

**THE PRICING OF AUDIT SERVICES IN SOUTH AFRICA**  
**- AN ANALYTICAL STUDY**

A DISSERTATION PRESENTED TO THE

**DEPARTMENT OF ACCOUNTING**

**UNIVERSITY OF CAPE TOWN**

IN FULFILMENT OF THE REQUIREMENTS FOR THE

**MASTER OF COMMERCE**

**DEGREE IN ACCOUNTING**

BY

**DERRICK T.V. MSIBI**

**31 JULY 1995**

The University of Cape Town has been given  
the right to reproduce this thesis in whole  
or in part. Copyright is held by the author.

## TABLE OF CONTENTS

	<b>Page</b>
Acknowledgements	vi
Abstract	vii
List of tables	viii
List of illustrations	ix
Glossary	x
<b>1. INTRODUCTION</b>	<b>1</b>
1.1 Introduction	1
1.2 Statement of the problem	2
1.3 Objectives	3
1.4 Scope	3
1.5 Contributions of this study	4
1.6 Chapter organisation and layout	4
<b>2. THE NATURE OF AUDITING</b>	<b>7</b>
2.1 Introduction	7
2.2 Auditing - a definition	7
2.2.1 The need for an audit	7
2.2.2 Theories of the role of the auditor	8
2.2.3 Auditing as a profession	9
2.3 The development of auditing	10
2.4 The regulation of auditing in South Africa	13
2.5 The value of audited financial statements	15
2.6 The qualities of an auditor	16
2.7 The audit process	17
2.8 Legal prescriptions	19
2.8.1 Appointment and removal	20
2.8.2 Powers and duties of the auditor	20
2.8.3 Recourse against the auditors	22
2.9 Organisation of audit practices	23
2.10 Guidelines on audit fees	24
2.11 Chapter summary	26

<b>3.</b>	<b>THE ACCOUNTING SERVICES MARKET</b>	<b>28</b>
3.1	Introduction	28
3.2	The structure of the market	28
3.2.1	The demand and supply of audit services	28
3.2.2	The suppliers of audit services	30
3.2.3	Competitiveness of audit services market	37
3.3	South African market : An overview	39
3.4	Other services market	42
3.4.1	Origins	42
3.4.2	Reasons for involvement	44
3.4.3	Advantages of accounting firms	45
3.4.4	Disadvantages of accounting firms	46
3.4.5	Criticisms	46
3.5	Recent developments - Litigation	48
3.6	Chapter summary	49
<b>4.</b>	<b>LITERATURE REVIEW</b>	<b>50</b>
4.1	Introduction	50
4.2	United States	50
4.2	United Kingdom	73
4.3	Australia	76
4.4	New Zealand	79
4.5	Canada	80
4.6	India	82
4.7	Singapore	82
4.8	International	82
4.9	Summary	84
<b>5.</b>	<b>THEORETICAL FRAMEWORK</b>	<b>86</b>
5.1	Introduction	86
5.2	Factors determining audit fees	86
5.2.1	Client factors	87
5.2.1.1	Size	87
5.2.1.2	Complexity	90
5.2.1.3	Audit opinion	95
5.2.1.4	Auditee risk	96
5.2.1.5	Ownership	102
5.2.1.6	Audit delay	103

5.2.1.7	Reports	105
5.2.2	Auditor factors	106
5.2.2.1	Size	106
5.2.2.2	Management advisory services	112
5.2.2.3	Location	115
5.2.2.4	Expertise	116
5.2.2.5	Change in auditors	122
5.3	Dependent variable	125
5.4	Omitted variables	128
5.4.1	Internal audit costs	128
5.4.2	Industry	129
5.4.3	Foreign subsidiaries	129
5.4.4	Busy period	130
5.4.5	Auditor tenure	131
5.4.6	Fee billing arrangements	132
5.5	Chapter summary	132
<b>6.</b>	<b>DATA AND METHODOLOGY</b>	<b>133</b>
6.1	Data collection	133
6.2	Methodology	137
6.2.1	Multicollinearity	139
6.2.2	Serial correlation	140
6.2.3	Heteroscedasticity	141
6.2.4	Non-normality	141
6.2.5	Outliers	142
6.3	Data transformation	142
6.4	Tests for assumptions	143
6.4.1	Multicollinearity	143
6.4.2	Heteroscedasticity	143
6.5	Concluding remarks	150
<b>7.</b>	<b>RESULTS AND ANALYSIS</b>	
7.1	Introduction	151
7.2	Preliminary results	152
7.2.1	Comparison of mean audit fees	152
7.2.2	Pearson correlation coefficients	153
7.3	Multiple regression results	154
7.3.1	Outliers and other influence factors	156

7.3.2	Discussion and analysis	159
7.3.2.1	Client factors	161
7.3.2.2	Auditor factors	169
<b>8.</b>	<b>CONCLUSION</b>	
8.1	Introduction	180
8.2	Summary of results	180
8.2.1	Company specific variables	180
8.2.2	Type of audit firms	180
8.2.3	Management advisory services	181
8.3	Applications of this study	181
8.4	Areas of future research	182
8.5	Concluding remarks	183
<b>9.</b>	<b>APPENDICES</b>	<b>184</b>
<b>10.</b>	<b>BIBLIOGRAPHY</b>	<b>189</b>

## ACKNOWLEDGEMENTS

I am indebted to Professor Geoff Everingham for his guidance, patience and continuous support during the completion of this research.

