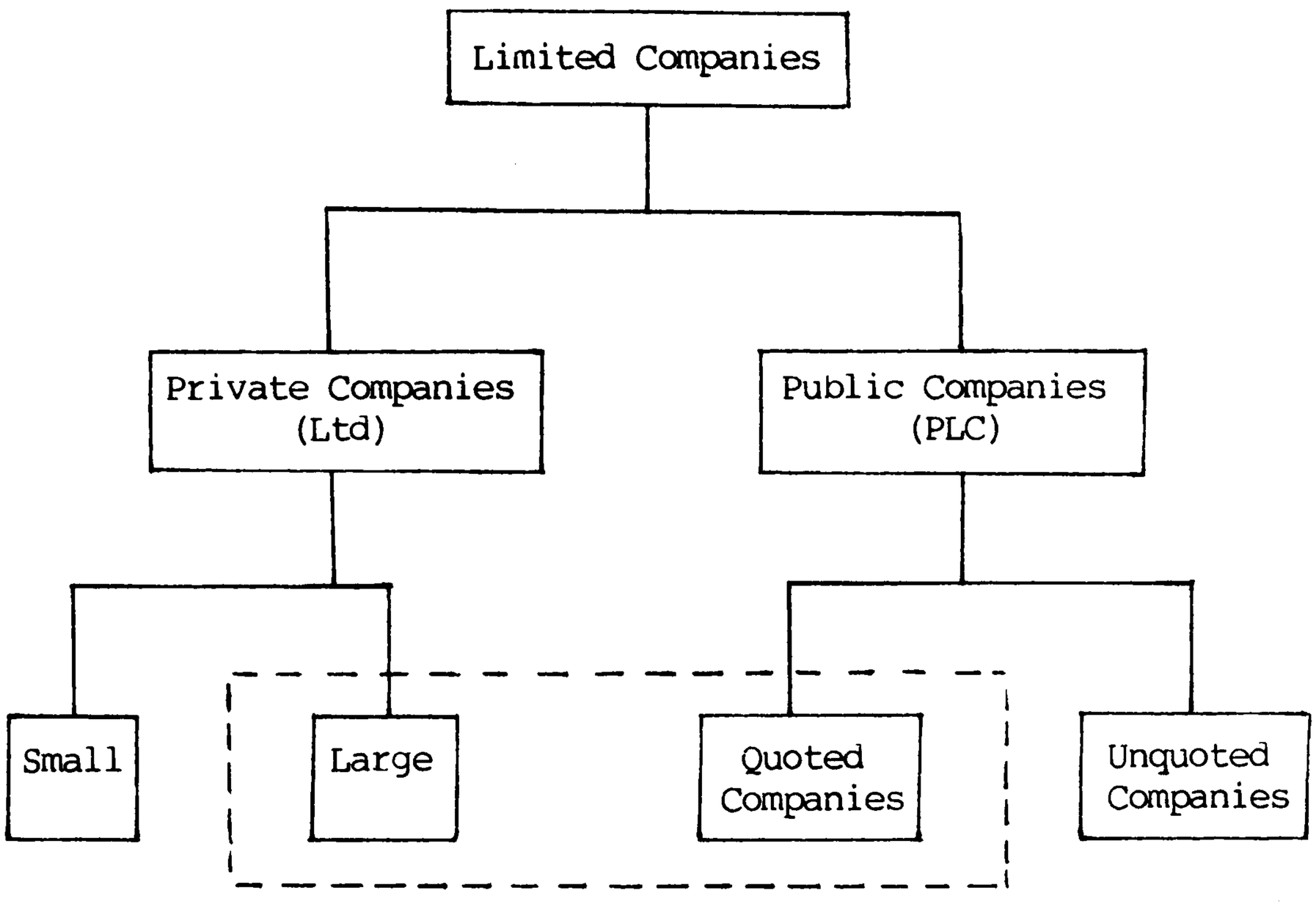
ii) A set of firms will be selected from listed companies (referred to as the set of listed firms). In this regard, The Times 1000 of 1985 includes, among others, Britain's top

---

1. Penno, M. and Simon, D., "Accounting Choices: Public Versus Private Firms", Journal of Business Finance and Accounting, 13(4), Winter 1986.

Figure IV-1

A classification of limited companies



listed companies and hence it will be the source of this set of firms.

In addition, the 1967 Act has required the compulsory filing of the annual report and accounts at Companies House for all limited companies and the 1976 Act took a further step towards ensuring the prompter filing of annual accounts. Therefore, the source of financial data for analysis is those accounts filed at Companies House.

Sampling Process and Data Collection

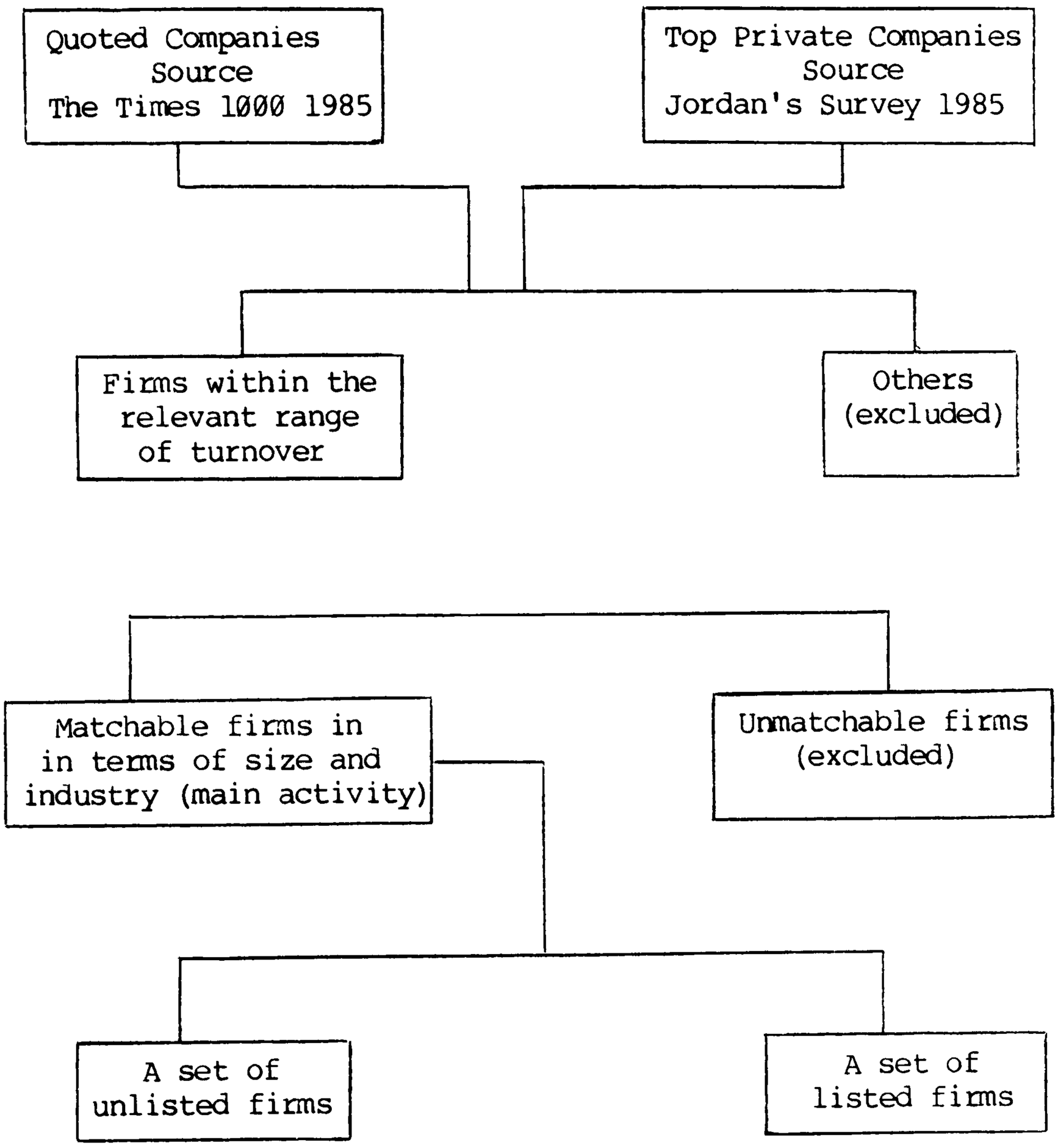
According to the literature, two variables, namely size and industry (main activity) of a firm, influence the operational results and, to some extent, the accounting decisions. Accordingly, it is essential to control for these two variables. Thus the selection and the number of firms picked during the present study were in line with the above mentioned rule. Here, the size and industry have been considered simultaneously through matching listed and unlisted firms on a firm for firm basis.

Figure IV-2 represents a simple schematic view of the sampling process, while Appendix A provides specific information about the sample. In this context, the size is measured in terms of turnover and the industries have been analysed as follows:

i) Firms within the relevant range of turnover have been classified according to four main activities, namely retailing, manufacturing, construction and others.

Figure IV-2

A Schematic View of the Sampling Process



ii) Manufacturing firms are then classified according to the industrial classification used on the Stock Market, while retailing firms are classified according to the specific type of retailing activity.

As a result of this analysis, it was only possible to select a total of 128 firms of which 64 were unlisted and 64 listed firms. It is worth noting that the overall sample included 54 retailing, 48 manufacturing and 26 construction firms.

The source of the financial data is the annual reports and accounts filed at The Companies House. This data was produced in the form of microfiche. It has then been transferred to the V.M.E. computer service at the University of Hull. The initial accounting periods range from six to ten years with an average of 9.48 years for the whole sample and they lie between 1975 to 1985. Also it should be noted that the firms in the two sets are matched in terms of turnover, industry and the accounting years.

Operational Hypotheses and Statistical Methods

The present study includes two major parts. The first is to investigate the existence of the smoothing phenomenon, while the second part is to investigate the deliberate increase and decrease of early reported income.

Income Smoothing Phenomenon

By definition, income smoothing is a strategy to report an income stream with a relatively low degree of variation from a pre-determined pattern. Such a pattern is considered to be the norm around which management might smooth reported income. In this regard, literature suggests that management might seek to present an increasing pattern of reported income based on the notion that investors prefer less volatile income growth trends.[1]

Here, it is of interest to search for indicators that allow us to accept the income smoothing hypothesis. One of these indicators relates to the reported results where, for the smoothing hypothesis to be accepted, it would be expected that listed firms would report on average a smoother income stream over time than would unlisted firms. Alternatively, it would be expected that the set of the listed firms would have a significantly higher proportion of firms with relatively smooth income streams than would the set of unlisted firms.

1. Hypotheses

The following two hypotheses will be tested:

$1H_0$

The proportion of listed firms with relatively smooth income streams is not significantly different from that of unlisted firms.

---

1. Ronen, J., Sadan, S. and Snow, C., "Income Smoothing: A Review", Accounting Journal, Spring 1977, p.21.

$1H_A$

The proportion of listed firms with relatively smooth income streams is significantly higher tnan that of unlisted firms.

In order to identify those firms with relatively smooth income streams, it is necessary to identify:

i) One or more expectancy models around which the reported income stream might be smoothed,

ii) a measure of the variability of income as a function of time, and

iii) a criterion for a low degree of variation.

If smoothing firms seek to present a pattern of increasing reported income, then it can be expected that the relationship between income and time will be close to one of the models shown in Figure IV-3. The first model (A) represents a constant change in reported income over time, while the second model (B) represents increasing changes in reported income over time. Hence, these two models will be used as expectancy models to investigate the existence of the smoothing phenomenon. The exponential curve can be reduced to a linear relationship using a logarithmic transform as follows:

$$\text{Log } I = \text{Log } A + (\text{Log } B)\ t$$

By regressing reported income on time using each model in turn, the size of the coefficient of determination R^2 can be used to identify the most appropriate model for each firm and

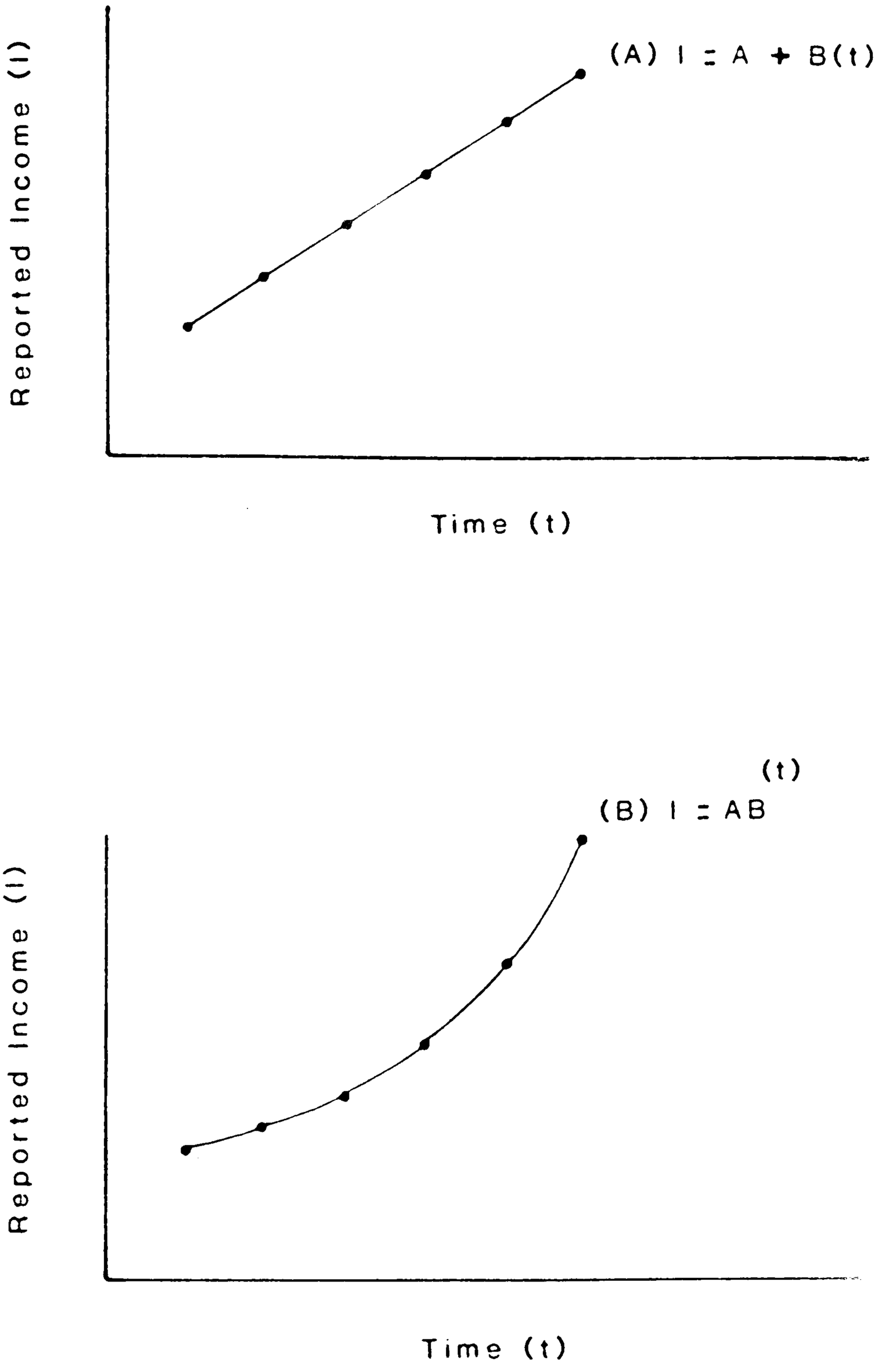


Figure IV-3

Expectancy Models

also it is a suitable measure of the variation of reported income over time. Since a low degree of variation produces a relatively high size of R^2, those firms with a reasonably high size of R^2 with positive correlation coefficient are of particular interest as far as smoothing of reported income is concerned.

Regarding the criterion of a low degree of variation, Imhoff has suggested that $R^2 \geqslant 0.80$ is a reasonable criterion for a relatively smooth time series.[1] Hence, the same criterion will be used in the present study. But, another criterion namely $R^2 \geqslant 0.70$ will also be considered to test the robustness of the conclusion.

Additionally, if management chooses to smooth reported income, it must decide what sort of reported income is the object of smoothing. In this regard, previous studies have used different objects of smoothing, for example, net income was the object of smoothing in Dopuch and Drake [1966][2] and Copeland and Licastro [1968][3], while ordinary income was the object in Ronen and Sadan [1975][4]. However, four objects of smoothing will be

---

1. Imhoff, E., "Income Smoothing - A Case for Doubt", Accounting Journal, Spring 1977, p.91.

2. Dopuch, N. and Drake, D., "The Effect of Alternative Accounting Rules for Non Subsidiary Investments", Empirical Research in Accounting: Selected Studies, 1966.

3. Copeland, R. and Licastro, R., "A Note on Income Smoothing", The Accounting Review, July 1968.

4. Ronen, J. and Sadan, S., "Do Corporations Use Their Discretion in Classifying Accounting Items to Smooth Reported Income?", The Financial Analysts Journal, September - October 1975.

considered in the present study. These objects are:

1. Ordinary income before finance and tax charges (referred to as I_1);
2. Ordinary income before tax charges (referred to as I_2);
3. Ordinary income (referred to as I_3);
4. Net income (referred to as I_4).

For this part of the present study, two hypotheses have been developed. The principal hypothesis ($1H_0$) states that:

> The proportion of listed firms with relatively smooth income streams is not significantly different from that of unlisted firms.

The alternative hypothesis ($1H_A$) states that:

> The proportion of listed firms with relatively smooth income streams is significantly higher than that of unlisted firms.

Accordingly, these hypotheses will be tested for the above objects of smoothing.

2. Test statistics

If we are willing to restrict the conclusions to 128 firms included in the present study, a comparison between the absolute proportion of smoothing firms in the two sets will show both the differences and the direction of such differences. However, it is of interest to draw inferences about populations or at least some larger numbers of firms than those actually studied and hence, a test statistic is needed. To this end, let

P_1 and P_2 denote the population proportions of all firms of listed and unlisted respectively which have relatively smooth income streams. Thus we must decide between the following hypotheses:

H_0:

$P_1 = P_2$, and observed differences due to chance

H_A:

$P_1 > P_2$, and smoothing phenomenon exists.

H_0 and H_A are statistical statements only and they represent the testable expression of the research hypotheses. In this case, the most appropriate test statistic is the T test:[1]

$$T = \frac{\frac{x_1}{n_1} - \frac{x_2}{n_2}}{\sqrt{P\,(1-P)\,(1/n_1 + 1/n_2)}} \qquad \text{with } P = \frac{x_1 + x_2}{n_1 + n_2}$$

Where:

x_1 is the number of smoothing listed firms

x_2 is the number of smoothing unlisted firms

n_1 is the number of listed firms in the sample

n_2 is the number of unlisted firms in the sample.

---

1. Bhattacharyya, G. and Johnson, R., "Statistical Concepts and Methods", John Willey and Son, New York, 1977, p.308-312.

The aim is therefore to test at a given significance level to see if the proportion of listed firms which appear to be smoothing their reported income is significantly higher than that of unlisted firms. Since, a large positive value of T discredits (H_0) in favour of (H_A), an upper-tail test is appropriate. Thus if we consider Ø.Ø5 an acceptable significance level (α), then the test will proceed along the following lines:

i) H_0: $P_1 = P_2$

H_A: $P_1 > P_2$

ii) $\alpha = Ø.Ø5$

iii) The test statistic:

$$T = \frac{\frac{x_1}{n_1} - \frac{x_2}{n_2}}{\sqrt{P\,(1 - P)\,(1/n_1 + 1/n_2)}} \quad \text{with } P = \frac{x_1 + x_2}{n_1 + n_2}$$

iv) An upper-tail test with critical value for T of 1.64 is needed. The rejection region is therefore defined by $T \geqslant 1.64$.

v) Find the sample results using the test statistic from (iii).

vi) The decision rules for testing are:

If T from the sample results is greater or equal to 1.64 then reject the null hypothesis H_0; otherwise accept the null hypothesis.

In summary, the methodology of this part of the present study can be briefly described as follows:

1 - Regress the given object of smoothing on time for each individual firm using one expectancy model at the time.