I would like to express my sincere thanks to the Centre for Scientific Development, who awarded me a grant to pursue my masters in accounting.

In addition, the following people offered invaluable help:

Ann Daniels, my fiancé for her patience and support throughout the writing;

Dilshaad Brey for her assistance with the data gathering and collection of literature;

KPMG Aiken and Peat for permission to use their computer hardware and software and use of their library facilities;

Professor Trevor Wegner for his expert advice on the statistical analysis and guidance on the methodology;

Without all their support and co-operation the research would not have been possible.

I certify that this report is my own work and all references used are accurately reported.

DERRICK T.V. MSIBI

31 JULY 1995

## ABSTRACT

The pricing of audit services is a complex function of many variables. Prior research has proposed various approaches and models to identify some of these factors. This paper provides a description of one such model. Studies based on this model, or modifications of it, have been performed in Australia, Canada, Hong Kong, India, Ireland, Malaysia, New Zealand, Singapore, the United Kingdom and the United States of America. This thesis reports the findings of a similar study of 104 companies over the period 1991-1992 conducted in South Africa..

The analysis indicates that there is an approximately linear relationship between audit fee and a company's total assets or sales. In addition, management advisory services, number of reports in addition to those required by the Companies' Act, the level of inventory and debtors in relation to total assets and audit delay, are significant determinants of audit fees. Unlike overseas studies, audit firm size, auditor specialisation, the number of consolidated subsidiaries and audit risk as measured by gearing, liquidity and profitability do not affect the level of audit fees.

Whilst the influence of auditee size and complexity have been found to be the most consistent predictors of audit fees, there is an apparent lack of consistency in other variables. These findings are largely consistent with international research and indicate a growing influence of the internationalisation of auditing practice.

## LIST OF TABLES

<b>Table #</b>	<b>Description</b>	<b>Page</b>
Table 1	Leading accounting firms in South Africa - Fee data	39
Table 2	Ranked market capitalisation and Big Six dominance	41
Table 3	Growth in management consulting revenues of the six largest accounting firms 1987-1991	42
Table 4	Comparison of MAS revenues to total revenues for the six largest accounting firms 1992	43
Table 5	Growth in management consulting revenue of the eight largest consulting firms 1978-1991	43
Table 6	Business risk factors	98
Table 7	Framework for studying audit prices	110
Table 8	Description of variables	127
Table 9	Listed companies listed by financial year end	130
Table 10	Description of sample selection	133
Table 11	Data descriptive statistics for total sample	134
Table 12	Descriptive statistics of binary coded variables	134
Table 13	Sectorial representation of sample companies	136
Table 14	Small audit firm representation in sample	137
Table 15	Large audit firm representation in the sample	137
Table 16	Pearson correlation matrix	144
Table 17	Regression results using untransformed audit fee variable	147
Table 18	Regression results using transformed audit fee variable	147
Table 19	Average audit fees per rand of turnover	152
Table 20	Actual average audit fees	152
Table 21	Results of multivariate regression	155
Table 22	Results of stepwise regression model	155
Table 23	Regression statistics excluding outliers	157
Table 24	Stepwise regression statistics excluding outliers	157
Table 25	Comparison of expected and actual relationships between audit fees and auditor and client factors	158
Table 26	Comparative statistical data of international studies	159
Table 27	Regression statistics for large auditees	160
Table 28	Regression statistics for small auditees	161
Table 29	Regression results using each Big Six firm as a dummy variable	172

**LIST OF ILLUSTRATIONS**

<b>Figure #</b>	<b>Description</b>	<b>Page</b>
Figure 1	The legal relationships	19
Figure 2	Supply and demand relationships for audit services	30
Figure 3	Market concentration - Big Six share	34
Figure 4	Market share of major audit firms	35
Figure 5	Market survey of accounting services market	44
Figure 6	Audit fees in relation to auditee total assets	89
Figure 7	Audit fees in relation to auditee's turnover	90
Figure 8	Auditee profitability and audit fees	100
Figure 9	Residual plot for untransformed audit fee (Audit Fee)	145
Figure 10	Residual plot for transformed audit fee (Log Audit Fee)	146
Figure 11	Normal probability plot of residuals	149

**GLOSSARY**

<b>AICPA</b>	American Institute of Certified Public Accountants
<b>IASC</b>	International Accounting Standards Committee
<b>ICAEW</b>	Institute of Chartered Accountants for England and Wales
<b>IFAC</b>	International Federation of Accountants
<b>GAAP</b>	Generally Accepted Auditing Practice
<b>GAAS</b>	Generally Accepted Auditing Standards
<b>JSE</b>	Johannesburg Stock Exchange
<b>LSE</b>	London Stock Exchange
<b>MAS</b>	Management Advisory Services
<b>NYSE</b>	New York Stock Exchange
<b>NZCA</b>	New Zealand Society of Chartered Accountants
<b>PAAB</b>	Public Accountants and Auditors Board
<b>SAICA</b>	South African Institute of Chartered Accountants
<b>UK</b>	United Kingdom
<b>US</b>	United States of America