2 - Identify those firms which satisfy the criteria of a relatively smooth income stream for each expectancy model.

3 - Test for differences in proportions of smoothing firms between the two sets of firms according to:

(i) the first model,

(ii) the second model, and

(iii) a combination thereof.

Increase and Decrease of Early Reported Income

In the present study, increase of early reported income is a strategy to report a higher measurement of current income at the expense of the future reported income, while decrease of early reported income is the opposite strategy.

To investigate such strategies, a theoretical approach can be described briefly as follows:

1 - A set of accounting variables needs to be identified which satisfies the following criteria:

(i) there are at least two acceptable accounting procedures for each of the accounting variables,

(ii) such accounting procedures have different effects on

the reported income and the effects are relatively unambiguous, and

(iii) the chosen accounting procedure is usually disclosed by the firm in its annual reports.

2 - The accounting procedures of such accounting variables are then classified into two groups, namely, those which lead to a higher measurement of early reported income and those which lead to a lower measurement thereof.

3 - The researcher could then empirically examine the applied accounting procedures to see whether the set of listed firms tends to increase early reported income in comparison with the set of unlisted firms.

Unfortunately, such an approach does not seem to be feasible in the U.K. environment mainly because most accounting variables do not satisfy one or more of the above mentioned criteria. This is a direct result of the fact that the Accounting Standards Committee (ASC) has rejected the calls for issuing interpretations of accounting standards similar to those issued in the United States and hence, the present accounting standards in the U.K. are usually of a general nature rather than being more detailed. The implication of such a policy is that the present accounting disclosures are often inadequate to provide the required information for such an examination.[1] Thus

---

1. For more details on the quality of the present accounting disclosures in the U.K. see: Perks, R. and Butler, L., "Accounting Standards in Practice: The Experience of SAAP2", Accounting and Business Research, No.29, Winter 1977.

it is not feasible directly to examine the accounting procedures applied by the sample of firms. Accordingly, an alternative approach has to be sought.

Since the deliberate increase or decrease of reported income will influence the level of reported income rather than the changes thereof, as was the case with smoothing strategy, it is feasible to adopt an approach based on analysing the level of reported income of the two sets of firms. The following discussion introduces such an approach.

In the long run, it is seldom possible to consistently increase or decrease the yearly reported income, since a higher (or lower) measurement of reported income in one period must be followed by a lower (or higher) measurement in later periods. In other words, it is known that over the whole life of the firm, income is equal to cash receipts minus cash expenditures and thus, to the extent that reported income of any given period is higher (or lower), earnings of other periods must be lower (or higher). As a result the outcome of such strategies is clearly in conflict with the concept of matching costs with revenues that result from the application of accounting period assumptions. With such a conflict in mind, two firms otherwise identical except for differences in their reporting strategies, are expected to report different average incomes at least in the short run. To elaborate upon such propositions, it is known that there are those accounting decisions which are of a long term nature such as the depreciation of long lived assets, the allocation of pension costs, the valuation of the different

classes of inventory, etc. With regard to such accounting decisions, the management may deliberately increase or decrease the average reported income of a given set of revenues. Therefore, it is feasible to investigate such reporting strategies through an analysis of the reported results and the aim is to see whether there are signficant differences in the reported results between listed and unlisted firms of similar size and industry.

To this end, the major assumption made in attempting to investigate such strategies is that listed and unlisted firms operate on average with similar efficiency and these firms are subject to the discipline of the price mechanism which determines both what they pay for their inputs and what they can charge for their sales. This assumption is not totally unsupported since all the firms in the sample are well-established in their business and since the sample size is sufficiently large to diversify random differences. Furthermore, economic literature suggests that the market dictates the limits within which a profit-oriented firm can operate, otherwise it cannot survive for long. Given this assumption, it is of interest to consider the income-generating process.

In a functional sense, the net reported income is the result of total revenues less total costs. This equation may be modified in two ways. First, it can be modified to represent a typical profit and loss account as follows: net income is the result of turnover less the net of total costs and other revenues. Furthermore, this new equation includes several variables which might lead to differences between firms of

similar size and industry. These variables include extraordinary items, taxes, finance charges and, to some extent, exceptional items and other ordinary income. Thus, further modification is required and the aim of such modification is to increase the likelihood that any differences in the reported income between the two sets of firms, are attributable to differences in accounting procedures rather than to real differences. To this end, it is necessary to take the following steps:

1. The variables which might lead to real differences in the reported income between firms of similar size and industry must be considered;
2. For each firm, the data for analysis must be from several accounting periods to diversify the differences in reported income within the firm and hence the comparability between firms will be enhanced;
3. Since turnover is the principal source of revenue for most firms, the effectiveness of controlling for turnover must be tested;
4. Instead of directly analysing the reported income figures, the profitability rate, that is the profit for one pound of turnover, will be analysed for two reasons:
   (i) firms are expected to strive to achieve the average profitability rate in the industry since it is commonly used to evaluate the operating performance of the firm,
   (ii) The distribution of profitability rates is expected to be closer to a normal distribution than that of reported income figures because of the differences in

size among the sample firms.

With regard to the first step, four variables, beside size and industry, will be considered. These variables are:

1. exceptional items and other ordinary income,
2. finance charges,
3. tax charges, and
4. extraordinary items.

These variables are of special interest for the following reasons:

1. The relationship between these variables and the level of turnover is relatively ambiguous, and
2. These variables can have material effects on the level of reported income.

In dealing with these variables, it is feasible to consider several income classifications. In this regard, Figure IV-4 represents a typical consolidated profit and loss account with some modifications to serve the purpose of the present study. In this figure, five income classifications have been identified as follows:

1. adjusted trading profit (referred to as I),
2. ordinary income before finance and tax charges (referred to as I_1),
3. ordinary income before taxes (referred to as I_2),
4. ordinary income (referred to as I_3), and
5. net income (referred to as I_4).

Figure IV-4

A modified consolidated Profit and Loss Account

Turnover

- Cost of Sales

- Distribution costs

- General and administrative expenses

(I) Adjusted Trading Profit

- other operating income (net)

- exceptional items (net)

- other income and expenses

  - Income from fixed investment

  - Share of profit (loss) of Assoc. Comp.

  - Other interest receivable and similar income

  - Amount written off investment

(I_1) Ordinary Income, but before finance and tax charges

- Interest payable and similar charges

(I_2) Ordinary Income, but before tax charges

- taxation charges

(I_3) Ordinary Income

- Extraordinary Items (net)

(I_4) Net Income

In this context, the expression "adjusted trading profit" is defined as gross profit after charging distribution, general and administrative expenses including depreciation, directors' remuneration, and auditor's fees. It should be noted that this income figure does not include any of those variables stated earlier, namely exceptional items, ..., extraordinary items.

Therefore, the proposed approach is basically an analysis of the profitability rates of the two sets of firms and this approach is described in more detail in the following sections.

The aim of this investigation is to determine whether listed firms increase early reported income. In this regard, increase of reported income has been defined as a strategy to report a higher measurement of current income, while decrease of reported income is the opposite strategy. Accordingly, if listed firms seek to increase early reported income, then listed firms are expected to report higher income than that of unlisted firms of similar turnover and industry. Thus if it can be shown that the turnover figures of the two sets of firms are in fact drawn from the same population, then it would be expected that their reported income figures are also drawn from the same population or from populations with similar parameters. Alternatively, it would be expected that their average profitability rates are the same. Therefore, it is of interest to analyse the turnover and the profitability rates of the two sets of firms.

1. Hypotheses

As far as turnover is concerned, the following two hypotheses will be tested:

$2H_0$:

There are no significant differences in the means, variances and distributions of turnover between the two sets of firms.

$2H_A$:

There are significant differences in the means, variances and/or distributions of turnover between the two sets of firms.

If the null hypothesis ($2H_0$) is accepted, then any differences in the average profitability rates between the two sets of firms cannot be traced to differences in turnover and hence the likelihood that such differences are attributable to accounting differences will increase. At this stage, it can be expected that the null hypothesis will be accepted since size in terms of turnover has been controlled.

With regard to the profitability rates, the following two hypotheses will be tested:

$3H_0$:

There is no significant difference in the means of the profitability rates between the two sets of firms.

$3H_A$:

There is a significant difference in the means of the

profitability rates between the two sets of firms.

If the null hypothesis $3H_0$ is accepted, then the conclusion is that the present study does not support the proposition that listed firms seek to increase early reported income. On the other hand, if the alternative hypothesis $3H_A$ is accepted, then it may be concluded that the present study provides evidence which supports the existence of increasing and decreasing strategies depending upon the magnitude and the direction of the observed differences between the average profitability rates of the two sets of firms. It should be noted that these two hypotheses will be tested using computed profitability rates of those income classifications previously identified.

Additionally, there is the possibility that listed firms may include those firms which increase and those which decrease reported income and hence it is essential to know whether both strategies exist among listed firms. If both strategies exist among listed firms, then it is expected that the variation of the profitability rates would be higher than would otherwise have appeared. Accordingly, it is feasible to compare the coefficient of variation in the profitability rates between the two sets of firms. The coefficient of variation is a measure of the deviations from the mean and hence it can be used to determine whether the deviations from the mean of profitability rates among listed firms is higher than that among unlisted firms.

2. Test Statistics

In the previous sections, two sets of hypotheses were developed. The first set is concerned with turnover, while the second set is concerned with the profitability rates. These hypotheses include three parameters, namely the means, the variances, and the distributions. Hence, the test statistics for these parameters are discussed in turn.

To test the hypothesis concerning the means, the Two Sample T-Test is an appropriate tool. This test enables us to determine whether the two sets of firms are drawn from the same population as far as the means of turnover and the means of the profitability rates are concerned. In this regard, the set of unlisted firms is considered as a sample drawn from the population of unlisted firms with a mean of M_1 while the set of listed firms is considered as a sample drawn from the population of listed firms with a mean of M_2. Hence, the question is whether M_1 and M_2 are equal. If M_1 and M_2 are equal, the T-Test calculates the probability that a difference at least as large as the one observed would occur. This probability is known as the "observed significance level" and if this level is small enough, usually less than Ø.Ø5, then the hypothesis that the population means are equal is rejected. On the other hand, if the observed significance level is large enough, then the equality hypothesis is accepted and any observed difference in the sample means is regarded as being a sampling difference.

To determine the appropriate significance level, it is necessary to reflect upon the fact that no statistical test guarantees a certain result and hence there is always the

possibility of the null hypothesis H_0 being rejected when it is correct or accepted when it is false.[1] The former is known as TYPE I error, while the latter is known as TYPE II error.

To reduce the likelihood of committing any given error, the researcher can reduce the probability of that error, but reducing the probability of one error automatically increases the probability of committing the other error. Thus the appropriate significance level can be determined by reference to the consequences of committing either of the two types of errors.[2] In this regard, the writer believes that:

1. For the means of turnover, the consequences of committing a TYPE II error, i.e. wrongly accepting the equality hypothesis, are more serious than that of committing TYPE I error and hence, the significance level must be sufficiently large. In other words, the equality hypothesis of the means of turnover will not be accepted unless there is strong evidence.
2. For the means of the profitability rate, the consequences of committing a TYPE I error, i.e. wrongly rejecting the equality hypothesis, are more serious than that of committing TYPE II error and hence, the significance level must be sufficiently small. In other words, the equality

---

1. Clark, C., and Schkade, L., Statistical Analysis for Administrative Decisions, South-Western Publishing Co., Brighton, 1974, p.332.

2. Bhattacharyya, G. and Johnson, R., op.cit., p.174.

hypothesis of the means of the profitability rate will not be rejected unless there is strong evidence.

Accordingly, for the means of turnover, the significance level of $\alpha = 0.20$ can be used, while for the means of the profitability rate, the significance level of $\alpha = 0.05$ as a two-tailed test and consequently $\alpha = 0.025$ as a one-tailed test are reasonable choices.

Additionally, the Two Sample T-Test offered by the SPSS^X provides the F-Test which is a test of the equality of variance. The F-Test provides the ratio of the large sample variance to the smaller and the observed significance level. Accordingly, the F-Test will be used to test the equality hypothesis of the variances of turnover. Although the F-Test is often used to compare the distribution of two data sets, it does not consider the possibility that the two data sets may have equal means and variances, but they are oppositely skewed. Since the reported income is expected to be sensitive to any differences in the distribution of turnover, it is important to investigate such a possibility. In this regard, the Mann-Whitney Test is appropriate and it will be discussed in more detail at the application stage.

Chapter V

THE SMOOTHING PHENOMENON

The purpose of this chapter is to present and analyse the results obtained from the empirical investigation with respect to the income smoothing phenomenon. Accordingly, this chapter consists of five sections. The first includes a brief statement on the raw data as well as an introduction to the statistical package used in the present study. The second section includes the operational hypotheses and the test statistics. The third section is devoted to the presentation of the results obtained from applying the two expectancy models to the data on a firm by firm basis. The fourth section includes an analysis of the results. The final section draws the conclusions available from this part of the presentation.

Data and Statistical Package

In the present study, the source of the raw data is the annual reports and accounts filed at the Companies House in London. This data was produced in the form of microfiches. It has then been transferred to the V.M.E. Computer Services at the University of Hull. The period available for analysis includes those accounting periods which lay between 1975 and 1985 with an average of 9.48 years for the whole sample of firms. It should be noted that the firms in the two sets are matched in terms of turnover, industry and the accounting periods under examination.

To identify individual firms, each firm has been assigned an identification number [ID] whereby odd numbers represent unlisted firms, even numbers represent listed firms, and the first firm is matched with the second and so on.

To analyse the data, the Statistical Package for Social Sciences ($SPSS^X$) has been used. This package is a comprehensive tool for managing, analysing, and displaying information. It is an integrated system of computer programmes with a wide range of statistical facilities. The package used in the present study is the latest edition of such systems and it brings together data management, report writing and statistical analysis in one comprehensive system with a single language.

Hypotheses and Test Statistics

For this part of the present study, two hypotheses were developed in the previous chapter. The null hypothesis ($1H_0$) states that:

> the proportion of listed firms with relatively smooth income streams is not significantly different from that of unlisted firms.

while the alternative hypothesis ($1H_A$) states that:

> The proportion of listed firms with relatively smooth income streams is significantly higher than that of unlisted firms.

To identify those firms with relatively smooth income streams, two expectancy models were proposed in the previous

chapter. The first model is a simple linear relationship between reported income and time, while the second model describes the relationship in the form of an exponential curve which has been transformed using logarithms to reduce the model to a linear form. When applying the second model, we have excluded those firms which have reported at least one loss during the accounting periods under examination because of the fact that the transformation is only possible with positive values. As far as the second model is concerned, such firms will be classified as non smoothing firms. In this regard, we may argue that the possibility of a smoothing firm reporting a loss is minimal. However, the scattergrams from the first model will enable us to examine such firms to see whether there is any indication of smoothing behaviour.

To test the above hypotheses, the most appropriate test statistic is:

$$T = \frac{\frac{x_1}{n_1} - \frac{x_2}{n_2}}{\sqrt{P\,(1 - P)\,(1/n_1 + 1/n_2)}} \quad \text{with } P = \frac{x_1 + x_2}{n_1 + n_2}$$

Whereby:

x_1 is the number of listed firms considered smoothers

x_2 is the number of unlisted firms considered smoothers

n_1 is the number of listed firms in the sample

n_2 is the number of unlisted firms in the sample

Since a large positive value of T from the sample results discredits the principal hypothesis $1H_0$ in favour of the alternative hypothesis $1H_A$, an upper tail test is appropriate. Thus if we consider Ø.Ø5 an acceptable significance level , then the decision rules for testing are:

If the sample's T value is greater than or equal to 1.645, then reject the null hypothesis, otherwise accept the null hypothesis.

In the following section, the regression results obtained from applying the two expectancy models to the data of the last five accounting years are presented.

The Regression Results

In the present study, four objects of smoothing are considered as follows:

1. ordinary income before finance and taxation charges (referred to as I_1),
2. ordinary income before taxation charges (referred to as I_2),
3. ordinary income (referred to as I_3),
4. final income (referred to as I_4).

Each of these objects is regressed on time for each firm using one model at a time. In this regard, the SPSS^X offers the Scattergram command with several procedures which print statistics associated with the simple regression of one variable upon the other. Such Scattergrams enable us to visualise the

relationship between reported income and time for each firm, while the other procedures print the coefficient of correlation (R) and the coefficient of determination (R^2). Since we are interested in those firms with increasing income streams over time, the sign of R will enable us to identify tnose firms with negative correlation between the reported income and time.

In this section, only the regression results of the last five years data are presented. This period will be modified later in this chapter. Table V-1 presents the results of the first model, while Table V-2 presents that of the second model. Each table includes nine columns. The first column specifies the identification number (ID) of each firm, while the remaining columns are arranged, first according to each object of smoothing i.e. income I1, I2, I3 and I4. Second, for each object, there are two sub-columns namely the correlation coefficient R and the coefficient of determination RR.

The following sections provide an analysis of these results and further testing of the findings.

Analysis of the Results

Our analysis is conducted in two stages. In the first stage the operational hypotheses will be tested. In the second stage we will test the robustness of the conclusions reached in the first stage.

TABLE V-1

CORRELATION COEFF. (R) AND COEFF. OF DETERMINATION (RR) ACCORDING TO INCOME CLASSIFICATIONS FROM THE FIRST MODEL (USING THE DATA OF THE LAST FIVE YEARS)

ID	I1		I2		I3		I4	
	R	RR	R	RR	R	RR	R	RR
1	.879	.773	.876	.767	-.057	.003	-.156	.024
2	.992	.985	.994	.939	.955	.913	.368	.135
3	.049	.002	-.012	.000	-.131	.017	-.130	.017
4	.964	.969	.989	.978	.967	.975	.989	.978
5	.000	.000	.408	.167	.215	.046	.115	.013
6	.926	.857	.596	.803	.913	.834	.804	.647
7	-.581	.338	-.204	.041	-.901	.812	-.901	.812
8	-.634	.402	-.387	.150	-.009	.000	-.074	.005
9	.909	.827	.967	.935	.812	.660	.818	.669
10	.899	.808	.985	.970	.914	.836	.749	.561
11	.924	.855	.935	.875	.829	.687	.755	.570
12	.885	.783	.904	.817	.917	.842	.931	.868
13	.845	.714	.792	.628	.853	.729	-.372	.138
14	-.551	.304	-.475	.226	-.585	.343	.033	.001
15	-.548	.300	-.498	.248	-.267	.071	-.143	.020
16	.188	.035	.573	.328	.499	.249	.313	.098
17	-.310	.096	.173	.030	-.053	.002	.193	.037
18	-.469	.220	-.198	.039	-.271	.073	-.840	.706
19	-.179	.032	-.146	.021	-.282	.080	-.282	.080
20	-.396	.157	-.828	.686	-.831	.690	-.733	.538
21	-.777	.604	-.609	.371	-.766	.587	-.735	.541
22	.711	.506	.686	.470	-.556	.310	-.798	.637
23	.523	.273	.432	.187	.333	.111	-.125	.015
24	.615	.379	.479	.229	.417	.174	.417	.174
25	.935	.874	.935	.875	.882	.778	.882	.778
26	-.495	.245	-.566	.321	-.627	.394	-.727	.529
27	.224	.050	-.443	.196	-.735	.540	-.696	.485
28	.516	.266	.149	.022	.107	.011	-.072	.005
29	-.874	.765	-.881	.777	-.895	.801	-.871	.759
30	.267	.071	.257	.066	.073	.005	-.185	.034
31	.770	.593	.943	.889	.975	.950	-.475	.226
32	.948	.900	.965	.932	.978	.957	.933	.870
33	.559	.313	.274	.075	-.370	.137	-.370	.137
34	.856	.734	.711	.505	.899	.808	.925	.855
35	-.019	.000	-.019	.000	-.681	.464	-.681	.464
36	.826	.683	.857	.734	-.039	.001	.216	.046
37	.807	.651	.845	.714	.375	.140	.250	.062
38	.686	.471	.910	.829	.921	.848	.910	.829
39	-.756	.572	-.834	.696	-.864	.748	-.814	.664
40	-.570	.325	-.670	.449	-.262	.068	-.569	.324
41	.128	.016	.016	.000	.113	.012	-.125	.015
42	-.232	.054	-.338	.114	-.525	.275	-.525	.275
43	.925	.857	.925	.857	.923	.852	.931	.868
44	.763	.583	.763	.582	.789	.624	-.708	.502
45	-.113	.013	-.609	.371	-.281	.079	-.281	.079
46	.993	.986	.996	.993	.987	.974	.987	.974
47	.754	.569	.737	.544	.903	.825	.893	.798
48	.981	.963	.984	.970	.972	.945	.969	.939
49	.613	.375	.759	.576	.686	.470	.198	.039
50	.874	.764	.813	.661	.427	.183	.472	.222
51	.703	.494	.766	.586	-.097	.009	-.097	.009
52	.522	.273	.349	.121	-.073	.005	.512	.262
53	.529	.280	.522	.273	.570	.325	.514	.264
54	.805	.649	.900	.810	.924	.854	.848	.719
55	.339	.115	-.192	.037	-.286	.081	-.438	.192
56	.725	.526	.757	.573	.197	.038	.303	.094
57	.302	.131	-.384	.147	-.713	.508	-.731	.534
58	.646	.716	.842	.710	.786	.619	.322	.103
59	.940	.884	.941	.885	.865	.783	.878	.771
60	.970	.942	.976	.953	.932	.869	.997	.994
61	.294	.086	.189	.036	.114	.013	-.382	.146
62	.993	.986	.994	.988	.985	.971	-.264	.070
63	-.013	.000	.010	.000	-.691	.477	-.701	.492
64	.990	.981	.994	.989	.989	.978	.992	.985

(TABLE V-1 CONTINUED)

TABLE V-1 (CONTINUED)

CORRELATION COEFF. (R) AND COEFF. OF DETERMINATION (RR) ACCORDING TO INCOME CLASSIFICATIONS FROM THE FIRST MODEL (USING THE DATA OF THE LAST FIVE YEARS)

ID	I1		I2		I3		I4	
	R	RR	R	RR	R	RR	R	RR
65	-.390	.152	-.476	.227	-.592	.351	-.592	.351
66	.730	.534	.700	.491	.721	.520	.725	.526
67	.912	.832	.847	.717	.761	.580	.447	.200
68	.965	.932	.974	.950	.896	.803	.925	.857
69	.201	.040	.194	.037	-.010	.000	-.074	.005
70	-.107	.011	-.181	.032	-.136	.018	-.294	.086
71	.967	.936	.966	.933	-.020	.000	-.020	.000
72	-.524	.275	-.513	.263	-.857	.736	-.774	.599
73	.229	.052	.472	.223	.862	.744	.629	.396
74	-.071	.005	-.304	.092	-.908	.824	-.614	.377
75	-.617	.381	-.713	.509	.360	.130	-.356	.126
76	-.040	.001	.300	.090	.299	.089	-.008	.000
77	.846	.715	.975	.951	.847	.717	.596	.356
78	-.889	.790	-.931	.866	-.906	.821	-.909	.827
79	-.122	.014	-.037	.001	-.575	.330	-.755	.570
80	.018	.000	.345	.119	.067	.004	.277	.077
81	.631	.399	.524	.274	.864	.746	.864	.748
82	.033	.001	.116	.013	.969	.939	.937	.879
83	-.919	.844	-.916	.839	-.776	.602	-.739	.547
84	-.645	.416	-.582	.339	-.573	.329	-.180	.032
85	-.116	.013	.119	.014	.027	.000	-.222	.049
86	.959	.920	.967	.935	.961	.923	.966	.933
87	.907	.822	.908	.824	.487	.237	.465	.216
88	.829	.687	.829	.687	.818	.670	.699	.489
89	.988	.977	.984	.969	.973	.948	.973	.948
90	.969	.939	.977	.955	-.192	.036	-.011	.000
91	.264	.069	.321	.103	.155	.024	.267	.071
92	.115	.013	.407	.165	.391	.153	.652	.425
93	-.204	.041	-.350	.122	-.828	.686	-.777	.604
94	-.848	.720	-.456	.208	-.473	.224	-.634	.402
95	-.654	.428	-.257	.066	-.877	.770	-.900	.811
96	-.885	.783	-.968	.937	-.889	.791	-.854	.729
97	.601	.438	.485	.235	.485	.235	.559	.312
98	.993	.987	.980	.961	.836	.699	.783	.614
99	.650	.423	.430	.185	.532	.283	.663	.440
100	-.937	.879	-.847	.717	-.772	.596	-.781	.610
101	.282	.080	-.438	.192	-.326	.106	-.374	.140
102	.988	.976	.922	.851	.522	.272	.724	.525
103	.611	.374	.459	.211	.625	.391	.516	.266
104	.688	.474	.527	.278	-.596	.355	-.790	.624
105	-.620	.385	-.758	.574	-.791	.626	-.825	.680
106	.879	.772	.981	.964	.993	.996	.997	.994
107	.401	.161	.394	.155	.099	.009	.096	.009
108	.830	.690	.833	.694	.755	.570	.770	.594
109	.741	.549	.915	.838	-.304	.092	-.304	.092
110	.883	.780	.860	.740	.745	.556	.646	.417
111	.867	.752	.962	.926	.724	.524	-.569	.324
112	.929	.863	.919	.845	.926	.858	.828	.686
113	.706	.498	.739	.546	-.527	.278	-.472	.223
114	.891	.794	-.584	.341	-.531	.282	-.531	.282
115	-.275	.075	-.333	.111	-.650	.422	-.650	.422
116	.183	.033	.659	.434	.785	.616	.123	.015
117	.010	.000	-.250	.062	-.262	.068	-.262	.069
118	.729	.532	.712	.508	.436	.190	.172	.029
119	.295	.087	.208	.043	.263	.069	-.541	.293
120	-.128	.016	-.171	.029	-.013	.000	-.036	.001
121	.375	.140	.497	.247	.046	.002	.080	.006
122	.732	.536	.738	.545	.629	.396	.629	.396
123	-.706	.499	-.630	.397	-.689	.474	-.860	.740
124	.860	.741	.835	.698	.946	.895	.946	.895
125	-.357	.127	-.442	.196	-.311	.096	-.399	.159
126	-.815	.665	-.560	.313	-.548	.300	-.634	.402
127	.085	.007	.285	.081	-.485	.235	-.541	.293
128	.993	.987	.993	.986	.960	.922	.960	.922

TABLE V-2

CORRELATION COEFF. (R) AND COEFF. OF DETERMINATION (RR) ACCORDING TO INCOME CLASSIFICATIONS FROM THE SECOND MODEL (USING THE DATA OF THE LAST FIVE YEARS)

ID	I1		I2		I3		I4	
	R	RR	R	RR	R	RR	R	RR
1	.871	.759	.883	.780	.090	.008	-.040	.001
2	.990	.981	.989	.979	.952	.906	.321	.103
3	-.010	.000	-.105	.011	.053	.002	.053	.002
4	.976	.953	.987	.974	.976	.953	.975	.950
7	-.607	.369	-.277	.076	-.897	.805	-.897	.805
9	.913	.834	.942	.889	.856	.734	.872	.760
10	.880	.774	.967	.974	.911	.830	.798	.637
11	.929	.864	.941	.886	.820	.673	.754	.569
12	.884	.782	.914	.836	.930	.866	.951	.905
13	.833	.694	.782	.612	.891	.795	-.548	.300
18	-.440	.194	-.134	.018	-.212	.045	-.876	.768
19	-.189	.035	-.154	.023	-.243	.059	-.243	.059
20	-.386	.149	-.792	.627	-.850	.723	-.682	.465
22	.716	.513	.697	.486	-.592	.351	-.770	.594
24	.565	.320	.441	.195	.407	.165	.407	.165
25	.940	.884	.940	.885	.911	.831	.911	.831
26	-.388	.150	-.465	.216	-.493	.248	-.679	.461
27	.244	.059	-.438	.192	-.716	.513	-.634	.402
31	.770	.593	.914	.837	.963	.929	-.366	.134
32	.961	.924	.986	.972	.959	.920	.912	.832
33	.501	.251	.203	.041	-.236	.056	-.236	.056
34	.837	.701	.670	.449	.907	.823	.928	.862
35	-.092	.008	-.092	.008	-.640	.409	-.640	.410
36	.852	.727	.881	.776	-.062	.003	.107	.011
37	.783	.613	.833	.695	.386	.149	.185	.034
42	-.268	.072	-.372	.138	-.577	.333	-.577	.333
43	.928	.862	.928	.862	.925	.857	.937	.878
44	.761	.580	.760	.578	.782	.611	-.735	.541
45	-.128	.016	-.710	.505	-.372	.139	-.372	.139
46	.995	.991	.990	.980	.998	.996	.998	.996
48	.936	.877	.937	.879	.926	.858	.903	.824
49	.634	.402	.779	.606	.694	.481	.150	.022
50	.861	.742	.809	.655	.474	.224	.507	.257
51	.701	.491	.865	.749	.388	.151	.388	.151
53	.564	.319	.556	.309	.620	.385	.548	.300
55	.363	.132	-.175	.030	-.219	.048	-.527	.278
57	.424	.180	-.432	.187	-.779	.605	-.602	.363
59	.959	.921	.960	.922	.928	.861	.912	.832
60	.977	.955	.962	.964	.955	.913	.995	.991
61	.396	.157	.273	.074	.151	.023	-.510	.261

(TABLE V-2 CONTINUED)

TABLE V-2 (CONTINUED)

CORRELATION COEFF. (R) AND COEFF. OF DETERMINATION (RR) ACCORDING TO INCOME CLASSIFICATIONS FROM THE SECOND MODEL (USING THE DATA OF THE LAST FIVE YEARS)

ID	I1		I2		I3		I4	
	R	RR	R	RR	R	RR	R	RR
62	.997	.994	.997	.994	.992	.985	-.155	.024
63	.044	.001	.059	.003	-.676	.457	-.680	.463
64	.992	.984	.982	.964	.975	.952	.986	.974
66	.764	.585	.667	.445	.747	.558	.760	.578
68	.995	.990	.997	.994	.899	.809	.937	.878
69	.231	.053	.227	.051	.028	.000	-.067	.004
70	-.072	.005	-.153	.023	-.077	.006	-.268	.072
71	.932	.870	.930	.865	.275	.076	.275	.076
72	-.502	.252	-.491	.241	-.864	.748	-.800	.640
75	-.649	.422	-.724	.525	.391	.152	-.349	.122
77	.830	.689	.988	.976	.819	.672	.657	.432
79	-.162	.026	-.063	.004	-.606	.367	-.758	.575
81	.604	.364	.486	.236	.858	.737	.863	.744
82	.046	.002	.131	.017	.966	.933	.944	.892
83	-.931	.868	-.920	.847	-.786	.619	-.735	.540
88	.873	.762	.884	.781	.860	.740	.645	.416
89	.988	.976	.987	.975	.970	.942	.970	.942
90	.988	.977	.992	.984	-.037	.001	.111	.012
93	-.218	.047	-.364	.132	-.801	.642	-.634	.402
94	-.852	.726	-.278	.077	-.273	.074	-.427	.182
95	-.685	.469	-.321	.103	-.933	.870	-.958	.918
98	.996	.992	.964	.929	.834	.697	.827	.683
101	.222	.049	-.351	.123	-.239	.057	-.274	.075
102	.978	.958	.922	.850	.508	.258	.693	.481
108	.838	.703	.842	.709	.740	.548	.752	.566
109	.747	.558	.872	.761	-.221	.048	-.221	.048
110	.868	.753	.843	.711	.712	.507	.547	.300
111	.869	.755	.956	.914	.713	.509	-.480	.230
112	.942	.888	.931	.868	.943	.891	.813	.661
113	.680	.462	.707	.500	-.361	.130	-.296	.088
114	.886	.785	-.633	.401	-.634	.402	-.634	.402
115	-.341	.116	-.411	.169	-.682	.465	-.682	.465
116	.138	.019	.651	.424	.786	.618	.305	.093
119	.246	.060	.154	.023	.224	.050	-.504	.254
120	-.097	.009	-.131	.017	-.003	.000	-.020	.000
122	.712	.507	.718	.516	.604	.365	.604	.365
123	-.699	.488	-.626	.392	-.694	.482	-.906	.821
124	.842	.709	.816	.666	.954	.910	.954	.910
125	-.243	.059	-.329	.108	-.293	.089	-.407	.165
127	.117	.013	.331	.109	-.535	.286	-.612	.375
128	.986	.972	.985	.971	.965	.932	.965	.932

Stage I: Testing the Hypotheses

The main purpose of this stage is to test the null hypothesis that the proportion of listed firms with relatively smooth income streams is not significantly higher than that of unlisted firms. Since it is worthy to know whether one of the two expectancy models is more commonly used, as a predetermined pattern to smooth reported income, we will, first, consider each model separately. Secondly, we will analyse the results of combining the two models.

Table V-3 presents a summary of the results obtained from the first model. The first column includes the four objects of smoothing whereby each object is classified according to the type of firms, namely unlisted and listed. The second column includes the number and percentage of firms which satisfy the smoothing criterion. The third column includes the number and percentage of those firms having $R^2 < 0.80$ or negative correlation coefficients, while the fourth column includes the total number of firms in each set of firms. The fifth column states the sample's T value calculated according to the test statistic formula. The final column states the decision reached about the null hypothesis based on the following rules "If the sample's T value is greater than or equal to 1.645, then reject the null hypothesis; otherwise accept the null hypothesis". This table shows that the null hypothesis is rejected with respect to all objects of smoothing, using the first model. Thus the proportion of listed firms with relatively smooth income streams is significantly higher than that of unlisted firms for all

Table V-3

Summary of the Results obtained from the First Model

Object of Smoothing with Control Classif.		$R^2 \geqslant 0.80$ with + ve (R) (%)		$R^2 < 0.80$ or - ve (R) (%)		Total (%)		Sample's (T) Value	Decision
I_1	unlisted	9	(14.1)	55	(85.9)	64	(100)	1.76	Reject (Ho)
	listed	17	(26.6)	47	(73.4)	64	(100)		
I_2	unlisted	12	(18.8)	52	(81.3)	64	(100)	1.82	Reject (Ho)
	listed	21	(32.8)	43	(67.2)	64	(100)		
I_3	unlisted	4	(6.3)	60	(93.8)	64	(100)	3.80	Reject (Ho)
	listed	21	(32.8)	43	(67.2)	64	(100)		
I_4	unlisted	2	(3.1)	62	(96.9)	64	(100)	3.42	Reject (Ho)
	listed	15	(23.4)	49	(76.6)	64	(100)		

objects of smoothing considered in the present study. Furthermore, ordinary income (I_3) has the highest T value i.e. 3.8Ø and the highest percentage of smoothing firms i.e. 32.8%.

Table V-4 presents a summary of the results obtained from the second model. This table is organised in the same way as the previous table. The last column shows that the null hypothesis is rejected with respect to reported income I1, I3 and I4, while it is accepted with regard to income I2. Again ordinary income I3 has the highest T value and the highest percentage of smoothing firms. The former is 2.64, while the latter is 25%. Although both models provide sufficient evidence of smoothing among listed firms, the first model provides stronger evidence than the second model.

Table V-5 presents a combined summary of the results obtained from both models. In this regard the first model has been considered the base and those firms which have been identified as smoothers using the second model, but not identified by the first model, have been added to the base. Since the main reason for using two expectancy models is the fact that we do not know the patterns that management might choose as a norm for smoothing, a combination of the two models is considered to be more appropriate for the purpose of the present study, if such a combination provides additional information.

Table V-5 shows that the null hypothesis is rejected for all objects of smoothing. Again ordinary income I3 has the highest T value and the highest percentage of smoothing firms among the set of listed firms. In fact, the null hypothesis is

Table V-4

Summary of the Results Obtained from the Second Model

Object of Smoothing with Control Classif.		$R^2 \geq 0.80$ with + ve (R) (%)	$R^2 < 0.80$ or - ve (R) (%)	Total (%)	Sample's (T) Value	Decision
I_1	unlisted	7 (10.9)	57 (89.1)	64 (100)	1.67	Reject (Ho)
	listed	14 (21.9)	50 (78.1)	64 (100)		
I_2	unlisted	10 (15.6)	54 (84.4)	64 (100)	1.31	Accept (Ho)
	listed	16 (25.0)	48 (75.0)	64 (100)		
I_3	unlisted	5 (7.8)	59 (92.2)	64 (100)	2.64	Reject (Ho)
	listed	16 (25.0)	48 (75.0)	64 (100)		
I_4	unlisted	4 (6.3)	60 (93.8)	64 (100)	2.15	Reject (Ho)
	listed	12 (18.7)	52 (81.3)	64 (100)		

Table V-5

Summary of the Results obtained from Both Models

Object of Smoothing with Control Classif.		$R^2 \geq Ø.8Ø$ with + ve (R) (%)		$R^2 < Ø.8Ø$ or - ve (R) (%)		Total (%)		Sample's (T) Value	Decision
I_1	unlisted	9	(14.1)	55	(85.9)	64	(1ØØ)	1.76	Reject (Ho)
	listed	17	(26.6)	47	(73.4)	64	(1ØØ)		
I_2	unlisted	12	(18.8)	52	(81.3)	64	(1ØØ)	1.82	Reject (Ho)
	listed	21	(32.8)	43	(67.2)	64	(1ØØ)		
I_3	unlisted	6	(9.4)	58	(90.6)	64	(1ØØ)	3.28	Reject (Ho)
	listed	21	(32.8)	43	(67.2)	64	(1ØØ)		
I_4	unlisted	4	(6.3)	6Ø	(93.8)	64	(1ØØ)	2.74	Reject (Ho)
	listed	15	(23.4)	49	(76.6)	64	(1ØØ)		

rejected even at a significance level lower than 0.005 with respect to income I3 and I4.

In summary, the empirical evidence supports the hypothesis that the proportion of listed firms with relatively smooth income streams is significantly higher than that of unlisted firms. Also it is worth noticing that ordinary income I3 has the highest T value in all cases and hence it may be perceived to be the most common object of smoothing among listed firms. The peculiarity of such an object of smoothing may stem from the fact that it is the most relevant figure in the income statement for the calculation of earnings per-share which is used to calculate the price-earnings ratio, one of the most commonly used stock market indicators. For this object of smoothing, the percentage of smoothing firms is 32.8% among listed firms, while it is only 9.4% among unlisted firms.

Stage II: Testing the Robustness of Empirical Findings

The main purpose of this stage is to test the robustness of the conclusions reached in the first stage. This test is conducted through certain modifications with respect to:

1. The criterion of a smooth income stream; and
2. The length of the period under examination.

Additionally, in this stage the concept of natural smoothing is examined.

1. Modifying the Criterion of a Smooth Income Stream

In the previous stage, the analysis was limited to those firms with $R^2 \geqslant 0.80$ as a criterion for a smooth income stream. The main reason for setting such a high criterion is to include only those firms which can be seen as successful in their attempts to smooth reported income over time. But it is also of interest to know what will happen if such criterion is reduced to a lower range, e.g. $R^2 \geqslant 0.70$ with positive correlation coefficient. By doing so, we will be able to include those firms which might attempt to smooth reported income, but do not necessarily succeed in their attempts. In this regard, it may be argued that if income smoothing is more common among listed firms, it would be expected that the proportion of listed firms which attempted to smooth reported income, but did not necessarily succeed, should be higher than that of unlisted firms.* Hence this proposition will be tested. To this end, Table V-6 presents the combined results of both models used in the first stage of the analysis of this chapter but using $R^2 \geqslant 0.70$ with positive correlation as a criterion of distinguishing between firms. This table shows that the results are consistent with the above proposition with respect to all objects of smoothing. Therefore such findings provide further support to the conclusions reached in the first stage of this analysis.

---

* Notice that $R^2 \geqslant 0.70$ with positive correlation is in relative terms not a very low criterion of a smooth income stream.