## **AUDITING AND THE ROLE OF AUDITING RESEARCH**

“ To adapt effectively, a profession must periodically evaluate how it might best fulfill its social role in the light of current and anticipated development in the environment. This evaluation process should involve a deliberate, critical analysis of potential problems and opportunities faced by the profession. Without such study, many problems will go unidentified until the opportunity for their timely solution has passed, and all that remains is to deal with their undesired consequences. Likewise, opportunities to improve quality of service may be unnecessarily delayed or missed altogether.”

Peat, Marwick, Mitchell & Co [1976, p.1]: “Research Opportunities in Auditing”

## 1. INTRODUCTION

### 1.1 Introduction

Irrespective of size and structure of ownership South African companies (private or public) are required by law to appoint external auditors who report to the shareholders in the annual financial statements by means of an auditor's report. The auditor has to be remunerated accordingly for services rendered. In effect the audit fee is unavoidable and "obligatory" [Gloeck and De Jager, 1993, p.vii]. It is therefore the quantum of the audit fee that may differ between different companies.

General concern has also been expressed about the pricing, type and quality of such services and the general market structure in which the services are performed [Pound and Francis, 1981, p.353]. At the same time, SAICA's Fee Dispute Panel has been receiving an increasing number of queries from clients about fees charged by chartered accountants [*Accountancy SA* November/December 1994, p.43]. The fee disputes appear to arise from both a lack of communication regarding the progress and complexity of the work in hand [Dijkman, 1994]. In spite of these observations, there is no South African study that satisfactorily explains why there are differences in audit fees of listed companies.

Financial analysts make frequent references to the fact that some listed companies are reporting an increase in audit fees whilst others report static or declining amounts [e.g. *Finance Week Top Companies Survey*, 1993, p.170; 1994, p.212]. There is no plausible explanation given for the observed variances but only reference to possible reasons supported by anecdotal evidence. Therefore, these reasons cannot, in earnest, be extended to the rest of the companies listed on the JSE. The absence of empirical data to justify these differences makes this a useful area of research. These comments appear to be more than passing comments. They indicate a growing curiosity on the determination of audit fees. One may even construe them as an indication of the growing scrutiny of the auditing profession.

Audit fees being a price for services rendered, are determined within a particular regulatory and market framework. Since the late 1980s the market for audit services has been dominated by six large auditing firms. In the US the *Metcalf Study* charged that the audit services market was "increasingly uncompetitive" [Buckley and O'Sullivan, 1980, p.37]. The commission charged that the largest accounting

firms dominated the audit services market in the US and possibly the whole world as well [Dopuch and Simunic, 1980]. In contrast, the *Cohen Commission* found that competition was “excessive” [AICPA, 1978, p.106], and Bernstein [1978, p.89] observed a “steady and fierce competitive struggle.” It is not particularly clear if this domination and state of competitiveness in the market has had an impact on the pricing of audit services. If the market is dominated by a few suppliers, it is of particular interest to find out if the fees charged by the providers of such services are related to whether the firm providing the service is a large supplier or not.

Although there are sound theoretical reasons for differential pricing strategies, available empirical evidence is inconclusive [Francis and Simon, 1987]. The major competing explanations seem to centre around the extent of competition in the audit services market, the existence of product differentiation and potential economies of scale to large audit firms [Francis, 1984]. The reasons for such differences between similar clients should be established and corroborated by empirical evidence.

This dissertation will attempt to identify the factors that explain the differences in audit fees of listed companies and shed some light on whether audit firm size is a major influence on audit fees. There is evidence mainly from developed countries, Australia, Canada, Hong Kong, New Zealand, Singapore, UK and the US. Developing countries studied thus far include India and Malaysia. Because of the internationalisation of economies and accounting, it of interest to compare evidence from these countries with that of South Africa.

## **1.2 Statement of the problem**

The absence of plausible explanations of differences in audit fees between different listed companies, invites research into developing a model that will explain and/or predict audit fees for listed companies taking into account company- and audit firm-specific variables. Extensive research has been done in overseas countries whilst there is no record of such research in South Africa.

### 1.3 Objectives

The objective of the study is to provide South African evidence of factors determining audit fees. Specifically, this will investigate the relationship between audit fees and:

1. Company-specific variables such as size, risk, ownership control, profitability, number of reports, audit opinion, location and complexity factors. Measures of size include assets, net income and revenues. The complexity variables include the number of consolidated subsidiaries, inventory and accounts receivables;
2. Type of audit firm, with an emphasis on the size of the audit firm; classified by affiliation to its international network of accounting firms;
3. Management advisory services;
4. Change in auditors.

These objectives will be achieved by developing a positive model for the determination of audit fees and testing the significance of the variables in the model. A model for testing for the influence of audit-firm size developed by Simunic [1980], will be used to evaluate and interpret the effect of audit-firm size and to estimate the premium (in percentage terms) charged by the larger audit firms, if there is one.