Table V-6 (Modified Criterion)

Summary of the Results Obtained from Both Models

Object of Smoothing with Control Classif.		$R^2 \geqslant 0.70$ with + ve (R) (%)	$R^2 < 0.70$ or - ve (R) (%)	Total (%)	Sample's (T) Value	Decision
I_1	unlisted	13 (20.3)	51 (79.7)	64 (100)	2.77	Reject (Ho)
	listed	28 (43.7)	36 (56.8)	64 (100)		
I_2	unlisted	16 (25.0)	48 (75.0)	64 (100)	1.89	Reject (Ho)
	listed	26 (40.6)	38 (59.4)	64 (100)		
I_3	unlisted	11 (17.2)	53 (82.8)	64 (100)	2.22	Reject (Ho)
	listed	22 (34.4)	42 (65.6)	64 (100)		
I_4	unlisted	7 (10.9)	57 (89.1)	64 (100)	2.09	Reject (Ho)
	listed	16 (25.0)	48 (75.0)	64 (100)		

2. Modifying the Period Under Examination

The period under examination has been modified to see whether such modification may provide further insights regarding the smoothing phenomenon. In this regard, the period under examination has been extended to cover the whole period available for analysis and hence the accounting periods lay between 1975 and 1985 with an average of 9.48 years for the whole sample. The regression results are presented in table V-7 and table V-8 which are organised in the same way as previous tables.

Table V-9 presents a summary of such results through combining the two models. In this case, the original criterion of distinguishing between smoothing and non-smoothing firms has been used.

The null hypothesis is accepted with respect to income I1 and I2, while it is rejected with respect to income I3 and I4. This demonstrates that listed firms are consistently smoothing ordinary income I3 and net income I4. Furthermore, ordinary income has again the highest T value. While this provides further support to the findings of the previous stages, the magnitudes of the T value indicate that the five year period provides stronger evidence of smoothing among listed firms than the longer period. To justify such a difference, two general reasons might be advanced. First, in the relative long run, management might change the pattern around which the reported income is smoothed and hence the smoothness of time - series can be affected. Secondly, effective smoothing requires adjustment with some precision and knowledge of techniques to accomplish

TABLE V-7

CORRELATION COEFF. (R) AND COEFF. OF DETERMINATION (RR) ACCORDING TO INCOME CLASSIFICATIONS FROM THE FIRST MODEL (USING THE DATA AVAILABLE FOR ANALYSIS)

ID	I1		I2		I3		I4	
	R	RR	R	RR	R	RR	R	RR
1	.800	.641	.731	.534	.643	.414	.596	.355
2	.918	.843	.921	.849	.946	.896	.723	.523
3	.765	.617	.747	.559	.605	.366	.600	.361
4	.929	.864	.939	.882	.956	.915	.960	.921
5	.719	.517	.671	.451	.594	.353	.538	.290
6	.802	.644	.781	.610	.807	.651	.712	.507
7	.286	.082	.075	.005	.623	.386	.623	.388
8	-.112	.012	-.207	.042	-.261	.068	-.266	.070
9	.897	.805	.794	.631	.792	.626	.786	.618
10	.921	.849	.901	.812	.901	.925	.881	.777
11	.963	.928	.961	.925	.965	.931	.942	.888
12	.593	.351	.544	.296	.261	.068	.269	.072
13	.965	.932	.958	.916	.904	.817	.487	.237
14	-.158	.024	-.774	.599	-.079	.006	-.129	.016
15	.245	.060	.067	.007	.077	.006	.348	.121
16	.150	.022	-.077	.006	-.157	.024	-.204	.041
17	-.075	.005	-.393	.154	-.518	.268	-.380	.144
18	.711	.506	.742	.551	.721	.520	.412	.170
19	.764	.584	.771	.594	.566	.320	.566	.320
20	.373	.139	-.228	.052	-.207	.042	-.365	.133
21	-.605	.367	-.701	.579	-.527	.278	-.491	.242
22	.953	.910	.953	.909	.825	.632	.647	.419
23	.565	.319	.362	.131	.401	.161	-.009	.000
24	.844	.712	.686	.470	.813	.661	.813	.661
25	.979	.960	.979	.956	.978	.956	.978	.956
26	-.537	.289	-.555	.308	-.399	.159	-.351	.123
27	.813	.669	.198	.039	.201	.063	.356	.127
28	.675	.456	-.615	.378	-.403	.162	-.419	.175
29	-.653	.426	-.667	.445	-.590	.348	-.609	.370
30	.668	.473	.557	.311	.531	.281	.224	.050
31	.927	.860	.869	.755	.945	.893	.621	.386
32	.727	.529	.715	.512	.836	.699	.338	.702
33	.718	.516	.542	.294	.516	.267	.516	.267
34	.892	.796	.555	.308	.920	.848	.915	.837
35	-.340	.115	-.340	.115	.171	.029	.170	.028
36	.416	.173	.369	.136	.593	.358	.605	.366
37	-.191	.036	-.493	.243	.420	.176	.063	.004
38	-.330	.109	-.071	.005	.059	.003	-.027	.000
39	-.704	.495	-.894	.799	-.686	.471	-.613	.376
40	.082	.006	-.108	.011	.264	.069	.273	.074
41	-.185	.034	-.427	.182	.179	.032	.211	.044
42	.307	.094	.237	.056	.512	.262	.516	.266
43	.978	.957	.978	.957	.961	.924	.960	.922
44	.911	.830	.920	.846	.943	.889	.742	.550
45	-.040	.001	-.630	.397	-.444	.197	-.476	.227
46	.933	.880	.951	.905	.911	.831	.903	.816
47	.555	.308	.094	.008	.330	.109	.294	.086
48	.879	.774	.861	.742	.874	.764	.859	.738
49	.769	.591	.910	.829	.866	.751	.586	.343
50	.974	.950	.970	.941	.923	.853	.924	.854
51	.808	.653	-.030	.000	.336	.113	.333	.111
52	.698	.488	.221	.049	.193	.037	.522	.273
53	.909	.827	.914	.835	.886	.785	.879	.772
54	.016	.000	-.052	.002	.087	.007	-.154	.023
55	.826	.683	.687	.472	.442	.195	.351	.123
56	.324	.105	.409	.167	.562	.316	.488	.239
57	.900	.811	.723	.524	.637	.406	.403	.162
58	.276	.076	.228	.052	.403	.162	.564	.318
59	.816	.666	.809	.654	.854	.729	.882	.779
60	.921	.848	.894	.800	.932	.868	.902	.815
61	.482	.232	.025	.000	.649	.421	.251	.063
62	.979	.960	.979	.959	.984	.966	.750	.563
63	.220	.048	.201	.040	.300	.090	.349	.122
64	.880	.775	.880	.775	.894	.800	.890	.792

(TABLE V-7 CONTINUED)

TABLE V-7 (CONTINUED)

CORRELATION COEFF. (R) AND COEFF. OF DETERMINATION (RR)
ACCORDING TO INCOME CLASSIFICATIONS FROM THE FIRST
MODEL (USING AVAILAPLE DATA FOR ANALYSIS)

ID	I1		I2		I3		I4	
	R	RR	R	RR	R	RR	R	RR
65	-.414	.171	-.440	.193	-.376	.142	-.365	.133
66	.663	.440	.619	.384	.660	.436	.648	.421
67	.466	.236	.301	.090	.781	.610	.821	.675
68	.817	.668	.848	.719	.922	.851	.919	.844
69	.829	.686	.821	.674	.635	.403	.597	.356
70	.714	.509	.643	.413	.558	.311	.535	.286
71	.904	.817	.914	.836	.559	.313	.572	.327
72	.505	.255	.459	.211	.527	.277	.171	.029
73	-.715	.512	-.759	.576	.053	.002	.309	.095
74	-.340	.115	-.477	.227	-.403	.162	-.573	.328
75	.303	.092	.263	.069	.652	.425	.170	.029
76	-.259	.057	-.278	.077	-.337	.113	-.253	.064
77	.383	.147	.415	.172	.677	.458	.702	.492
78	.272	.074	-.413	.171	-.199	.039	-.138	.019
79	.649	.421	.559	.313	.534	.341	.311	.097
80	-.826	.682	-.762	.581	-.562	.316	-.276	.076
81	.866	.750	.801	.641	.742	.551	.781	.611
82	.902	.814	.624	.390	.607	.369	.630	.397
83	-.183	.033	-.062	.003	-.232	.054	-.280	.078
84	.063	.004	-.257	.066	-.195	.038	-.090	.008
85	.210	.044	.264	.081	.367	.135	-.149	.022
86	.382	.779	.798	.636	.827	.685	.814	.663
87	.379	.143	.255	.065	.362	.131	.564	.318
88	.786	.618	.599	.359	.826	.683	.714	.510
89	.839	.791	.823	.678	.758	.575	.758	.575
90	.860	.740	.835	.697	.596	.355	.666	.444
91	.816	.667	.790	.625	.733	.537	.668	.474
92	.752	.566	.343	.117	.403	.214	.345	.119
93	.607	.369	.477	.228	.431	.186	.318	.101
94	.440	.193	-.524	.275	-.286	.082	-.375	.141
95	-.035	.001	-.093	.008	-.069	.004	-.147	.021
96	-.850	.723	-.965	.932	-.908	.825	-.862	.743
97	.820	.672	.827	.684	.842	.709	.864	.748
98	.459	.211	.282	.079	.487	.237	.592	.351
99	-.558	.311	-.670	.450	-.110	.012	.021	.000
100	-.759	.576	-.864	.747	-.512	.262	-.615	.379
101	.523	.274	-.176	.031	.124	.015	.122	.015
102	.991	.983	.969	.939	.564	.319	.686	.471
103	.821	.675	.738	.544	.817	.668	.788	.622
104	.729	.531	.454	.206	-.155	.024	-.366	.134
105	.572	.327	-.485	.236	-.242	.058	-.181	.032
106	.739	.547	.312	.097	.492	.242	.479	.229
107	.676	.457	-.001	.000	.425	.181	.386	.149
108	.724	.524	.554	.307	.534	.341	.599	.359
109	.929	.864	.695	.484	.663	.440	.663	.440
110	.819	.672	.808	.653	.830	.690	.481	.232
111	.463	.214	-.005	.000	-.086	.007	-.522	.273
112	.572	.328	.553	.306	.245	.060	.475	.225
113	.803	.653	.775	.601	.533	.284	.612	.375
114	.827	.685	-.169	.028	-.073	.005	-.090	.008
115	.711	.505	.691	.478	.684	.468	.684	.468
116	.479	.229	.606	.367	.866	.751	.225	.051
117	.004	.000	-.332	.110	-.291	.084	-.295	.087
118	-.103	.010	-.160	.025	-.127	.016	-.028	.000
119	-.412	.170	-.499	.249	-.026	.000	.050	.002
120	.756	.572	.739	.546	.833	.695	.756	.572
121	.243	.059	.028	.000	.286	.081	.284	.080
122	.782	.611	.786	.619	.813	.661	.786	.618
123	-.027	.000	-.693	.480	-.290	.084	-.297	.088
124	.892	.795	.877	.769	.899	.808	.899	.808
125	-.183	.033	-.275	.076	.293	.035	.175	.030
126	-.479	.230	-.839	.704	-.807	.652	-.869	.756
127	.870	.758	.863	.745	.642	.413	.500	.250
128	.994	.988	.994	.989	.902	.925	.962	.925

TABLE V-8

CORRELATION COEFF. (R) AND COEFF. OF DETERMINATION (RR) ACCORDING TO INCOME CLASSIFICATIONS FROM THE SECOND MODEL (USING THE DATA AVAILABLE FOR ANALISIS)

ID	I1		I2		I3		I4	
	R	RR	R	RR	R	RR	R	RR
1	.829	.687	.739	.547	.817	.668	.796	.634
2	.924	.855	.925	.856	.959	.920	.754	.568
3	.770	.593	.740	.546	.823	.677	.823	.677
4	.989	.978	.969	.939	.970	.942	.969	.940
7	.329	.108	.133	.017	.665	.443	.665	.443
9	.893	.798	.649	.421	.736	.541	.735	.540
10	.921	.849	.909	.827	.956	.915	.911	.829
11	.963	.927	.962	.926	.963	.927	.935	.874
12	.539	.291	.472	.223	.202	.040	.180	.032
13	.967	.935	.960	.921	.964	.929	.385	.148
18	.747	.559	.764	.584	.819	.671	.613	.376
19	.786	.618	.790	.625	.784	.614	.784	.614
20	.431	.186	-.117	.013	-.243	.059	-.439	.193
22	.934	.873	.936	.877	.865	.748	.722	.521
24	.847	.717	.590	.348	.859	.738	.859	.739
25	.939	.881	.936	.876	.964	.930	.964	.930
26	-.591	.350	-.616	.380	-.452	.204	-.393	.154
27	.783	.613	.400	.160	.590	.348	.607	.369
31	.925	.856	.853	.726	.919	.844	.772	.596
32	.693	.480	.666	.443	.795	.632	.792	.627
33	.764	.584	.582	.339	.623	.388	.623	.388
34	.886	.786	.524	.275	.887	.788	.870	.758
35	-.399	.159	-.399	.159	.326	.106	.326	.106
36	.361	.130	.290	.084	.676	.457	.670	.448
37	-.198	.039	-.482	.232	.457	.209	-.022	.000
42	.255	.065	.182	.033	.558	.311	.564	.318
43	.971	.944	.971	.944	.964	.930	.970	.942
44	.953	.909	.948	.900	.892	.796	.749	.561
45	-.043	.002	-.613	.375	-.476	.227	-.499	.249
46	.991	.983	.989	.979	.986	.973	.981	.964
48	.882	.779	.850	.722	.872	.760	.822	.675
49	.568	.322	.880	.775	.870	.758	.570	.325
50	.978	.956	.973	.948	.951	.905	.953	.909
51	.799	.638	-.059	.003	.404	.163	.400	.160
53	.931	.868	.921	.848	.896	.803	.915	.838
55	.793	.629	.680	.463	.617	.381	.458	.210
57	.939	.882	.821	.675	.780	.608	.400	.160
59	.741	.549	.730	.533	.883	.781	.893	.797
60	.948	.899	.915	.838	.894	.801	.852	.725
61	.507	.257	-.043	.001	.720	.519	.188	.035

(TABLE V-8 CONTINUED)

TABLE V-3 (CONTINUED)

CORRELATION COEFF. (R) AND COEFF. OF DETERMINATION (RR) ACCORDING TO INCOME CLASSIFICATIONS FROM THE SECOND MODEL (USING THE DATA AVAILABLE FOR ANALYSIS)

ID	I1		I2		I3		I4	
	R	RR	R	RR	R	RR	R	RR
62	.994	.988	.993	.986	.972	.944	.876	.768
63	.259	.067	.240	.058	.544	.296	.576	.332
64	.933	.871	.915	.838	.941	.887	.927	.860
66	.924	.854	.867	.752	.910	.829	.875	.767
68	.861	.742	.895	.801	.926	.858	.915	.837
69	.814	.663	.806	.650	.707	.500	.679	.461
70	.768	.622	.712	.508	.710	.505	.652	.465
71	.865	.749	.882	.778	.779	.607	.810	.656
72	.521	.271	.470	.221	.573	.328	.268	.072
75	.297	.088	.281	.079	.697	.487	.388	.150
77	.447	.200	.439	.193	.716	.513	.744	.554
79	.721	.520	.641	.411	.586	.344	.473	.224
81	.882	.779	.788	.622	.769	.592	.828	.685
82	.903	.816	.642	.413	.658	.433	.669	.447
83	-.155	.024	.070	.004	-.138	.019	-.222	.049
88	.853	.729	.588	.346	.934	.872	.721	.520
89	.866	.750	.814	.662	.791	.626	.791	.626
90	.907	.824	.877	.769	.756	.573	.784	.614
93	.647	.419	.483	.233	.573	.328	.264	.069
94	.552	.305	-.489	.239	-.349	.122	-.434	.189
95	-.045	.002	-.208	.043	.038	.001	-.138	.019
98	.439	.193	.242	.058	.501	.251	.613	.375
101	.527	.278	-.191	.036	.117	.013	.116	.013
102	.978	.957	.942	.889	.597	.357	.694	.482
108	.751	.564	.535	.287	.629	.395	.642	.412
109	.949	.901	.637	.406	.825	.681	.825	.681
110	.892	.796	.876	.767	.892	.797	.438	.192
111	.437	.191	.097	.009	-.002	.000	-.506	.256
112	.531	.282	.509	.259	.271	.073	.411	.169
113	.805	.649	.788	.621	.751	.564	.796	.634
114	.837	.701	-.254	.064	-.220	.048	-.243	.059
115	.722	.521	.711	.505	.705	.498	.705	.498
116	.461	.213	.552	.304	.847	.717	.517	.268
119	-.436	.190	-.514	.265	-.063	.004	.018	.000
120	.772	.597	.757	.574	.848	.720	.774	.599
122	.781	.610	.785	.617	.817	.667	.791	.627
123	.049	.002	-.732	.536	-.323	.104	-.332	.110
124	.911	.830	.892	.806	.894	.799	.894	.799
125	-.215	.046	-.316	.100	.332	.110	.152	.023
127	.898	.806	.905	.819	.737	.543	.503	.253
128	.965	.971	.983	.967	.920	.847	.920	.847

Table V-9 (Modified Period)

Summary of the Results Obtained from Both Models

Object of Smoothing with Control Classif.		$R^2 \geqslant 0.80$ with + ve (R) (%)	$R^2 < 0.80$ or - ve (R) (%)	Total (%)	Sample's (T) Value	Decision
I_1	unlisted	11 (17.2)	53 (82.8)	64 (100)	1.08	Accept (Ho)
	listed	16 (25.0)	48 (75.0)	64 (100)		
I_2	unlisted	8 (12.5)	56 (87.5)	64 (100)	1.41	Accept (Ho)
	listed	14 (21.8)	50 (78.2)	64 (100)		
I_3	unlisted	6 (9.4)	58 (90.6)	64 (100)	2.16	Reject (Ho)
	listed	15 (23.4)	49 (76.6)	64 (100)		
I_4	unlisted	4 (6.3)	60 (93.8)	64 (100)	1.70	Reject (Ho)
	listed	10 (15.6)	54 (84.4)	64 (100)		

the desired adjustment and hence income smoothing may only be practical in the relatively short run.

3. The Concept of Natural Smoothing

This concept was introduced in the second chapter of the present study.* In this regard, Imhoff states that:

> "The fact that any given model indicates that an income series is smooth or not smooth conveys absolutely no information concerning the income generating process."[1]

In this context, Imhoff suggests that if the pattern for the income stream of a given firm is supported by a similar pattern for the turnover stream, the smooth income stream might be a natural result of operations.[2] However, Imhoff realises that it is possible to manipulate turnover in a way to achieve a smooth trend in both turnover and reported income.[3]

Therefore, it is of interest to relate the findings of the present study to the income-generating process and to avoid the possibility that a given firm might smooth both the turnover and the reported income time-series. To this end, the following discussion is presented.

In this part of the present study, unlisted firms have been used as a control group and hence, the possibility of

---

* See the second chapter of the present study, p.40-41.

1. Imhoff, E., "Income Smoothing: A Case for Doubt", Accounting Journal, Spring 1977, p.88.

2. ibid., p.89.

3. ibid., p.90.

natural smoothing is, to some extent, controlled. In addition, it is feasible to analyse the turnover time series of the two sets of firms. The aim of such an analysis is to see whether there is evidence that the incidence of natural smoothing in the set of listed firms is higher than that in the set of unlisted firms. According to Imhoff, the possibility of natural smoothing arises whenever there is a smooth turnover stream. Therefore, if it can be shown that the set of listed firms does not have more firms with relatively smooth turnover streams than does the set of unlisted firms, then the likelihood of natural smoothing in the two sets of firms is at least the same. And since two expectancy models with $R^2 \geqslant 0.80$ were used to identify firms with relatively smooth income streams, it is appropriate to use the same approach to identify the proportion of those firms with relatively smooth turnover streams in each set. The regression results of the two models of turnover over time are presented in Table V-10. This table is, first, divided horizontally into two major sections, the first includes unlisted firms, while the second includes listed firms. Secondly, each section is divided into three sub-sections. The first includes the identification number (ID) of each firm. The second includes the results obtained from the first model (F.M.), while the third includes the results obtained from the second model (S.M.). In this Table, R represents the correlation coefficient, while RR represents the coefficient of determination.

Table V-11 presents a summary of such results and it includes four main columns. The first states the expectancy model with the control variables, namely unlisted and listed.