### 1.4 Scope

The study will focus entirely on listed companies as there is sufficient data to carry out such an analysis. Therefore, it excludes a significant proportion of unlisted organisations such as municipal authorities, parastatal bodies such as the Electricity Supply Commission (ESKOM), South African Broadcasting Corporation (SABC), Transnet, insurance firms such as The Old Mutual and Sanlam, the oil companies, excluding Engen and Sasol which are listed on the JSE, agricultural co-operatives, government boards and educational institutions such as universities and technikons. As a result, the findings can only be applicable to listed companies.

Audit fees for the financial years ending 1991 and 1992 will be examined. It should be noted that the data for audit fees will be based on declarations by the companies and is therefore subject to the accuracy of such reporting.

## **1.5 Contributions of this study**

This study aims to contribute to the international body of research into the determinants of audit fees with the presentation of South African data. It contributes insight into the nature of and the market for audit services by enhancing the understanding of the auditing environment in non-Anglo-American nations. Being exploratory in nature, it also lays the ground work for research into audit fees and practice in South Africa.

Secondly, and probably more important, is that a model which explains audit fees can be of practical use because a demonstration of a relationship between audit fees and measures of transactions, assets, and liabilities may indicate areas where major audit effort is being expended. This may signal those accounting subsystems where improvements in internal control could be more profitably effected, and where accounting systems redesign would be of the greatest benefit [Taylor and Baker, 1981]. In effect, management can use the regression equation to judge the reasonableness and fairness of their company's audit fee [Taylor and Baker, 1981; Wallace, 1984a; Gist, 1992]. Further, some of the variables need to be monitored and controlled by the manager for far more important reasons than minimising audit costs [Gist, 1992].

Thirdly, some light can be shed on the relationship between audit fees and management advisory services. This could demonstrate whether there is relationship between the two services and the possible implications of it.

Lastly, an evaluation of the use of "lowballing" (setting audit fees below total current costs on initial audit engagements) in gaining new clients will be carried out to gauge the extent of the use of this practice.

## **1.6 Chapter organisation and layout**

The remaining parts of this thesis will be organised as follows:

Chapter 2 gives a background on the development of auditing, its nature, role and benefits.

Chapter 3 discusses the current state of the structure of the audit services market. A brief history of the development of the dominance of the six largest accounting firms is given. There is also a discussion of the diversification of the firms into management consulting and the subsequent controversy surrounding such moves.

The emphasis here is on the reasons for the diversification and the impact on the audit activities.

Chapter 4 is a detailed summary of the major findings of representative research work done elsewhere. The current status of research is given together with the unresolved issues which warrant further research.

Chapter 5 lays out the theoretical framework underpinning the research. The variables expected to have an impact on audit fees are discussed together with the model for testing and evaluating the premium charged by big firms, if in fact it exists.

Chapter 6 gives an overview of the methodology employed in the research, detailing sample selection procedures and statistical analysis to be employed in the manipulation of data.

Chapter 7 is a presentation of the results of the research, together with their analysis and interpretation. These results are compared to studies done elsewhere to show where and how this study fits in with international data.

Chapter 8, the final chapter, presents a summary of the key findings of the research together with potential applications for the findings. An important aspect of this chapter are the suggestions for future research on the topic.

“ The independent auditor is in the most general sense an accountant. He is trained as an accountant, his professional designation is certified public accountant, and his primary service - the audit function - has grown from a need to provide an accounting to others.”

AICPA [1978, p.3]

## 2. THE NATURE OF AUDITING

### 2.1 Introduction

Before embarking on the major task of analysing audit fees, it is imperative to present a definition of auditing and an understanding of the origins of the role and the need for auditors today. This is presented to gain an understanding of the nature of the subject matter. The role of the auditor has evolved from its original form and today has adopted a slightly different meaning. The regulatory framework of auditing will also be discussed to provide greater familiarity with the practice of auditing.

### 2.2 Auditing - a definition

An audit is a logically planned process of evaluating evidence and information regarding business transactions, events and decisions for the purpose of forming and reporting an opinion on the financial statements [Taylor, Kritzing and Puttick, 1992].

This definition emphasises the importance of planning, gathering and evaluating evidence, and the formation of an opinion. In substance, the audit is concerned with the verification of the validity, accuracy and completeness of transactions with a view to giving an opinion.

#### 2.2.1 The need for an audit

The need for an audit arises out of the existence of [Gloeck and De Jager, 1993, p.2]:

- inherent potential conflict of interests;
- the consequences of incorrect information;
- complexity; and
- isolation of users.

The role of auditing cannot be looked at purely in legal terms but in the greater context of financial reporting. Financial reporting reduces the risks and uncertainties that investors and creditors must deal with by providing relevant and reliable information [SAICA, 1994a]. An audit adds to the reliability of

### 2.2.3 Auditing as a profession

The practice of auditing is seen more as a profession than a business driven solely by profit making. The characteristics of a profession are [PAAB, 1994, p.24]:

- a service ideal;
- a body of specialised knowledge acquired by a formal and structured education and training process;
- autonomy for the practitioners in the performance of their work; and
- public recognition of authority in relation to the discipline of the profession as a consequence of the ethical standards maintained by the profession.

Lee [1991] adds to the above list:

- social prestige through charters of incorporation;
- independence from the client;
- the use of rituals, symbols, and specialist languages; and
- the power and authority to self regulate.

World-wide, regulatory bodies in different countries have as one of their express mandates the preservation of auditing as a profession, with an emphasis on the public service ideal [Lee, 1991]. The discussion of the regulatory framework of auditing in South Africa set out below bears this out.

In spite of the dominant view that auditing is a profession, some members of the profession in the US have expressed doubts whether auditing can still be seen as a profession. Mason [1994, p.34] observes that other disciplines like law and medicine are still referred to as professions whilst auditing is now seen as a “business”. He warns that the pursuit of profitability and application of business principles in accountancy are inappropriately dominating and influencing the behaviour of accountants to the detriment of users of financial statements. Armstrong and Vincent [1988, p.96] concur :

“ When the public sees increasing evidence of firms scrambling for market share, vying to be number one through merger, adding unusual lines of services, offering product sales and other financial services, is it any wonder that the public might believe that the profession’s public-service ideal has been replaced by a businessman’s approach?”.

These concerns, whilst valid, do not recognise that quality services can only be, in the long run, delivered within the context of a successful business operation that is effectively and efficiently managed [*CPA Journal*, August 1994]. Profit-making *per se* does not go against professionalism, at least as defined above.

### 2.3 The development of auditing

Auditing existed as far back as the early thirteenth century, if not earlier. It gradually evolved into the type required by the first English Companies Act in 1844 [Watts and Zimmerman, 1983; Swemmer, 1987a]. From AD 1400 to 1800 the auditors’ activities concentrated on government type audits, although considerable growth was also apparent in the private sector [Swemmer, 1987b]. The focus of the audit then was the discovery of fraud and the detection of accounting errors [Swemmer, 1987b].

In the nineteenth century, professional accountancy appeared [Watts and Zimmerman, 1983; Swemmer, 1987c]. At the same time, financial crises in Britain led to many bankruptcies, thereby creating demand for accounting services. Around 1844, the Companies Act was enacted in England which required the appointment of auditors “as a form of monitoring for the activities of the company directors” [Swemmer, 1987c, p.65].

In the 1860s and 1870s, the demand for audits in the UK increased because the complexity of the accounts, the legal liability of directors, and the size, number and complexity of corporations all increased [Watts and Zimmerman, 1983, p.630]. The changes in organisational forms spurred the evolution of auditing. Specifically, the nature of companies changed as the “separation of ownership from control produced a condition where the interests of the owner and the ultimate manager may and often do diverge...” [Berle and Means [1952] as quoted by Demsetz [1983, p.375]]. The importance of monitoring management activities became even more important.

A further factor was the increased use of credit. Swemmer [1987c, p.65] comments:

“ Creditors concerned about the security of their investment and loans, demanded the satisfaction of an expert audit of the books and records of the enterprise.”

Watts and Zimmerman [1983, p.627], however, found no direct evidence that audits were used to monitor debt contracts up to the mid-nineteenth century. In spite of this, there is indirect evidence that suggests that accounts were made available to debt holders as the 1862 Companies Act required that a statement of mortgages be available to creditors [Watts and Zimmerman, 1983, p.628].

From the beginning of the twentieth century, America took over as leader in the accountancy profession due to the rapid industrialisation together with the introduction of personal and company taxation during this period [Swemmer, 1987c]. The Securities and Exchange Acts of 1933 and 1934 required that henceforth companies wishing to offer shares for sale to the public, had to provide audited financial statements when making such offers [Watts and Zimmerman, 1983; Swemmer, 1987c; Wooton and Wolk, 1992].

During this period, the attitude of the auditing profession changed; detection of fraud became secondary whilst ascertainment of the financial condition and earnings of the particular business undertaking under review became the primary objective of the audit [Swemmer, 1987c]. This was influenced by the increase in litigation against auditing firms involving fraud in audit clients. The role of the auditor has not changed drastically since then in terms of focus, but the scope has increased slightly. There appears to be a need to refer to an audit that goes further than the traditional financial attestation applied [Swemmer, 1987c].

The above historical overview suggests that it is only in later years that auditing became enshrined in statute. Some contest this view of the development of auditing stating that:

“ Public accounting as it is known today was the direct result of legislation..... Birth by legislation implies the possibility of death by legislation.”

Buckley and O'Sullivan [1980, p.45]

Watts and Zimmerman [1986] dispute the above statement citing market forces as the driving force of the development of auditing rather than legislation. Evidence from Chow [1982] and Merino, Mayper and Spiram [1994] suggests that the emergence of the audit was not driven by legislation but by need for monitoring. Both studies analysed the incentives of firms to hire external auditors in an era where there were no mandatory audits. Chow [1982] found that leverage and the number of accounting-based covenants influenced the demand for external audit services. Merino *et al* [1994] generally concur with Chow's findings although they also add new equity issues to Chow's list.