TABLE V-10
CORRELATION COEFF. (R) AND COEFF. OF DETERMINATION (RR)
OF TURNOVER TIME SERIES ACCORDING TO TYPES OF CONTROL
AND EXPECTANCY MODELS (USING 5 YEARS DATA)

UNLISTED FIRMS					LISTED FIRMS				
ID	F. MODEL		S. MODEL		ID	F. MODEL		S. MODEL	
	R	RR	R	RR		R	RR	R	RR
1	.909	.828	.894	.799	2	.973	.947	.974	.948
3	.588	.346	.623	.388	4	.960	.921	.938	.880
5	.998	.996	.988	.976	6	.914	.835	.980	.960
7	.708	.501	.686	.471	8	-.439	.193	-.425	.181
9	.968	.938	.965	.932	10	.892	.796	.895	.801
11	.993	.987	.986	.973	12	.868	.755	.883	.781
13	.925	.857	.935	.874	14	-.046	.002	-.024	.000
15	.930	.865	.931	.868	16	-.805	.649	-.797	.636
17	.556	.309	.534	.285	18	.891	.794	.898	.807
19	.924	.853	.939	.882	20	.950	.903	.954	.910
21	.020	.000	.048	.002	22	.999	.998	.996	.992
23	.958	.918	.960	.921	24	.981	.963	.996	.993
25	.976	.953	.983	.967	26	.822	.676	.836	.699
27	.903	.815	.899	.809	28	.966	.933	.983	.968
29	-.285	.081	-.345	.119	30	.594	.353	.586	.344
31	.812	.659	.826	.682	32	.819	.671	.820	.673
33	.954	.910	.970	.942	34	.954	.911	.961	.923
35	.983	.966	.982	.964	36	.806	.650	.808	.653
37	.948	.899	.958	.918	38	-.429	.184	-.408	.167
39	.735	.540	.719	.517	40	.856	.733	.865	.749
41	.986	.973	.993	.986	42	.933	.871	.936	.877
43	.992	.984	.985	.972	44	.934	.872	.972	.944
45	.872	.760	.888	.788	46	.984	.970	.977	.954
47	.974	.949	.977	.954	48	.990	.981	.995	.991
49	.992	.985	.990	.980	50	.958	.917	.929	.863
51	.948	.900	.952	.907	52	.666	.443	.645	.416
53	.972	.946	.964	.930	54	.058	.003	.052	.002
55	.992	.985	.996	.993	56	.770	.594	.756	.572
57	.531	.282	.564	.318	58	.405	.164	.383	.147
59	.964	.929	.980	.961	60	.980	.961	.990	.981
61	.977	.955	.969	.940	62	.970	.942	.988	.976
63	.818	.670	.839	.705	64	.979	.958	.969	.940
65	.977	.956	.969	.939	66	.856	.733	.932	.869
67	.980	.960	.987	.975	68	.940	.884	.980	.961
69	.977	.955	.976	.953	70	.954	.911	.969	.938
71	.227	.051	.235	.055	72	.878	.772	.877	.770
73	.893	.799	.913	.662	74	.935	.875	.954	.910
75	.931	.868	.930	.866	76	-.935	.874	-.928	.861
77	.940	.883	.942	.887	78	.942	.889	.937	.878
79	.971	.944	.965	.932	80	-.226	.051	-.222	.049
81	.958	.918	.986	.973	82	.957	.916	.963	.927
83	.858	.736	.870	.757	84	.678	.460	.693	.480
85	-.473	.224	-.493	.243	86	.984	.969	.974	.950
87	.955	.912	.969	.940	88	.940	.883	.919	.845
89	.986	.972	.990	.981	90	.997	.994	.995	.991
91	.845	.714	.827	.685	92	-.685	.469	-.679	.461
93	.469	.220	.462	.213	94	-.277	.077	-.235	.055
95	.850	.723	.840	.706	96	.969	.940	.978	.956
97	.982	.964	.990	.981	98	.995	.990	.993	.987
99	.951	.905	.974	.950	100	.778	.605	.788	.621
101	.962	.927	.968	.938	102	.923	.853	.920	.847
103	.982	.965	.974	.950	104	.990	.980	.988	.976
105	.885	.783	.899	.808	106	.930	.866	.922	.851
107	.572	.328	.540	.292	108	.983	.968	.993	.987
109	.976	.953	.991	.982	110	.862	.743	.841	.707
111	.964	.930	.980	.961	112	.996	.993	.998	.996
113	.998	.997	.996	.993	114	.978	.957	.975	.951
115	.992	.984	.990	.982	116	.576	.332	.557	.310
117	.509	.259	.465	.216	118	.496	.246	.477	.227
119	.977	.955	.982	.965	120	.960	.923	.954	.911
121	.990	.981	.988	.977	122	.926	.858	.931	.867
123	.993	.987	.990	.981	124	.981	.962	.982	.966
125	.881	.777	.894	.799	126	.663	.440	.667	.445
127	.961	.924	.972	.946	128	.997	.995	.998	.997

Table V-11

Summary of Turnover Time Series

Models and Control		$R^2 \geq 0.80$ with + ve (R) (%)		$R^2 < 0.80$ or - ve (R) (%)		Total (%)	
(1) First Model	unlisted	43	(67.2)	21	(32.8)	64	(100)
	listed	36	(56.3)	28	(43.7)	64	(100)
(2) Second Model	unlisted	43	(67.2)	21	(32.8)	64	(100)
	listed	39	(60.9)	25	(39.1)	64	(100)
(3) Both Models	unlisted	44	(68.8)	20	(31.2)	64	(100)
	listed	39	(60.9)	25	(39.1)	64	(100)

The second column includes the number and percentage of firms with relatively smooth time series, while the third column includes the number and percentage of the remaining firms in each set of firms. The final column includes the total number of firms in each set. This table shows that the absolute number of unlisted firms with relatively smooth turnover streams is higher than that of the set of listed firms in all cases.

Hence, it is safe to conclude that as far as our sample is concerned, the likelihood of natural smoothing among unlisted firms is relatively higher than that among listed firms. This reinforces the findings of the present study in that if natural smoothing (i.e. through turnover pattern over time) is found to be predominant among unlisted firms, it would be expected that these firms should also be predominant in their reporting of smooth income streams, at least as far as the sample is concerned. Therefore, this provides further support for the argument that the smoothing of reported income among listed firms is by design.

Conclusions

The objective of this chapter was to investigate the possibility of an income smoothing phenomenon among listed firms. Accordingly, it was hypothesised that the proportion of listed firms with relatively smooth income streams would be significantly higher than that of unlisted firms of similar size and industry. The findings of the present study are consistent with this hypothesis for all objects of smoothing examined. But

when the period under examination had been extended from five years to more than nine years on average for the whole sample, the findings are consistent with the above hypothesis with respect only to ordinary income I3 and net income I4.

The results suggest that ordinary income is the most common object of smoothing among listed firms, if compared with unlisted firms. It is also clear that approximately 33% of the set of listed firms satisfied the research criterion of a smooth income stream. Also the concept of natural smoothing has been empirically examined and the results are consistent with the findings of the present study.

It may therefore be concluded that the analysis described in this chapter does justify the proposition that listed firms do smooth their reported income over time to a greater extent than do unlisted firms of similar size and industry.

Chapter VI

THE LEVEL OF REPORTED INCOME

The main purpose of this chapter is to report and analyse the results obtained from the empirical investigation with respect to increase and decrease strategies. Accordingly, this chapter consists of three parts; the first part includes a brief statement on the approach and the hypotheses to be tested. The second part is devoted to the presentation and analysis of the results. The final part provides an overall summary and the conclusions of this chapter.

Approach and Operational Hypotheses

The proposed approach has been described in more detail in Chapter IV of the present study. Here the analytical structure could briefly be described in three steps:

1. An attempt has been made to demonstrate that the distribution of turnover figures of the two sets of firms are not significantly different in terms of mean, variance and skewness;
2. An attempt has been made to demonstrate that the profitability rates of the two sets are significantly different from one another in terms of mean and coefficient of variation. It is worth noting that this has been repeated for each income category and for different periods and for different industrial classifications; and

3. An attempt has been made to demonstrate where significant differences in the mean of the profitability rates have arisen by using stepwise multipule regression analysis, noting the significance of the coefficients.

In Chapter IV, two principal sets of hypotheses were developed. The first set includes two hypotheses regarding turnover. The null hypothesis ($2H_0$) states that:

> There are no significant differences in the means, variances and distributions of turnover between the two sets of firms.

While the alternative hypothesis ($2H_A$) states that:

> There are significant differences in the means, variances and distributions of turnover between the two sets of firms.

The testing of these hypotheses is essential because the methodology of this part of the present study is based on the proposition that the turnover figures of the two sets of firms are in fact drawn from the same population. The second set includes two hypotheses concerning the means of the profitability rate. The null hypothesis ($3H_0$) states that:

> There is no significant difference in the means of the profitability rate between the two sets of firms.

While the alternative hypothesis ($3H_A$) states that:

> There is a significant difference in the means of the profitability rate between the two sets of firms.

The testing of tnese hypotheses will enable us to determine whether the two sets of firms are drawn from the same population as far as the average profitability rates are concerned.

Presentation and Analysis of the Results

The presentation and analysis of the results are conducted in two complementary stages. In the first stage, the hypotheses concerning turnover and those concerning the average profitability rates will be tested using two different data sets. The first set of data includes five variables as follows:

1. Turnover T in (£000);
2. Ordinary income before finance and tax charges I1 in (£000);
3. Ordinary income before tax charges I2 in (£000);
4. Ordinary income I3 in (£000);
5. Net income I4 in (£000).

For each variable, the data set includes the relevant accounting data for an average of 9.48 years for the whole sample with a minimum of six and a maximum of ten accounting periods. The second data set includes the same variables but covers only the last three accounting periods for each firm.

In the second stage, adjusted trading profit as a new income variable will be analysed along with the other income variables, using the data of the last three accounting periods. The purpose of the second stage is two-fold:

1. To test the robustness of the findings of the first stage;

2. To provide further investigations with regard to the nature of differences in the reported income.

Stage I: Testing the Hypotheses

This stage consists of four sections. In the first section, the hypothesis concerning turnover will be tested, while in the second section, the hypothesis concerning the average profitability rates will be tested. In these two sections, the first set of data will be used. In the third section, the second set of data set will be used to see whether the findings of this research differ if the period under examination is modified. The final section provides a summary of this stage.

1. Hypotheses Regarding Turnover

The results concerning turnover are presented in Table VI-1. This table presents the results of the Two Sample T-Tests. In this table, Group 1 represents unlisted firms while Group 2 represents listed firms and the variable for comparison is annual turnover T. The test calculates the relevant descriptive statistics and compares the sample means and variances. In addition, the test calculates the Student's "t", the "F value" and tests the significance of the differences between the two sample means and variances. Hence, two statistics tests are presented in this table. The first is the F-test and the second is the T-test. The F-test consists of two parts, the "F Values" and "2-tail probability" where of the former provides the ratio of the larger sample variance to the

TABLE VI-1

THE T-TEST FOR THE TWO-SAMPLE TURNOVER
(USING THE DATA AVAILABLE FOR ANALYSIS)

- T - T E S T -

GROUP 1 - TC EQ 1.
GROUP 2 - TC EQ 2.

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
T ANNUAL TURNOVER												
GROUP 1	607	51990.5832	52297.900	2122.706	1.07	0.410	-0.75	1212	0.453	-0.75	1210.64	0.453
GROUP 2	607	54208.1285	50574.402	2052.752								

smaller, while the latter provides the observed significance level for the F-test which is a test for the equality of variances. If the observed significance level for the F-test is small enough, usually less than Ø.Ø5, then the hypothesis that the population variances are equal is rejected; otherwise it is accepted. In this case, the observed significance level for the F-test is Ø.41Ø and hence, the hypothesis that the population variances are equal is strongly supported. Another use for F-test in this table is that if the equality hypothesis of variances is rejected then the "Separate Variance Estimate" for testing the means should be used. On the other hand, if such an hypothesis is rejected then the "Pooled Variance Estimate" for testing the means should be used. In this case, there is no difference between the results of the two types of estimates since the number of cases is sufficiently large. The T-test consists also of two parts: the "T Value" and "2-tail Probability" where of the former represents the Student's "t" while the latter provides the observed significance level which is a test for the equality of means. In this case, the observed significance level for the T-test is Ø.453 and hence the hypothesis that the population means are equal is strongly supported.

So far the hypotheses that the two sets of firms are drawn from the same population regarding the means and variances of turnover were tested and strongly supported. However, there is the possibility that any two sets of data may have equal means and variances, but they are oppositely skewed. And, since the reported income is expected to be sensitive to any differences in

the distributions of turnover, it is of interest to investigate such a possibility. To this end, the Mann-Whitney Test is appropriate because it enables us to determine whether the turnover of the two sets of firms is drawn from populations which are oppositely skewed.

Table VI-2 presents the results of the Mann-Whitney Test. It should be noted that the deviations from the mean of each data set for each observation were computed and used in this test. The test proceeded along the following lines:

i) The deviations from the means are first combined and then ranked from smallest to largest;

ii) if the two sets of deviations have the same distribution, then their sample distribution of ranks should be similar. On the other hand, if one of the sets has more than its share of small or large ranks, then their sample distribution of ranks should be different;

iii) the test provides the observed significance level which is a test for the equality of their sample distribution of ranks.

In this case, Table VI-2 shows that the mean ranks of the deviations are almost the same and the observed significance level is Ø.98Ø. Hence the results support the hypothesis that the turnover of the two sets of firms are drawn from the same populations concerning their properties of skewness.

Therefore, the results of this investigation are consistent with the hypothesis that there are no significant differences in the means, variances and distributions of turnover

TABLE VI-2

MANN-WHITNEY U - WILCOXON RANK SUM W TEST
FOR THE TWO-SAMPLE DEVIATIONS FROM
THE MEANS OF TURNOVER

T
BY TC

MEAN RANK	CASES	
607.25	607	TC = 1
607.75	607	TC = 2
	1214	TOTAL

CORRECTED FOR TIES

U	W	Z	2-TAILED P
184072.0	366600.0	-0.0250	0.9801

between the two sets of firms. Accordingly, the main factor which has a very strong influence on the level of reported income for most firms has been effectively controlled. Since the industry variable has also been controlled, the implication is that significant differences in the average profitability rates are more likely to be attributable to accounting differences.

2. Hypotheses Regarding Profitability Rates

In Chapter IV, four potential variables which might influence the reported income were identified. These variables are:

1. Exceptional items and other ordinary income including other operating income;
2. Finance charges;
3. Tax charges, and;
4. Extraordinary items.

In this stage, only the last three variables are considered and hence it is assumed that the net difference in all other ordinary income and exceptional items between the two sets of firms is negligible. This assumption will be relaxed in the second stage of the analysis. Table VI-3 shows the output from T-test analysis for the sample of firms. This table includes five variables as follows:

1. T is the average Turnover;
2. PRI1 is the average profitability rate of income I1 which is the average of ordinary income before finance and tax charges over turnover for each observation;

TABLE VI-3

T-TEST FOR THE TWO-SAMPLE TURNOVER
AND SEVERAL PROFITABILITY RATES
(USING ALL DATA AVAILABLE)

T - T E S T

GROUP 1 - TC EQ 1.
GROUP 2 - TC EQ 2.

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
T ANNUAL TURNOVER												
GROUP 1	607	51990.5832	52297.900	2122.706	1.07	0.410	-0.75	1212	0.453	-0.75	1210.64	0.453
GROUP 2	607	54208.1285	50574.402	2052.752								
PRI1												
GROUP 1	607	0.0458	0.048	0.002	1.38	0.000	-6.56	1212	0.000	-6.56	1181.35	0.000
GROUP 2	607	0.0627	0.041	0.002								
PRI2												
GROUP 1	607	0.0386	0.047	0.002	1.22	0.014	-5.12	1212	0.000	-5.12	1200.08	0.000
GROUP 2	607	0.0518	0.043	0.002								
PRI3												
GROUP 1	607	0.0248	0.031	0.001	1.23	0.010	-4.67	1212	0.000	-4.67	1198.85	0.000
GROUP 2	607	0.0327	0.028	0.001								
PRI4												
GROUP 1	607	0.0252	0.032	0.001	1.09	0.296	-3.73	1212	0.000	-3.73	1209.82	0.000
GROUP 2	607	0.0323	0.034	0.001								

3. PRI2 is the average profitability rate of income I2 which is the average of ordinary income before tax charges over turnover for each observation;
4. PRI3 is the average profitability rate of income I3 which is the average of ordinary income over turnover for each observation;
5. PRI4 is the average profitability rate of income I4 which is the average of net income over turnover for each observation.

These five variables are shown in the left side of Table VI-3 and it should be noted that the results concerning turnover are the same as those shown in table VI-1.

With respect to the profitability rates, the table shows that the equality hypothesis of the means of the two populations is rejected for all profitability rates. Also the direction of the differences indicates that the set of listed firms is reporting higher average profitability rates than the set of unlisted firms and the phenomenon of listed firms reporting higher average profitability rates persisted across the different classifications of reported income considered at this stage. Table VI-4 presents a comparison between the means of the profitability rates in the two sets of firms. This table shows that the average profitability rate of listed firms ranges from 128% to 137% of that reported by unlisted firms. Also it shows that the gap between the average profitability rates decreases when finance, tax and extraordinary charges are included separately and collectively. It may be worthwhile to determine

Table VI-4

Comparisons of the Average Profitability Rates

Between the Two Sets of Firms

Profitability Rates	1 Unlisted Firms	2 Listed Firms	3 2/1 %
PRI1	Ø.Ø458	Ø.Ø627	137%
PRI2	Ø.Ø386	Ø.Ø518	134%
PRI3	Ø.Ø248	Ø.Ø327	132%
PRI4	Ø.Ø252	Ø.Ø323	128%

whether there is a significant difference in the effective tax rate between the two sets of firms. The average effective tax rates are approximately 36% and 37% for unlisted and listed firms respectively.*

The decrease in the gap between the profitability rates shown in Table VI-4 is also shown in Table VI-3 by the increase in the T value. For the rate PRI1, the T value is -6.56, while for the rate PRI2 it is -5.12 and so on. Hence, the changes in the T value can be used to highlight the changes across the different profitability rates.

It is also important to examine the possibility that the set of listed firms includes a reasonable percentage of firms which attempt to increase and those which attempt to decrease reported income but the overall average suggests increasing behaviour. If such a possibility exists, then the coefficient of variation of profitability rate among listed firms is expected to be higher than that of unlisted firms. In other words, the existence of the two strategies among listed firms will lead to a flatter distribution of observations around the mean than would otherwise have appeared. The coefficient of variation is the result of the standard deviation of a given data set as a proportion of the mean of that data set.

Table VI-5 presents the coefficient of variation of profitability rates. In this regard, the means of the

---

* To calculate the average effective tax rate, the following equation was used. Average effective tax rate = $\frac{PRI2 - PRI3}{PRI2}$

Table VI-5

Comparisons of the Coefficient of Variation Between

the Two Sets of Firms

Coefficient of Variation (COV)	Unlisted Firms	Listed Firms
(1) COV for PRI1	Ø.97	Ø.57
(2) COV for PRI2	1.1Ø	Ø.69
(3) COV for PRI3	1.Ø5	Ø.67
(4) COV for PRI4	1.Ø3	Ø.77

profitability rates for each firm was calculated to exclude the variation within the firm and then the mean and the standard deviation were computed. This table shows that the coefficient of variation among unlisted firms is higher than that among listed firms for all profitability rates. Accordingly, the profitability rates among listed firms are more concentrated around their means than those of unlisted firms. Hence the majority of listed firms are reporting relatively higher profitability rates.

Therefore, the findings of the relatively long period (on average more than nine accounting periods) support the proposition that listed firms are reporting higher average profitability rates than unlisted firms of similar size and industry. Furthermore, the majority of listed firms report relatively higher profitability rates. But the average profitability rates discussed so far include, among others, the net of all other ordinary revenues and exceptional items. In the previous analysis, it was assumed that the net difference in such items between the two sets of firms is negligible. Hence, the possibility that this assumption is not valid must be considered and this is one of the major objectives of the second stage of the analysis which will be presented later in this chapter.