Merino *et al* [1994, p.636] also argue that market forces on their own were insufficient to make audits effective monitoring devices. Nevertheless, market forces were the dominant factor in the demand for auditing. In some countries, auditing practice basically outran legal minima [Hunt [1935] as quoted by Watts and Zimmerman, 1983 and Buckley and O'Sullivan, 1980]. In effect, the law has merely translated the best of professional practice into statute [Buckley and O'Sullivan, 1980, p.45]. This does not mean that the law has no impact on auditing. The existence of legal recourse in conjunction with auditing reduces the proportion of fraudulent disclosures and leads to greater economic efficiency than when auditing exists without legal recourse [Mallin, 1992].

One of the latest developments in auditing is the debate about the abolition of a mandatory audit for small companies. This has been debated quite extensively in the UK and Ireland with the result that small firms which are owner-managed will not be required to have a statutory audit but only a limited review. If the statutory audit is the sole result of legal prescription then the abolition of the small company audit should result in no small company requiring an audit. A recent survey of small companies in Ireland indicates that two thirds of them would still want to maintain the statutory audit [*Certified Accountant*, October 1994, p.13]. Furthermore, the companies believed that the absence of an audit would have an adverse effect on another party, usually the bank. This lends some support to Watts and Zimmerman and others who see auditing as a monitoring mechanism.

## 2.4 The regulation of auditing in South Africa

The PAAB (the Board) is the statutory body responsible for the regulation of the accountancy profession. Its basic purpose is “ to protect the financial interests of the people of South Africa, and other stakeholders, through services rendered by registered accountants and auditors” [PAAB, 1991, pp.2-3]. The Board is responsible for [PAAB, 1991, pp.2-4]:

- providing the means and regulatory framework for the education and training of adequate numbers of competent and disciplined accountants and auditors, to serve the needs of South Africa;
- maintenance and improvement of standards of registered accountants and auditors; and
- protecting and supporting registered accountants and auditors who carry out their duties competently, fearlessly and in good faith.

The values of the Board are independence, integrity, professionalism and equal opportunity. To maintain these values amongst members, the Board issued Disciplinary Rules with the full backing of the Public Accountants and Auditors Act of 1951 [PAA Act]. SAICA has also issued a Code of Professional Conduct which is in all significant aspects identical to the Disciplinary Rules. Members who do not comply with the Rules and Code are subject to disciplinary action by the Board. Although the Act is a proclamation of parliament, this gives the profession some form of self regulation which is more preferable to the profession than government intervention.

The right to audit annual financial statements of any entity is restricted by law to registered accountants and auditors. A registered accountant is a person who performs the functions of an accountant and auditor, and for that purpose holds himself out as an accountant and auditor and places his services at the disposal of the public for reward [PAA Act, s1]. In order to be registered with the PAAB as a registered accountant and auditor, the member must have a Certificate of Theory of Accounting, plus a pass in the qualifying examination of the Board, plus a minimum three years in the office of a practising accountant and auditor. After this they are allowed to use the initials CA (SA) (Chartered Accountant (South Africa)) behind their names.

This privilege is protected by the Chartered Accountants Designation (Private) Act 67 of 1993. The PAA Act provides for exemption from this requirement for members of a club, institution or association that is not carried on with a view to profit; provided that the auditor is given honorary status and not entitled to any remuneration [s14(ii)]. The Minister of State, Administrator or Officer charged with administration of any law is permitted by the PAA Act to appoint or authorise or approve the appointment of a person not registered as an accountant and auditor in terms of the Act, as auditor to any entity regulated by that law [s14(iii)]. The term "auditor," as used in this thesis refers to a registered accountant and auditor as defined above. In summary, the function of the Board is similar to that of an occupational licensing authority.

Auditors in South Africa are all presently Chartered Accountants by training and qualification and most are members of SAICA which has an estimated 14 036 members [PAAB, 1994]. The PAAB has 4 196 registrants (registered accountants and auditors) and 5 722 trainee accountants (those who are in the process of being trained as prospective registered accountants and auditors). The standards of entrance into the profession are considered to be high, ranking equally with the best in the world [*Sunday Times*, 2/10/94; Mockler, 1994]. The Board together with SAICA place particular importance on the use of the designation CA(SA) as it is a mark of a certain standard of competence and for those in public practice, of independence, integrity and objectivity [Mockler, 1994]. The designation is a brand name for competence and quality and a proxy for auditor reputation which the professional societies guard heavily [Watts and Zimmerman, 1986, p.316].

The restriction of the use of CA(SA) brand name is similar to defending a professional monopoly and its success invariably rests on the appeals that public interest is best served by restricting the title of CA(SA) [Lee, 1991]. In order to maintain the quality of the service offered by auditors in the country, the Board recently instituted a practice review programme whereby each auditor will be subject to a compulsory review once every five years. The Board wants to ensure that all audits comply with GAAS. This is in addition to the internal quality control reviews that auditors are required to perform in house. Auditors are also required to engage in a process of continually updating their skills and competencies in light of the changing business environment. In this regard, SAICA instituted voluntary continuing professional education (CPE). A recently issued discussion paper, *Discussion Paper 13 : Compulsory Continuing Education* [SAICA, 1994b], indicates a possible shift towards compulsory CPE.