3. Modifying the Period Under Examination

Here it is of interest to see whether the findings of this stage differ if the period under examination is modified to include only the last three years. One of the aims of such modification is to determine whether the movement from the

relatively long period to the relatively short period is justifiable.

Table VI-6 presents the output of T-test analysis for the sample using the data of the last three accounting periods. As far as turnover is concerned, the table shows that the two sets of firms have means drawn from the same population and the observed significance level is Ø.719, which is higher than that of the relatively long period. Also, it shows that the equality hypothesis of the average profitability rate is rejected for the first three profitability rates, while it is accepted for the fourth rate at the observed significance level of Ø.Ø76. In all cases, the direction of the differences indicates that listed firms report higher average profitability rates than those of unlisted firms and the gap between the rates decreases when finance, taxes and extraordinary charges are included separately and collectively. This decrease explains the acceptance of the equality hypothesis for PRI4 as it is shown by the increase in T values.

Table VI-7 presents a comparison between the means of the average profitability rates in the two sets of firms. This table shows that the average profitability rates of listed firms range from 128% to 145% of those reported by unlisted firms. By comparing the last column of this table with that of Table VI-4, we find that the gap between the average profitability rates has increased from 137% to 145% for PRI1 and from 134% to 139% for PRI2 while it remains approximately the same for the rates PRI3 and PRI4. Also these tables show that for each set of firms,

TABLE VI-6

T-TEST FOR THE TWO-SAMPLE TURNOVER
AND SEVERAL PROFITABILITY RATES
(USING THE DATA OF THE LAST THREE YEARS)

T - T E S T

GROUP 1 - TC EQ 1.
GROUP 2 - TC EQ 2.

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
T ANNUAL TURNOVER												
GROUP 1	192	72379.9896	67480.213	4869.965	1.09	0.573	-0.36	382	0.719	-0.36	381.36	0.719
GROUP 2	192	74613.2396	64776.527	4674.843								
PRI1												
GROUP 1	192	0.0397	0.049	0.004	1.56	0.002	-4.00	382	0.000	-4.00	364.48	0.000
GROUP 2	192	0.0576	0.039	0.003								
PRI2												
GROUP 1	192	0.0325	0.049	0.004	1.52	0.004	-2.84	382	0.005	-2.84	366.29	0.005
GROUP 2	192	0.0453	0.039	0.003								
PRI3												
GROUP 1	192	0.0224	0.032	0.002	1.48	0.007	-2.44	382	0.015	-2.44	368.16	0.015
GROUP 2	192	0.0297	0.026	0.002								
PRI4												
GROUP 1	192	0.0214	0.033	0.002	1.11	0.462	-1.78	382	0.076	-1.78	380.92	0.076
GROUP 2	192	0.0273	0.031	0.002								

Table VI-7

Comparisons of the Average Profitability Rates for the Last Three Acc. Periods

Profitability Rates	1 Unlisted Firms	2 Listed Firms	3 2/1 (%)
PRI1	Ø.Ø397	Ø.Ø576	145%
PRI2	Ø.Ø325	Ø.Ø453	139%
PRI3	Ø.Ø224	Ø.Ø297	133%
PRI4	Ø.Ø214	Ø.Ø273	128%

there is, surprisingly, a slight decrease in all profitability rates for the last three years for which no explanation can be offered. In Table VI-6, the direction of the differences in the average profitability rates indicates that listed firms report on average higher rates than those reported by unlisted firms and hence the findings of the relatively short period are consistent with those of the relatively long period as far as the purpose of this research is concerned. Therefore, it is justifiable to use the last three years data for further analysis.

In summary, the findings of this stage are consistent with the hypothesis that there is a significant difference in the means of the profitability rates between listed and unlisted firms of similar size and industry. Furthermore, the direction of the differences indicates that listed firms are reporting significantly higher average profitability rates than those reported by unlisted firms. Also, the findings of the relatively short period are consistent with those of the relatively long period. In the next stage, the robustness of such findings will be tested and the nature of the differences in the reported income will be examined.

Stage II: Further Analysis

The purpose of this stage is two-fold:

1. To test the robustness of the findings of the first stage;
2. To provide further investigations with regard to the nature of the differences in the reported income.

Accordingly, this stage consists of four sections. The first section includes the results after relaxing the assumption made in the first stage: that the net difference in other ordinary revenues and exceptional items between the two sets of firms is negligible. The aim is to determine whether the relaxation of such an assumption contributes to explaining the differences in the average profitability rates between the two sets of firms. The second section includes the results of classifying the sample of firms according to three main sectors namely retailing, manufacturing and construction. The aim is to determine whether the same phenomenon exists across these sectors. The third section provides an examination of the observed differences in the average profitability rate between the two sets of firms through analysing the relevant costs of the two sets of firms. The aim is to determine the potential areas of accounting differences. Also this section will include an overall summary of this stage. The final section will include the conclusions of this chapter.

1. Testing the Robustness of the Findings

To relax the assumption made in the first stage, all other revenues and exceptional items were excluded from ordinary income before finance and tax charges, to arrive at Adjusted Trading Profit I for each observation in the data set. In the sample, the most frequent items are other income (expenses), profit on sales of fixed assets, redundancy costs, reorganisation costs, shares of profit (losses) of associated companies, income from fixed investments, amount written off fixed investments and

interest receivable. Table VI-8 presents the output of the T-test analysis of Turnover (T), average profitability rate of adjusted trading profit (PRI) and the average profitability rate of ordinary income before finance and tax charges (PRI1) which has been reproduced for comparison. This table shows that the equality hypothesis is also rejected for the new rate PRI. In fact, the gap between the average profitability rates of the two sets of firms has increased from 145% for PRI1 to 154% for PRI. Therefore, other revenues and exceptional items have not contributed to explain the differences in the average profitability rates between the two sets of firms and this supports the findings of the first stage.

2. Results According to Main Activity

In this section, the sample of firms is classified according to three sectors based on the main activity. The reported results of each sector are analysed to determine whether the same phenomenon exists across such sectors. It is worth noticing that the sample includes 54 retailing, 48 manufacturing and 26 construction firms and hence the sub-samples are small in terms of sample size.

Table VI-9 presents the output of the T-test analysis for turnover (T), the average probability rate of adjusted trading profit (PRI) and the average profitability rate of ordinary income before finance and tax charges (PRI1) in the retailing sector. This table shows that the equality hypothesis is accepted for the means of turnover, while it is rejected for both profitability rates. Also the direction of the differences

TABLE VI-8

T-TEST FOR THE TWO-SAMPLE TURNOVER
AND TWO PROFITABILITY RATES
(USING THE DATA OF THE LAST THREE YEARS)

GROUP 1 - TC EQ 1.
GROUP 2 - TC EQ 2.

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	POOLED VARIANCE ESTIMATE DEGREES OF FREEDOM	POOLED VARIANCE ESTIMATE 2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	SEPARATE VARIANCE ESTIMATE DEGREES OF FREEDOM	SEPARATE VARIANCE ESTIMATE 2-TAIL PROB.
T ANNUAL TURNOVER												
GROUP 1	192	72379.9896	67430.213	4869.965	1.09	0.573	-0.36	382	0.719	-0.36	381.36	0.719
GROUP 2	192	74813.2396	64776.527	4674.843								
PRI												
GPOUP 1	192	0.0317	0.043	0.003	1.29	0.082	-4.10	382	0.000	-4.10	376.07	0.000
GROUP 2	192	0.0487	0.038	0.003								
PRI1												
GROUP 1	192	0.0397	0.049	0.004	1.56	0.002	-4.00	382	0.000	-4.00	364.48	0.000
GROUP 2	192	0.0576	0.039	0.003								

TABLE VI-9

T-TEST FOR THE TWO-SUBSAMPLE TURNOVER
AND PROFITABILITY RATES IN THE RETAILING SECTOR

T - T E S T

GROUP 1 - TC EQ 1.
GROUP 2 - TC EQ 2.

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
T ANNUAL TURNOVER												
GROUP 1	81	73089.3951	96312.076	10701.342	1.12	0.607	-0.30	160	0.765	-0.30	159.47	0.765
GROUP 2	81	77493.8395	90907.289	10100.810								
PRI												
GROUP 1	81	0.0262	0.046	0.005	2.98	0.000	-2.60	160	0.010	-2.60	128.21	0.011
GROUP 2	81	0.0416	0.027	0.003								
PRI1												
GROUP 1	81	0.0323	0.050	0.006	2.99	0.000	-2.61	160	0.010	-2.61	128.12	0.010
GROUP 2	81	0.0491	0.029	0.003								

indicates that the listed firms report higher average profitability rates. The percentages of the average profitability rates between the two sets of firms are 159% for PRI and 152% for PRI1. These percentages are slightly higher than the percentages of the whole sample and hence, potential areas of accounting differences in the retailing sector are of interest and this will be discussed in the third section of this stage.

Table VI-10 presents the output of the T-test analysis for tunover (T), and the average profitability rates PRI and PRI1 in the manufacturing sector. This table shows that the equality hypothesis is accepted for the means of turnover and it is also accepted for the average profitability rates PRI and PRI1 at the observed significance levels of 0.090 and 0.165 respectively. The directions of the differences in these profitability rates indicates that listed firms report in absolute terms higher profitability rates, but the differences are statistically not sufficiently significant to reject the equality hypothesis at the chosen significant level, i.e. > 0.05. The percentages of the average profitability rates between the two sets of firms are 129% and 121% for PRI and PRI1 respectively. These percentages are far below the percentages of the whole sample, but they are sufficiently large to raise suspicions which require further investigation. In this regard, the possibility of misclassifications within the profit and loss accounts in the manufacturing sector is a potential area of accounting differences because it was found that listed firms report on average higher extraordinary charges than those reported by unlisted firms. If extraordinary charges are calculated as a

TABLE VI-10

T-TEST FOR THE TWO-SUBSAMPLE TURNOVER
AND PROFITABILITY RATES IN THE MANUFACTURING SECTOR

T - T E S T

GROUP 1 - TC EQ 1.
GROUP 2 - TC EQ 2.

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
T ANNUAL TURNOVER												
GROUP 1	72	73030.6806	30739.696	3622.708	1.07	0.783	0.10	142	0.919	0.10	141.85	0.919
GROUP 2	72	72552.9722	31766.218	3743.685								
PRI												
GROUP 1	72	0.0411	0.048	0.006	1.96	0.005	-1.71	142	0.090	-1.71	128.45	0.090
GROUP 2	72	0.0530	0.034	0.004								
PRI1												
GROUP 1	72	0.0511	0.056	0.007	2.40	0.000	-1.40	142	0.165	-1.40	121.40	0.165
GROUP 2	72	0.0621	0.036	0.004								

percentage of the average profitability rates of ordinary income, it is found that the percentages are 7% and 9% for unlisted and listed respectively. Although these differences might be real because of the magnitude of the difference and the nature of extraordinary items, the possibility of misclassification within the profit and loss accounts is worth considering because it might contribute to the explanation of some of the differences in the other profitability rates between the two sets of firms and hence it will be discussed in the third section of this stage.

Table VI-11 presents the output of the T-test analysis for turnover (T), and the average profitability rates PRI and PRI1 in the construction sector. This table shows that the equality hypothesis is accepted for the means of turnover while it is rejected for the two profitability rates. The direction of the differences indicates that listed firms report higher average profitability rates than unlisted firms. The percentages of the average profitability rates between the two sets of firms are 216% and 198% for PRI and PRI1 respectively. These percentages are far above the percentages of the whole sample and hence potential areas of accounting differences in this sector must be considered. Furthermore, there are strong indications of misclassifications within the profit and loss accounts in this sector because it was found that listed firms report on average higher extraordinary charges than that reported by unlisted firms. As a percentage of the average profitability rate of ordinary income, the extraordinary charges are 18% for listed firms, while they are only 5% for unlisted firms. Hence the

TABLE VI-11

T-TEST FOR THE TWO-SUBSAMPLE TURNOVER
AND PROFITABILITY RATES IN THE CONSTRUCTION SECTOR

T - T E S T

GROUP 1 - TC EQ 1.
GROUP 2 - TC EQ 2.

VARIABLE	NUMBER OF CASES	MEAN	STANDARD DEVIATION	STANDARD ERROR	F VALUE	2-TAIL PROB.	POOLED VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.	SEPARATE VARIANCE ESTIMATE T VALUE	DEGREES OF FREEDOM	2-TAIL PROB.
T ANNUAL TURNOVER												
GROUP 1	39	69613.0256	39798.070	6372.791	1.12	0.721	-0.41	76	0.683	-0.41	75.74	0.683
GROUP 2	39	73418.0410	42138.049	6755.494								
PRI												
GROUP 1	39	0.0256	0.014	0.002	15.95	0.000	-3.11	76	0.003	-3.11	42.75	0.003
GROUP 2	39	0.0553	0.058	0.009								
PRI1												
GROUP 1	39	0.0338	0.016	0.003	12.11	0.000	-3.58	76	0.001	-3.58	44.23	0.001
GROUP 2	39	0.0669	0.055	0.009								

magnitude of the difference is sufficiently large and it must be considered.

In summary, the sample of firms was divided into three sub-samples according to the main activity. The overall results indicate that listed firms report relatively higher average profitability rates in the three sectors, but there are significant differences in the degree where it is the highest among construction firms and the lowest among manufacturing firms. Furtnermore, several areas of potential accounting differences were highlighted and they will be discussed in the following section of this stage.

3. The Nature of the Differences in the Profitability Rates

In this section, an attempt is made to investigate the nature of the differences in the average profitability rates between the two sets of firms. The aim of this investigation is to identify potential areas of accounting differences. In this regard, adjusted trading profit is the focus of this investigation for the following reasons:

i) Adjusted trading profit is more relevant to the level of turnover than any of the other income classifications;

ii) Any differences in adjusted trading profit between the two sets of firms are automatically reflected in all other income classifications considered in this research;

iii) The gap in the average profitability rates of adjusted trading profit was the largest of all the other rates considered in this research and hence, there should be significant accounting differences between the two sets of

firms before arriving at adjusted trading profit.

Therefore, there is a need to examine those costs which had been charged against turnover to arrive at adjusted trading profit. In this regard, adjusted trading profit has been defined as gross profit after charging distribution, general and administrative expenses including depreciation, directors' remuneration and audit fees. It should be noted that other operating income, exceptional items and other income (expenses) are excluded from the above definition. Thus adjusted trading profit is the result of turnover less the above mentioned costs and these costs are referred to as related costs. While the means of turnover of the two sets of firms were found to be identical, listed firms produced higher average profitability rates of adjusted trading profit than those produced by unlisted firms. Hence, the turnover of listed firms must be matched with lower related costs than the turnover of unlisted firms. And since related costs include those which change proportionally with the change in turnover (variable costs) and those which remain relatively constant over considerable range of turnover (fixed costs), it is essential to know whether the observed differences in related costs are the results of differences in variable costs and/or fixed costs. Knowing the source of such differences will provide more insights with regard to the potential areas of accounting differences between the two sets of firms. To this end, it is feasible to analyse the relationship between related costs and turnover in the two sets of firms. To do so, the relationship between related costs and turnover is

presented in its simple form as follows:

$$RC = A_1 + B_1 . T$$

where:

RC is related costs

A_1 is constant to be estimated (intercept)

B_1 is constant to be estimated (slope)

T is annual turnover

Since A_1 is the average of those costs which do not change directly with change in turnover, it can be used as a proxy of the average of fixed costs. Furthermore, B_1 is the average of marginal costs and hence B_1 can be used as a proxy of the average variable costs for each one pound of turnover. Accordingly, the size of fixed costs can be measured by the size of A_1 and the size of the variable costs can be measured by the size of B_1 times turnover. Therefore, the objective is to determine whether the relationship between related costs and turnover, measured in terms of A_1 and B_1 is significantly different between the two sets of firms for A_1, B_1 or both.

To test for differences between the two sets of firms, the original model has to be modified as follows:

i) The original model suggests that:

$$RC = A_1 + B_1 . T$$

ii) Two additional variables can be introduced as follows:

i)
$$D = \begin{cases} \emptyset \text{ if the firm is unlisted} \\ 1 \text{ if the firm is listed} \end{cases}$$

ii) $D_1 = D \cdot T$

iii) Then the overall regression model will be:

$$RC = A_1 + B_1 \cdot T + A_2 \cdot D + B_2 \cdot D_1 \qquad (1)$$

iv) If the firm is unlisted, the model becomes:

$$RC = A_1 + B_1 \cdot T \qquad (2)$$

v) If the firm is listed, the model becomes:

$$RC = (A_1 + A_2) + (B_1 + B_2) \cdot T \qquad (3)$$

If model (2) is not significantly different from model (3), then A_2 and B_2 are not significantly different from zero, on the other hand, if model (2) is significantly different from model (3), then A_2 and/or B_2 are significantly different from zero and hence there is a difference in the relationship between related costs and turnover between the two sets of firms. If there is a significant difference in A_2 then there is a difference in the intercept, namely fixed costs, while if there is a significant difference in B_2, then there is a difference in the slope, namely marginal costs. Accordingly, the task is to test for A_2 and B_2 and hence, the stepwise regression offered by the (SPSS^X) is an appropriate tool to use.

Table VI-12 presents the results of the stepwise regression obtained from model (1). This table shows that there is a significant difference in the slope between model (2) and (3), while there is no significant difference in the intercept between the two models.

TABLE VI-12

STEPWISE REGRESSION RESULTS FOR RELATED COSTS AS A FUNCTION OF TURNOVER CLASSIFIED ACCORDING TO THE TYPES OF CONTROL

Variable(s) Entered on Step Number 1.. T ANNUAL TURNOVER

Multiple R	.99898
R Square	.99795
Adjusted R Square	.99795
Standard Error	2934.66936

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	1	1603900491641.80601	1603900491641.81
Residual	382	3289892583.93022	8612284.25113

F = 136234.04022 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
T	.9795	.00227	.998976	431.548	.0000
(Constant)	-1343.7243	224.347469		-5.989	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
D	-.009844	-.217532	.99966	-4.35	.0000
D1	-.012289	-.227309	.700355	-4.556	.0000

* *

Variable(s) Entered on Step Number 2.. D1

Multiple R	.99903
R Square	.99806
Adjusted R Square	.99805
Standard Error	2861.59532

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	1604070478948.3712	802035239474.186
Residual	381	3119905277.36524	8188727.76211

F = 97943.8153 Signif F = .0000

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
T	.936096	.002645	1.005703	372.867	.0000
D1	-.013465	.002955	-.012289	-4.556	.0000
(Constant)	-1325.4810119	218.797796		-6.058	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
D	-.0049	-.07416	.311555	-1.45	.148

End Block Number 1 PIN = .05 Limits reached.

The estimated regression model is:

$$RC = -1325.5 + 0.986\ (T) - 0.0134\ (D_1)$$

Hence:

1. For an unlisted firm the model is:

$$RC = -1325.5 + 0.986\ (T)$$

2. For a listed firm the model is:

$$RC = -1325.5 + 0.973\ (T)$$

These models show that the average variable costs of listed firms are lower than those of unlisted firms and the difference is 0.0134. Accordingly, there is a difference in the variable costs between the two sets of firms, while there is no significant difference in the average fixed costs. Therefore, it is worthy to know the percentage of the difference in the average profitability rate of adjusted trading profit between the two sets of firms, that can be explained by the difference in variable costs. According to Table VI-8, the average profitability rates of adjusted trading profit are 0.0487 and 0.0317 for listed and unlisted firms respectively and hence the difference in the average profitability rate between the two sets of firms is 0.017. If the difference in the average variable costs is compared with the difference in the average profitability rates, the former explains approximately 80% of the latter. Therefore, the conclusion is that the potential area of accounting differences is more likely to be within the domain of

accounting procedures for variable costs. And since related costs with regard to adjusting trading profit include costs of sales, distribution costs, general and administrative expenses, elaboration upon these items is needed.

i) Cost of Sales: In most enterprises the cost of goods or services sold is the single most significant cost category. In retail establishments, this category includes the cost of purchased merchandise as well as certain expenses which are directly related to this merchandise, while in manufacturing and construction firms, it includes materials, labour and overheads. Most costs in this category tend to be variable in nature. To determine the cost of sales for a given accounting period, the problems of inventory valuation arise. In this context, the basic principle of inventory valuation is that it be valued at "the lower of cost or net realisable value". This simple phrase belies the complexities and the variety of alternatives to which it is subject. This variety can, in turn, lead to significantly different figures of periodic income all within the domain of generally accepted accounting principles. In spite of its importance in the determination of reported income, the matters of what costs are included in inventory and what assumptions are made with regard to the flow of inventory costs through a firm are only rarely discussed or disclosed in published financial statements. In fact, the majority of firms considered in the present study didn't disclose more than the basic principle of inventory valuation (i.e. the

lower of cost or net realisable value). Therefore, inventory valuation is a major potential area of accounting differences between the two sets of firms. In this context, the problems of evaluating the work in process in long term contracts are part of the inventory valuation.

ii) Other Expenses: Among the other expenses are distribution expenses. In this regard, the management discretion is limited because these costs are mainly considered as periodic expenses and this is also true in the case of advertising expenses. The remaining expenses include general, administrative and others such as depreciation, audit fees. Most costs in this category tend to be fixed in nature. This is largely true of depreciation as well as of administrative costs which include significant amounts of salaries and occupancy expenditure. And since there was no significant difference in fixed cost between the two sets of firms, the possibility of significant accounting differences with regard to this category is minimal. Although depreciation may seem to be a potential area of accounting differences between the two sets of firms, the existence of capital allowances in the U.K. might have contributed to narrow the accounting differences, but the possibility of differences cannot entirely be eliminated.

In the previous section of this chapter, the possibility of misclassifications within the profit and loss account has been introduced as a potential area of accounting

differences, especially in the construction sector where it was found that the ratio of extraordinary charges to the average profitability rate of ordinary income is far greater among listed firms than among unlisted firms. Furthermore, for the whole sample, extraordinary charges constitute around 8% of ordinary income in the listed firms, while it is around 4.5% in unlisted firms. The accounting for, and the presentation of, extraordinary items has always been subject to personal judgement. In this regard, R. Ashton examined SSAP 6 and concluded that a clearer distinction needs to be made between extraordinary and exceptional items.[1] Thus this area of accounting gives management considerable discretion about what might or might not be considered as extraordinary items and hence extraordinary items can become one of the means by which managements attempt to modify the reported operating results. Accordingly, misclassification within the profit and loss accounts remains one of the potential areas of accounting differences between the two sets of firms.

In summary, the findings of this stage are consistent with the findings of the previous stage. The assumption made in the previous stage was examined and found to be a reasonable assumption. Also, the sample of firms was classified according to three main activities, namely retailing, manufacturing and construction. In this regard, the overall results revealed that

---

1. Ashton, R., U.K. Financial Accounting Standards, A Descriptive and Analytical Approach, Woodhead-Faulkner Ltd., Cambridge, 1983, p.83.

listed firms reported relatively higher average profitability rates than unlisted firms in the three sectors but there are significant differences in degree. The gap between the profitability rates was largest in the construction sector and smallest in the manufacturing sector. When the hypothesis that listed firms report higher average profitability rates than unlisted firms was tested at a significance level of Ø.Ø25, the findings were consistent with this hypothesis in retailing and construction sectors, while it was rejected in the manufacturing sector.

Furthermore, the nature of the differences in the average profitability rates of adjusted trading profit was examined to identify major sources of such differences. The results indicated that listed firms reported lower average variable cost than unlisted firms.

Also, two potential areas of accounting differences were discussed, namely inventory valuation including accounting for long term contracts and misclassifications of items within profit and loss accounts. The following section provides an overall summary and the conclusions of this chapter.

Conclusions

The main purpose of this chapter was to determine whether listed firms tend to increase reported income, while unlisted firms tend to decrease theirs. Accordingly, it was hypothesised that there is a significant difference in the average profitability rate between listed and unlisted firms of

similar size and industry.

In order to increase the likelihood that the differences in the average profitability rates are attributable to accounting differences, the hypothesis that there are no significant differences in the means, variances and distributions of the two sets of firms' turnover was tested and it was strongly supported. Furthermore, several accounting periods were considered to enhance comparability between firms. Additionally, several variables that might influence the reported results of the two sets of firms were considered through analysing several income classifications.

The findings of this research are consistent with the hypothesis that there is a significant difference in the means of profitability rates between the two sets of firms. Furthermore, the magnitude and the direction of the differences in the profitability rates indicate that listed firms reported higher average profitability rates than unlisted firms. Also, the observations of the profitability rates among listed firms are more concentrated around their mean than those of unlisted firms, for all profitability rates considered in this research.

It may therefore be concluded that the findings of this research provide support to the proposition that listed firms tend to increase their reported income if compared with unlisted firms of similar size and industry.

Chapter VII

SUMMARY AND CONCLUSIONS

This chapter consists of three sections. The first section includes a restatement of the objectives and justifications of this research. The second section provides a summary of the approach adopted and the results of both the theoretical and empirical parts of this research. The third section is devoted to the conclusions which may be drawn from the present study.

Objectives and Justifications

This research was undertaken to ascertain whether users of annual reported income are receiving measurement of past activity that is free frcm management bias. To this end, an attempt was made to provide an answer to the following main issue:

Do managers act to use accounting alternatives to serve non-accounting ends?

In this regard, literature suggests that there are at least three possible non-accounting ends which might be sought as follows:

1. Managers may seek to increase early reported income at the expense of future reported income;

2. Managers may seek to decrease early reported income to benefit future reported income;
3. Managers may seek to smooth reported income so as to report a stream of income with a smaller variation from a predetermined trend than would otherwise have appeared.

Therefore, the aim of this research was to investigate whether the above reporting strategies are in fact sought and whether they appear actually to be obtained. To this end, it was assumed that firms seek to maximise shareholders wealth and the management of a firm adhere very closely to this assumption. Furthermore, the dichotomy of listed and unlisted enabled us to relate the management of reported income to the motivation of their owners rather than being dependent upon the degree of management's ownership. This is to say that managers of listed and unlisted firms, whether owner or not, are assumed to act in the interest of shareholders.

Additionally, the following related issues were also addressed in this research:

1. Why, theoretically, might managers seek to "manage" reported income in the three manners outlined above (a search for incentives)?
2. Can, theoretically, such behaviour be expected to be successful (a search for means available to management)?
3. Is there empirical evidence to suggest that such behaviour occurs (review of related literature)?

This research is about the quality of accounting information available to the public. And since there is always a public demand for a high quality of accounting information, this study is in the public interest. Furthermore, on the empirical side this phenomenon was not previously adequately examined in the U.K. situation and hence it is hoped that this research will contribute to the closing of such a gap in the literature.

Summary

This research consisted of two parts: namely, the theoretical and the empirical. The second and the third chapters were devoted to the theoretical part, while the remaining chapters described the methodology and the results of the empirical investigation. Accordingly, these two parts are summarised in turn.

In the theoretical part of this research, an attempt was made:

i) to identify the roots of the theoretical propositions for empirical investigation, and
ii) to assess management's ability to manipulate reported results through accepted accounting means.

To this end, two major propositions were theoretically investigated. The first proposition was that managers have incentives to manipulate reported results, while the second proposition was that managers are able to manipulate reported results through acceptable accounting means. Accordingly, the

approach adopted in this part of the present study was basically an analytical review of the available literature in these areas.

In Chapter II, the first proposition was examined. In this regard, a brief review of several theories of the firm was conducted with particular emphasis on the motivational foundations of such theories. More specifically, an attempt was made to provide an answer to a number of questions which include:

1. What is:
   i) The main objective of the firm;
   ii) The profit concept; and
   iii) The firm concept?
2. To what extent do managers have discretion under the corporate system?
3. What might be an alternative objective of the firm under such a system?
4. How does management achieve such objectives?

Also the broad implications of alternative theories of the firm were presented, as were previous studies which provide interpretations of those implications, particularly related to accounting reports.

Furthermore, recent development in the theory of the firm and their implications on the present study were considered with more emphasis on the U.K. situation. Also certain properties of listed and unlisted firms were discussed.

The results of this review provide theoretical support to the proposition that managers of listed firms are more likely to smooth and increase reported income, while managers of

unlisted firms are more likely to decrease reported income.

In Chapter III, the second proposition, that is that managers are able to manipulate reported results through acceptable accounting means, was examined. In this regard, the development of accounting rules of measurement and the state of accounting practice were analytically reviewed. In such a review, attempts were made to provide answers to the following main questions:

1. How did the present accounting rules of measurement evolve?
2. What is the present mode of setting accounting standards?
3. What are the underlying assumptions of the present mode of setting such standards?
4. What are the implications of such a mode?

The analytical review presented in this research supports the proposition that managers are able to manipulate reported results through acceptable accounting means under present accounting practice.

In the empirical part of this research, an attempt was made to investigate whether the increase of, the decrease of and/or the smoothing of reported income were actually practised. In this regard, the main hypothesis was that there are major differences between listed and unlisted firms regarding the criteria of choice among accounting alternatives and hence differences should exist between certain properties of their reported results. Accordingly, the approach adopted in this part of the present study was an analysis of the reported results of

two sets of firms, wherein one set represented listed firms, while the other represented unlisted firms. The aim of the analysis was to determine the relative adherence of one set, compared with the other, to one or more of these reporting strategies. In order to enhance the comparability between the two sets of firms in the sample, the following steps were taken:

1. The two sets of firms were matched in terms of size and industry on a firm for firm basis;
2. The variables which might lead to real differences in the level of reported income between firms of similar size and industry were considered, using several income definitions in the analysis in order to account for such variables;
3. Each firm was represented by data for several accounting periods to diversify random differences within the firm;
4. Each set of firms included 64 firms to diversify random differences across firms;
5. The effectiveness of controlling for turnover, being the major source of revenue, was tested.

Based on the main hypothesis of this research an attempt was made to determine the relative adherence of listed and unlisted firms to one or more of the following reporting strategies:

i) the smoothing of reported income strategy,

ii) the increase of early reported income strategy,

iii) the decrease of early reported income strategy.

To this end, two principal sets of hypotheses were developed and tested. These sets are restated below.

The first set consisted of two hypotheses regarding the income smoothing phenomenon. The null hypothesis stated that:

> the proportion of listed firms with relatively smooth income streams is not significantly different from that of unlisted firms,

while the alternative hypothesis stated that:

> the proportion of listed firms with relatively smooth income streams is significantly higher than that of unlisted firms.

The second set consisted of two principal hypotheses regarding increase and decrease of ealy reported income. The null hypothesis stated that:

> there is no significant difference in the means of the profitability rates of the two sets of firms

while the alternative hypothesis stated that:

> there is a significant difference in the means of the profitability rates of the two sets of firms.

The result from testing these principal hypotheses and other sub-hypotheses are outlined in the following sections.

In Chapter V, the possibility of an income smoothing phenomenon among listed firms was examined. To this end, it was hypothesised that the proportion of listed firms with relatively

smooth income streams would be significantly higher than that of unlisted firms of similar size and industry. Based on the results presented from testing this hypothesis, the findings can be outlined as follows:

1. the findings of this research are consistent with the above hypothesis for all objects of smoothing considered in this research;
2. the findings indicate that ordinary income is the common object of smoothing among listed firms;
3. when the research criterion of smooth income was reduced from $R^2 > 0.80$ to $R^2 > 0.70$, the findings were consistent with the above hypothesis for all objects of smoothing considered in this research;
4. when the period under examination was extended to more than five years, the findings were consistent with the above hypothesis with respect only to ordinary income and net income.

Therefore, the findings of this research support the proposition that listed firms do smooth their reported income over time to a greater extent than do unlisted firms of similar size and industry.

In Chapter VI, the possibility of increase and decrease of early reported income among the two sets of firms was examined. To this end, it was hypothesised that there would be a significant difference in the means of the profitability rate between listed and unlisted firms of similar size and industry.

To ensure that such a difference is attributable to accounting differences, it was necessary:

i) to test the hypothesis that there were no significant differences in the means, variances and distributions of turnover between the two sets of firms; a hypothesis was tested and strongly supported, and

ii) to consider several income classifications.

Also the possibiity of co-existence of increasing and decreasing strategies among listed firms was examined through hypothesising that listed firms would have a higher coefficient of variation of the average profitability rate than would unlisted firms.

Based on the results from testing these hypotheses, the findings can be outlined as follows:

1. The findings of this research are consistent with the hypothesis that there is a significant difference in the means of profitability rates between listed and unlisted firms of similar size and industry;
2. The magnitude and the direction of the differences indicate that listed firms report significantly higher average profitability rates than those reported by unlisted firms;
3. The observations of profitability rates among listed firms are more concentrated around their means than are those of unlisted firms;
4. When the sample of firms was classified according to their main activities, namely retailing, manufacturing and

construction, the overall results revealed that listed firms reported relatively higher average profitability rates than did unlisted firms in the three sectors, but there were significant differences between these activities. In this regard the gap in profitability rates between listed and unlisted firms was largest in the construction sector and smallest in the manufacturing sector;

5. When the nature of the difference in the profitability rates was examined, the findings indicated that the domain of variable cost was the most likely source of such a difference.

Therefore, the findings of this research support the proposition that listed firms tend to increase their reported income while unlisted firms tend to decrease theirs.

Finally it must be noted that the present study uses statistical analysis of samples in order to draw conclusions about the whole population of listed and unlisted firms. While these samples are considered to be large enough to draw such conclusions as have been drawn, the conclusion must be seen within the statistical framework from which they have emerged and should not be relied upon to assert that any particular listed (or unlisted) firm at any particular time will be acting in such a way with a definable probability.

Conclusions

This research was conducted based on the belief that managers, whether owner or not, use the existing diversity in accounting principles to manage reported income. To test this belief, three assumptions were developed and examined. These assumptions are:

1. that managers have incentives to manipulate reported results;
2. that managers are able to manipulate reported results through acceptable accounting means; and
3. that managers succeeded in their attempt to manipulate reported results.

In the process of examining the above metnioned assumptions, the dichotomy of listed and unlisted firms was used based on the belief that there is a difference in the motivation of their owners. The following conclusions were reached through this research:

1. managers have incentives to manipulate reported results;
2. managers are able to manipulate reported results through acceptable accounting means;
3. managers appear to be successful in their attempt to manipulate reported results.

It is therefore justifiable to conclude that users are receiving measurement of past activity that is not free from management bias.

EPILOGUE

This research made practical, regulatory and academic contributions. These contributions are discussed in turn.

Since on the empirical side this phenomenon had not previously been studied adequately in the U.K. situation, the findings of this research may have a major contribution for most users of financial reports. For instance, the users can benefit from recognising the variable of management bias in their decision models. Alternatively, they can benefit from the support that the findings of this research provide to those who advocate limiting the discretionary power of management over accounting matters. In short, the users of financial reports are the ultimate beneficiaries of this research.

Also, the findings of this research may assist the Accounting Standards Committee (ASC) in setting accounting standards. In this research it was suggested that there are three assumptions in the case of the present mode of setting accounting standards:*

1. Management has no self interest in the outcomes of its accounting policy and hence the most appropriate accounting policy is expected to be applied;
2. The various procedures and methods available to implement a given accounting principle are not alternatives, but merely

---

* See the third chapter of the present study, p.81-82.

constitute the varying methods which are necessary to reflect varying sets of facts;

3. There are no constraints regarding the auditor's position.

Accordingly, the ASC can benefit from the findings of this research, which indicate that the validity of these assumptions is subject to serious suspicion.

Furthermore, this research contributes to future research which may benefit from the development in methodology used in this research. Also, the way in which this research was conducted and the findings of this research have generated some ideas which might be considered for future research. These research possibilities are outlined below:

1. This research highlighted the inadequacy of present accounting disclosures and hence there is a need to improve them. Accordingly, future research may seek for ways to improve present accounting disclosures;
2. A search for ways to strengthen the current auditor's position may constitute another area for future research;
3. This research was based on the belief that there is a difference between the behaviour of accounting decision-makers in listed and unlisted firms. Accordingly, the behavioural aspects of accounting practice may constitute a wide potential area for future research;
4. The possibility of corporate lobbying which might affect the setting of accounting standards may constitute another area for future research.

BIBLIOGRAPHY

ACCOUNTING RESEARCH ASSOCIATION, The Accountant, (November 28th, 1936).

ACCOUNTING STANDARDS COMMITTEE, Setting Accounting Standards, A Consultative Document, 1978.

ALCHAIN, A. and DEMSETZ, H., "Production Information Costs, and Economic Organisation", American Economic Review, 62 (December 1972).

AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS, (AICPA) APBS No. 4, Basic Concepts and Accounting Principles Underlying Financial Statements, New York, 1970.

AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS, A.P.B. Subcommittee Draft of opinion on Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprise, New York, 1968.

AMERICAN ACCOUNTING ASSOCIATION, "A Statement of Objectives", The Accounting Review, (March 1936).

AMERICAN INSTITUTE OF ACCOUNTANTS, Audits of Corporate Accounts, 1934, reprinted in G. May, Twenty-Five Years of Accounting Responsibility, 1911-1936, Vol. 1, Scholars Book Co., 1971.

ARNOLD, J. and MOIZER, P., "A Survey of the Methods used by U.K. Investment Analysts to Appraise Investment in Ordinary Shares", Accounting and Business Research, Summer 1984.

ASHTON, R., U.K. Financial Accounting Standards A Descriptive and Analytical Approach, Woodhead-Faulkner Ltd., Cambridge, 1983.

BAREFIELD, R. and COMISKY, E., "The Smoothing Hypothesis: An Alternative Test", The Accounting Review, (April 1972).

BARNEA, A., RONEN, J. and SADAN, S., "Classificatory Smoothing of Income with Extraordinary Items", The Accounting Review, January 1976.

BAUMOL, W., Business Behaviour, Value and Growth, Harcourt, Brace & World Inc., New York, Revised Edition, 1967.

BEIDLEMAN, C., "Income Smoothing: The Role of Management", The Accounting Review, October 1973.

BERLE, A. and MEANS, G., The Modern Corporation and Private Property, Harcourt, Brace & World Inc., New York, Revised Edition (1968).

BERNSTEIN, L., Financial Statement Analysis Theory Application and Interpretation, R. Irwin, Inc. 1974.

BHATTACHARYYA, G. and JOHNSON, R., "Statistical Concepts and Methods", John Willey and Son, New York, 1977.

BROMWICH, M., The Economics of Accounting Standard Setting, Prentice Hall International (UK) Ltd., 1985.

CADENHEAD, G., "Differences in Circumstances: Fact or Fantasy?", Abacus, (September 1970).

CHAMBERS, R., "A Matter of Principle", The Accounting Review, 41, (July 1966).

CHASTEEN, L., "An Empirical Study of Differences in Economic Circumstances as Justification for Alternative Inventory Pricing Methods", The Accounting Review, (July, 1971).

CLARK, C. and SCHKADE, L., Statistical Analysis for Administrative Decisions, South-Western Publishing Co., Brighton, 1974.

COMPANIES ACT 1981, Schedules 1 and 2.

COPELAND, R., "Income Smoothing", Empirical Research in Accounting: Selected Studies, The Institute of Professional Accounting, Chicago and London, 1968.

COPELAND, R. and LICASTRO, R., "A Note on Income Smoothing", The Accounting Review, July 1968.

COPELAND, R. and WOJDAK, J., "Income Manipulation and the Purchase Pooling Choice", Journal of Accounting Research, Autumn (1969).

CREW, M., Theory of the Firm, Longman Group Limited, Essex, 1975.

CUSHING, B., "An Empirical Study of Changes in Accounting Policy", Journal of Accounting Research, Autumn 1969.

CYERT, R. and MARCH, J., A Behavioural Theory of the Firm, Prentice-Hall Inc., New York, 1963.

DASCHER, P. and MALCOLM, R., "A Note on Income Smoothing in the Chemical Industry", Journal of Accounting Research, Autumn (1970).

DAVIES, B., Business Finance and the City of London, Heineman Ed. Books Ltd., London, 1976.

DAVIES, P. and BOURN, A., "Lord Kylsant and the Royal Mail", Business History, 1972.

DEV, S. and WEBB, M., "The Accuracy of Company Profit Forecasts", Journal of Business Finance, 1972.