This paper noted the findings of surveys of SAICA members which indicated a strong feeling for mandatory CPE for members in public practice (i.e. those performing the attest function). So, it is not only the Board which is concerned about maintaining standards, even amongst members of the profession, there is a strong ethos of preserving and improving high standards of professionalism.

## **2.5 The value of audited financial statements**

In terms of the efficient market hypothesis, security prices reflect all presently available financial information [Watts and Zimmerman, 1986]. The theory states that security markets receive all publicly available information and process it instantaneously. Therefore, since financial statements are historically based, they contain no new information. If so, then what is the value of audited financial information?

Audited financial statements provide a means of confirming or correcting the information received earlier by the market [AICPA, 1978]. Audited information then serves to assure market efficiency by "limiting the life of inaccurate information or by deterring its dissemination" [AICPA, 1978, p.6].

The need for an external auditor does not arise only in the case of large and complex organisations, or where the interests of outside non-executive shareholders have to be protected. There are inherent advantages in having financial statements audited even where there is no statutory requirement. Below are three such examples of the usefulness of audited financial statements cited by Woolf [1979, pp.11-12]:

1. Applications to banks and other parties for finance are greatly enhanced if supported by audited accounts.
2. Audited accounts submitted to the Receiver of Revenue carry greater authority than accounts which have not been audited.
3. The presence of a qualified auditor is useful because of the variety of other capacities in which he is able to assist. He can assist with valuations, implementation of computer systems or even act as an arbitrator in the event of a dispute.

## 2.6 The qualities of an auditor

The importance of the role of the auditor is underpinned by certain qualities which govern their conduct. These are integrity, objectivity and independence. Integrity requires “a member to be straightforward, honest and sincere in his approach to professional work” [ET 030, para .03]. Objectivity “requires a member to be fair and not to allow prejudice or bias to override his fairness” [ET 030, para .04]. The auditor should maintain an impartial attitude when reporting on financial statements.

Independence is not formally defined in the Code of Professional Conduct. Simunic [1984, p.679] explains that “any situation which alters incentives that a self-interested auditor is more likely to ignore, conceal, or misrepresent his findings is described as decreasing the auditor’s independence.” He further explains that a setting where an auditor must evaluate (trade off) the benefits and costs of truthful reporting can also be described as a conflict of interest situation. Situations that may give rise to conflict of interests are [ET 030]:

- financial involvement with client;
- involvement in the affairs of the client;
- incompatible and inconsistent businesses;
- family relations;
- undue hospitality;
- excessive borrowings.

Mautz and Sharaf [1962, p.49] in their discussion of the philosophy of auditing state that:

“ Independence is of the essence in auditing. It follows... that anything that tends to infringe upon independence must be viewed with serious concern.”

Latter day writers and researchers still hold on to this view. For instance, Pany and Reckers [1988, p.32] describe independence as the “*raison de etre*” of auditing.

Most concerns about the functions of the auditor in recent years centre around the apparent erosion of perception of auditor independence. This is due to the fact that perceptions of auditor independence are important since perceptions, not reality, determine the credibility of the audit report [Shockley, 1981].

## 2.7 The Audit Process

In performing the attest function, GAAS Statement *AU001* [SAICA, 1993, para .12] requires the auditor to comply with GAAS. These standards are defined broadly under three headings set out in *AU010* [SAICA, 1986]: general standards, fieldwork and reporting.

The general standards require that:

- the audit be performed by or under the supervision of persons with sufficient training and proficiency;
- the auditor maintains an independent attitude in all matters relating to the assignment; and
- due professional care be exercised during the examination and in the preparation of the audit report.

The fieldwork standards dictate that:

- the auditor should gather sufficient evidence to enable him to support the audit opinion;
- all work be adequately planned and supervised;
- the auditor obtains an understanding of the entity's accounting systems and internal controls to assess their adequacy as a basis for the preparation of financial statements. If the auditor intends relying on any internal controls he should study and evaluate those controls.

In presenting his report, the auditor should:

- identify the addressee, the information to which it refers, and the purpose of the report;
- convey the scope of the examination and limitations thereto;

- report the opinion regarding the financial information.

These standards may be a form of defence for the auditor in the case of a malpractice suit. In evaluating the performance of the auditor's work, a court of law would examine compliance with GAAS in all material respects [SAICA, 1986b]. The court in *Re Kingston Cotton Mill CO (No 2)* [(1896) 2 Ch 279 at 288] have elaborated on the role of the auditor and in fact affirmed the general standards as follows:

“ It is the duty of the auditor to bring to bear on the work he has to perform that skill, care and caution which a reasonably competent, careful cautious auditor would use. What is reasonable skill, care and caution must depend on the particular circumstances of each case. An auditor is not bound to be a detective, or, as was said, to approach his work with suspicion or with a forgone conclusion that there is something wrong. He is a watchdog, but not a blood hound...”