DHALIWAL, D., SALAMON, G., SMITH, E., "The Effect of Owner Versus Management Control on the Choice of Accounting Methods", Journal of Accounting and Economics, 4, 1982.

"DIRECTORS AND AUDITORS", The Economist, April 11th, 1942.

DOPUCH, N. and DRAKE, D., "The Effect of Alternative Accounting Rules for Non Subsidiary Investments", Empirical Research in Accounting: Selected Studies, The Institute of Professional Accounting, Chicago, London, 1966.

ECKEL, N., "The Income Smoothing Hypothesis Revisited", ABACUS, vol. 17, No.1, 1981.

FAMA, E., "Agency Problems and the Theory of the Firm", Journal of Political Economics, Vol. 88, No.2, (1980).

GALE, S., Financial Management Handbook, Gower Press, 1972.

GLAUTIER, M., UNDERDOWN, B. and CLARK, A., Basic Financial Accounting, Bath Press, Avon, 1985.

GONEDES, N., "Income Smoothing Behaviour Under Selected Stochastic Processes", The Journal of Business, Oct. 1972.

GORDON, M., "Postulates, Principles and Research in Accounting", The Accounting Review, April 1964.

GORDON, M., HORWITZ, B. and MEYERS, P., "Accounting Measurement and Normal Growth of the Firm", in JAEDICKE, IJIRI and NIELSEN, eds. Research in Accounting Measurement, (Evanston, 111: A.A.A. 1966).

GRIFFITHS, I., Creative Accounting, Firethorn Press, 1986.

HAGERMAN, R. and ZMIJEWSKI, M., "Some Economic Determinants of Accounting Policy Choice", Journal of Accounting and Economics, 1 (1979).

HALL, M. and WEISS, L., "Firm Size and Profitability", The Review of Economics and Statistics, 49 (August 1967).

HELLER, R., "When is Profit not a Profit?" The Observer, November 16th, 1969.

HENDRIKSEN, E., Accounting Theory, 3rd Edition, R. Irwin, Inc., 1977.

HENDRIKSEN, E., "Toward Greater Comparability Through Uniformity of Accounting Principles", in Keller and Zeff, Financial Accounting Theory II: Issues and Controversies, McGaw-Hill Book Co., 1969.

HEPWORTH, S., "Smoothing Periodic Income", The Accounting Review, January 1953.

ICAEW, Financial Reporting 1984-85: A Survey of UK Published Accounts, 1985.

ICAEW, Statements on Auditing, Moorgate Place, London, 1976.

ICAEW, Statements of Intent on Accounting Standards in the 1970's, reprinted in Accounting Standards, 1980, The Institute of Chartered Accountants in England and Wales.

IMHOFF, E., "Income Smoothing - A Case for Doubt", Accounting Journal, Spring 1977.

JACOBSEN, L., "The Rise of the Profit Deferral Notion", The Accounting Review, 38, (April 1963).

JENSEN, M. and MECKLING, W., "Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure", Journal of Financial Economics, 3, 1976.

KAMIN, J. and RONEN, J., "The Smoothing of Income Numbers: Some Empirical Evidence on Systematic Differences Among Management-Controlled and Owner-Controlled Firms", Accounting Organisations and Society, vol. 3, No.2, 1978.

KEANE, S., Issues in Finance, Philip Allan, Oxford, 1986.

LAMBERT, R., "Income Smoothing as Rational Equilibrium Behaviour", The Accounting Review, October 1984.

LARNER, R., Management Control and the Large Corporation, New York: Dunellen Publishing Company Inc., 1970.

LEE, G., Modern Financial Accounting, T. Nelson and Sons Ltd., 1973.

LEFTWICH, R., The Price System and Resource Allocation, Holt, Rinehart and Winston, New York, 1966.

LEWIS, R., PENDRILL, D. and SIMON, D., Advanced Financial Accounting, Pitman, 1982.

MARRIS, R., The Economic Theory of 'Managerial' Capitalism, MacMillan and Company Limited, London, Revised Edition, 1967.

McEACHEN, W., Managerial Control and Performance, Lexington Books, 1975.

McGUIRE, J., "Theories of Business Behaviour", Prentice-Hall, 1964.

McGUIRE, J., CHIU, J. and ELBING, A., "Executive Incomes, Sales and Profits", American Economic Review, 52 (September 1962).

MONSEN, R. and DOWNS, A., "A Theory of Large Managerial Firms", The Journal of Political Economy, vol. LXXIII, June 1965, No.3.

MONSEN, R., CHIU, J. and COOLEY, D., "The Effect of Separation of Ownership and Control on the Performance of the Large Firm", The Quarterly Journal of Economics, 1968.

MORRIS, R. and BREAKWELL, H., "Manipulation of Earnings Figures in the United Kingdom", Accounting and Business Research, Summer 1975.

OZGA, S., "Imperfect markets through lack of knowledge", Quarterly Journal of Economics, February 1960.

PENNO, M. and SIMON, D., "Accounting Choices: Public Versus Private Firms", Journal of Business Finance and Accounting, 13(4), Winter 1986.

PERKS, R. and BUTLER, L., "Accounting Standards in Practice: The Experience of SAAP2", Accounting and Business Research, No.29, Winter 1977.

"ROLLS RAZOR CALLS IT QUITS", Business Week, July 25th, 1964. Also, The Economist, July 25th, 1964.

RONEN, J. and SADAN, S., "Do Corporations use their Discretion in Classifying Accounting Items to Smooth Reported Income?", The Financial Analysts Journal, September - October 1975.

RONEN, J., SADAN, S. and SNOW, C., "Income Smoothing: A Review", Accounting Journal, Spring 1977.

SALAMON, G. and SMITH, E., "Corporate Control and Managerial Misrepresentation of Firm Performance", The Bell Journal of Economics, Spring 1979.

SAMUELS, J. and WILKES, F., Management of Company Finance, Van Nostrand Reinhold (UK) Co. Ltd., 1986.

SCHIFF, M., "Accounting Tactics and the Theory of the Firm", Journal of Accounting Research, vol. 4, No.1, Spring 1966.

SIMON, H., "Rational Decision Making", The American Economic Review, Vol. 69, No.4, September 1979.

SIMPSON, R., "An Empirical Study of Possible Income Manipulation", The Accounting Review, October 1969.

SMITH, E., "The Effect of the Separation of Ownership from Control on Accounting Decisions", The Accounting Review, October 1976.

STAMP, E., "Auditing the Auditors", reprinted in E. Stamp and C. Marley, Accounting Principles and the City Code. The Case for Reform, Butterworths, 1970.

STAMP, E. and MARLEY, C., Accounting Principles and the City Code: The Case for Reform, Butterworths, 1970.

STERLING, R., "Accounting Power", Journal of Accounting, (January 1973).

STERLING, R., "A Test of the Uniformity Hypothesis", Abacus, September, 1969.

WATTS, R. and ZIMMERMAN, J., "Towards a Positive Theory of the Determination of Accounting Standards", The Accounting Review, January (1978).

WHITE, G., "Discretionary Accounting Decisions and Income Normalisation", Journal of Accounting Research, Autumn 1970.

WILLIAMSON, O., The Economics of Discretionary Behaviour: Managerial Objectives in a Theory of the Firm, Markham Publishing Company, Chicago, 1967.

WILLIAMSON, O., "A Dynamic Stochastic Theory of Managerial Behaviour", in A. Phillips and O. Williamson, eds., Prices: Issues in Theory, Practice and Public Policy, Philadelphia: University of Pennsylvania Press, 1967.

ZEFF, S., "Forging Accounting Principles in Five Countries. A History and Analysis of Trends", Arthur Andersen and Co., Lecture Series, 1971.

APPENDIX

List of the Firms in the Sample

	NAME	MAIN ACTIVITY
1.	COUTINHO, CARD and Co. Ltd.	Trading as steel, general and machinery as well as construction of complete plants
2.	H.A.T. Group plc.	Supplying specialist services and materials to industry as well as to the public
3.	A.H. Philpot and Sons Ltd.	Various aspects of farming and agriculture products
4.	AVANA GROUP plc.	Food processing industry
5.	JOHN E. WILTSHIER GROUP Ltd., and Sub	Builders, management and interior contractors, joinery manufacturers, mechanical and electrical contractors and property developers
6.	HAWLEY GROUP plc.	Security services, cleaning and maintenance services, home improvement and travel
7.	SHEPHERD Building GROUP Ltd.	Building and ancillary activities
8.	BROWN and JACKSON plc.	Various aspects of trading and building and property development
9.	EDWARD BILLINGTON and Son Ltd. and Sub.	Manufacturing of food stuff and packaging material
1Ø.	STEEL BROTHER Holdings plc.	Food and catering, lime, aggregates and cement supplies, engineering and trading
11.	TENNANTS Consolidated Ltd.	Manufacturing and sale of chemicals and chemical products
12.	HICKSON International	Manufacturing of chemicals, timber products and distribution of building materials
13.	C.E.F. Holdings Ltd.	Manufacturing and wholesalers of electrical goods
14.	R.H.P. GROUP plc.	Manufacturing and sales of bearings, electrical products and fasteners

15.	A. OPPENHEIMER and Co. Ltd.	Engineering merchants, manufacturers of smokers' pipes and allied goods
16.	AURORA GROUP plc.	Manufacturing and distribution of a wide range of precision engineering products and special steel
17.	RYLAND VEHICLE GROUP Ltd. and Sub.	Distribution, repairing, servicing and hiring of motor vehicles
18.	T.C. HARRISON plc.	Distribution, hiring and leasing of motor vehicles
19.	MARSHALL of CAMBRIDGE (Engineering Ltd.)	General engineering connected with aircraft and vehicle body building
2Ø.	SENIOR ENGINEERING GROUP plc.	Includes three divisions: (1) light engineering division, (2) steel tube division, and (3) air handling and plastic division
21.	JOHNSON SILVER (Holdings Ltd.)	Wholesalers of meat, poultry, bacon and processors of meat
22.	CLIFFORD'S DAIRIES plc.	Processing and distribution of milk, milk bared products and fruit juices and drinks
23.	WEETABIX Ltd	Manufacturing and marketing of ready to eat cereals
24.	BERNARD MATTHEWS plc.	Production and marketing of turkey and red meat as well as grain trading and pet food production
25.	FENWICK Ltd	The operation of department stores
26.	The H. SAMUEL GROUP of companies plc.	Multiple retail Jewellers
27.	CRYSTAL of HULL Ltd.	Dealers in motor vehicles, motor and general engineers and garage properties
28.	CAFFYNS plc.	Dealers in motor vehicles and related activities
29.	SYKES GROUP, Ltd.	Fuel merchants, manufacturing and merchants of plastic and rubber products as well as construction

3Ø.	CHAMBERLAIN PHIPPS plc.	Manufacturing of adhesives, mastics and insulation cladding also supplying materials to footwear manufacturers
31.	JAMES MILLER and partners plc.	Construction and related ancillary activities
32.	M.J. GLEESON GROUP plc.	Construction and related ancillary activities
33.	FOOD BROKERS (HOLDINGS) Ltd.	Marketing, selling, sales, service and distribution of groceries, confectionary and chemical products
34.	COURTS (Furnishers) plc.	Retailing of household, carpets, bedding
35.	LONDIS (Holdings) Ltd.	Wholesaler of provisions and groceries
36.	WATSON and PHILIP plc.	Distribution of food and ancillary products
37.	READSON Ltd and Sub.	Merchants and manufacturers of fabrics and clothing
38.	ILLINGWORTH, MORRIS plc.	Processing of wool and fibres including the production of woollen and woven spun yarns, cloth and garments
39.	FRANK FEHR and Co. Ltd.	Merchants and Broker of a wide range of products
4Ø.	WARING and GILLOW (Holdings) plc.	Retailing of household furniture, carpets and men's clothing
41.	D.B. MARSHALL (Newbrdige) Ltd.	Distribution and production of poultry
42.	MAYNARDS plc.	Manufacturing and retailing of confectionary
43.	D.C. THOMSON and Co Ltd.	Printing and publishing of news-papers, magazines and books
44.	EAST MOLAND ALLIED PRESS plc.	Printing and publishing of news-papers and magazines also engaged in retailing
45.	WIGGLESWORTH AND Co. Ltd.	Merchants of fibres, edible and other products. Also the present company holds investment

46.	GLASS GLOVER GROUP plc.	Fresh produce marketing and distribution service to super-markets also other consultancy services.
47.	MACMILLAN Ltd. and Sub.	Publishing of books and periodicals
48.	ASSOCIATED BOOK Publishers plc.	Publishing and book selling
49.	WILLIAM GRANT and SON	Distilling, blending, bottling and selling potable spirits
50.	MANSFIELD BREWERY plc.	Brewing, manufacturing of soft drinks, wholesaling of beers, soft drinks, wines and spirits
51.	D.S.M. AUTO Ltd.	Sales of new and used vehicles and other related services
52.	ARLINGTON MOTOR Holdings plc.	Distribution and trading of motor vehicles and other related operations
53.	M. and W. MACK Ltd.	Marketing and distribution of fresh fruit, vegetables and flowers
54.	BASSETT FOODS plc.	Manufacturing, distribution and sale of confectionery
55.	WARBURTONS Ltd.	Manufacturing and distribution of food and other retailing activities
56.	ASSOCIATED FISHERIES plc.	Related to seafood as processors wholesalers, fast food, etc.
57.	JOHN WILLMOT Holdings Ltd.	Construction with investment in motor industry
58.	TILBURY GROUP plc.	Construction industry with several divisions
59.	B.H. BLACKWELL Ltd.	Retailing, bookselling and supply of periodicals
60.	The WEBSTERS GROUP plc.	Books distribution with minor activity in publications and printing
61.	W.S. ATKINS GROUP Ltd.	Consultancy services, building design, cinic, structural and transportation engineering

62.	WILSON (CONNOLLY) Holdings plc.	Private housing, building contracting, property development and property investment
63.	HOW GROUP Ltd.	Design, manufacturing, supply installations and maintenance of services to buildings
64.	The HENDERSON GROUP plc.	Manufacturing and sale of garage doors, sliding door gear, industrial and vehicle doors and security systems
65.	LAWS STORES Ltd	Operating of supermarkets
66.	PENTLAND INDUSTRY	Trading with particular emphasis on shoes and clothing
67.	FUEST DAY LAWSON Holdings Ltd.	Trading in agricultural fertilisers feeding stuffs and others
68.	ELLIS and EVERARD plc.	Merchants of chemicals and also processor of chemicals to some extent
69.	BAYFORD and CO. Ltd.	Distribution of solid fuel and oil products
70.	ERITH plc.	Distribution of materials as builders merchants
71.	R.G. CARTER Holdings	Construction and related industries and include building and plant hire, the sale of builder's equipment and the production of aggregates and concrete products
72.	GALLIFORD plc.	Construction with some engineering activities
73.	TULLIS RUSSEL and Co. Ltd.	Manufacturers of paper for printing and converting industries
74.	The EAST LANCASHIRE PAPER Group, plc.	Manufacturing, processing and merchants of paper
75.	JOHN ELLIOTT Holdings Ltd.	Building, building services, property development and property investment
76.	GRAMPIAN Holdings plc.	Transport and construction with some retailing activities
77.	MINORIES Ltd.	Motor dealers and hire purchase financiers

78.	ALEXANDERS Holdings plc.	Motor dealers and related operations
79.	MAY GURNEY Holdings Ltd. and Sub.	Civil engineering and ancillary services including distribution of heating fuel and supplying of building materials
8Ø.	JOHN FOLKES HEFO plc.	Engineering with different specialists supplying building material and house builders
81.	SAMUEL BANNER and Co. Ltd.	Vegetable oil refining and solvent blending
82.	CARRS MILLING Industries plc.	Flour milling, the manufacturing of animal feeding stuffs, the production of bread and bakery products, also merchants for other products
83.	LANCER BOSS Group Ltd. and Sub.	Design and manufacturing of lift trucks, light engineering and distribution of agriculture equipment
84.	WEST'S Group International plc.	Civil engineering, process engineering and other industrials
85.	THOMAS ROBERTS (Westminster) Ltd.	Trading in timber, read materials and public work, concrete pipes and tunnels as well as electrical industries
86.	HEYWOOD WILLIAMS GROUP plc.	Manufacturing and supplying building materials
87.	PROSPER DEMULDER Ltd.	Collection, processing and sales of animal by products
88.	STYLO GROUP plc.	Retailers and wholesalers of footwear
89.	EDRINGTON Holdings Ltd. and Sub.	Various factors of scotch whisky industry
9Ø.	MATTHEW CLARK and Sons plc.	Distribution, manufacturers of wines and spirits
91.	BELLING and CO. Ltd.	Manufacturing and sale of electrical appliences, fabricated components and metal sections

92.	W. CANNING plc.	Supply of chemicals, metals and electronics to manufacturing industry and of refined silver
93.	JAMES LONGLEY Holdings Ltd.	Building and civil engineering contractors as well as property developers
94.	WILLIAM LEECH plc.	House building, development, contracting and property investment
95.	G.E. WALLIS and SON Ltd.	Building and civil engineering, property development, decorating, electrical engineering and manufacturer of reconstructed stone products
96.	BOUSTHEAD plc.	Engineering of consumer and industrial products as well as investment in several activities
97.	A.F. BLAKEMORE and Son Ltd.	Wholesale distribution and retailing of food-stuffs, groceries and similar products
98.	BENTALLS plc.	Operation of department stores
99.	LLOYD MAUNDER Ltd.	Wholesale and retailing of meat, poultry, breeding of chicks, cattle and animal feed milling
100.	FEEDEX AGRICULTURAL INDUSTRIES and Sub. plc.	Production of animal feeds and manufacturing of agricultural equipment
101.	DEES of CROYDON Ltd.	Motor dealers and related operations
102.	C.D. BRAMALL plc. and Sub.	Motor dealers and related operations
103.	FOSTER YEOMAN Ltd.	Operate as limestone quarry owners, producing and distribution of read stone, concrete aggregates and coated manadum
104.	PLANET Group plc.	Manufacturer of windows for railway coaches, motor vehicles and building industry
105.	TAGGARTS (MOTOR Holdings) Ltd.	Motor dealers and related operations
106.	JESSUP plc.	Motor dealers and related operations

107.	FEIN and Co. Ltd.	Dealing in furs and skins
108.	CHURCH and Co. plc.	Wholesale and retail distribution of footwear
109.	CLARKE SECURITIES Ltd.	Development of residential housing and commercial property and the carrying out of construction contracts
110.	LONDON and MIDLAND Industrials plc.	Consumer products and home improvement, engineering and industrial services
111.	SAN DILLIFFE Garage Ltd.	Motor dealers and related operations
112.	STEAD and SIMPSON plc. and Sub.	Motor trading and related operations as well as footwear retailing
113.	MCNAB GROCERIES Ltd.	Operation of wholesale cash and carry warehouses
114.	A. GOLDBERG and SONS plc.	Operating of retailing stores
115.	R. MANSELL Ltd. and its sub.	Building contracting and property
116.	The IDC Group plc.	Designing and constructing industrial and commercial building as well as property development
117.	IRELAND ALLOYS Holdings Ltd.	Processing of complex alloy scrap, stainless steel and other metals
118.	RATCLIFFS (Great Bridge) plc.	Manufacturers of brass and copper strip
119.	JAMES-WALKER and CO Ltd.	Manufacturing and sale of packing, paintings, seals, jackets and allied products
120.	PARKER KNOLL plc.	Manufacturing and supplying of furnishing
121.	KIRIL MICHEFF Holdings Ltd.	Trading in processed and semi processed food products
122.	JAMES BEATTIE plc.	Operation of retail department stores
123.	McARTHUR Group Ltd.	Trading in steel, metal and plastic products

124.	SHARPE and FISHER plc.	Trading in building materials and operating D.I.Y. and garden supermarket
125.	P.M.G. Investment Ltd. and Sub.	Motor dealers and related operation as well as letting of surplus office and commercial accommodations
126.	WESTERN MOTOR Holdings plc.	Motor dealers and related operations as well as the investment in and development of property
127.	PALMER and HARVEY Ltd.	Distribution of tabacco and confectionery goods
128.	NURDIN and PEACOCK plc.	Operating wholsesale cash and carry warehouses, also engaged in developing properties and wholesale of canned fruit and vegetable products.