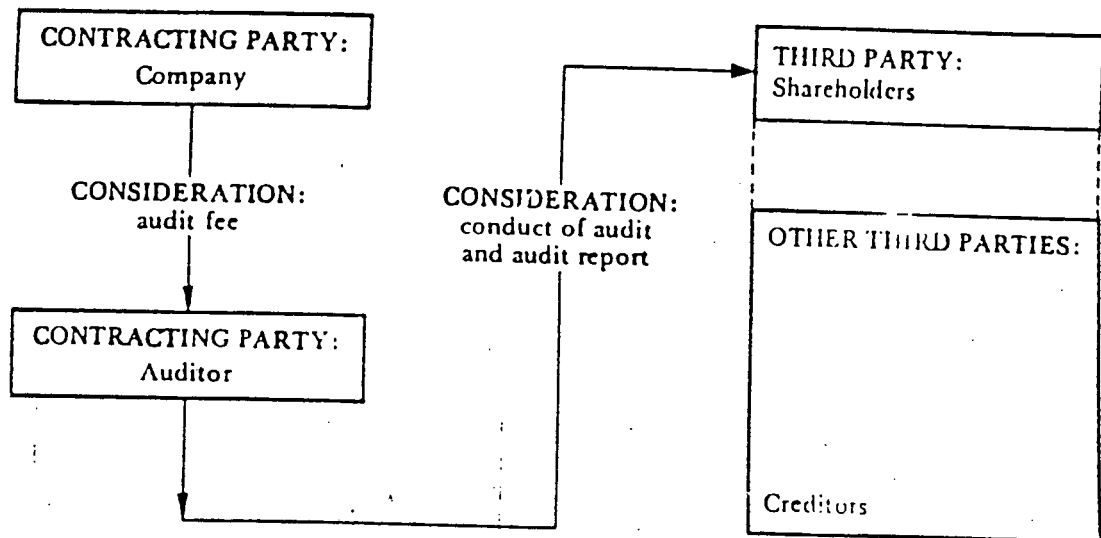
The specific standards that deal with more of the procedural items in the course of the audit are given separately. In the final analysis, the auditor is required to assess the fairness of financial information presented in the financial statements. The auditor then has to plan his work in distinct stages from pre engagement activities to the reporting phase as recommended in *AU015* [SAICA, 1987]. The components of the audit process are given in Appendix 1. Audit practice has modified the implementation process to suit different contexts. During the planning phase the auditor's focus is on identifying factors that affect the likelihood of misstatements. The general risks assessed are economic, financial, industry and competitive risks that face the client. These are assessed by obtaining an understanding of the client, evaluating significant current-year events and performing an analytical review of the company's results, ratios and other indicators of potential risks.

After identifying the significant risk areas, the auditor has to evaluate the effectiveness of the entity's internal controls. An assessment of the controls that mitigate against the risks of misstatement in specific accounts, and which he intends to rely, is undertaken. On this basis the auditor will decide whether to rely on controls, or extend his tests of detail in the fieldwork stage. At the completion of the fieldwork, results have to be evaluated to arrive at an opinion to be communicated in the audit report.

## 2.8 Legal prescriptions

S269 to S283 of the Companies Act deal with the appointment, removal, resignation, rights duties and remuneration of the auditor in companies. The legal relationships are depicted in graphical form below extracted from Woolf [1979].

Figure 1 : The legal relationships



From the above diagram, the auditor has a contract with the company in terms of which he has to examine financial statements and express an opinion thereon for a consideration, the audit fee. Strictly speaking, the auditor has no legal responsibility towards third parties but his report merely offers some reassurance about the fairness of the amounts stated in the financial statements [SAICA, 1994a].

### **2.8.1 Appointment and removal**

The duty to appoint or remove the auditor lies with the shareholders in the annual general meeting (s270 and 277). The directors and management can recommend a change in auditors but the final decision rests with the owners of the company. However, in practice it is the chief executive who controls the appointment of the auditor and negotiates the fee [SAICA, 1994a]. As a result, members of the company have a small influence in the appointment and remuneration of the auditor. The auditor then becomes more inclined to side with management on disputes over financial statement matters for fear of dismissal. This conflict is one of the reasons for the formation of audit committees which would strengthen the independence of auditors [SAICA, 1991].

An auditor can resign at any time during the period of appointment, but he has to submit written notification to the Registrar of Companies confirming that there was no unresolved material irregularities when he resigned (s281).

### **2.8.2 Powers and duties of the auditor**

The auditor is given powers to (s283):

- have the rights of access at all times to all accounting records, books and documents of the company, and all explanations from the directors and officers of the company;
- have right of access to all current and former financial statements of any subsidiary and explanations in connection with the financial statements; and
- attend the general meeting of the company and to be heard at the meeting.

Both the Companies Act and the PAA Act define the scope of the auditor in similar terms. The Companies Act (s300) states that the duty of the auditor is:

- to examine the annual financial statements and group financial statements;
- to satisfy himself that proper accounting records have been kept;

- to satisfy himself that the minute book and attendance registers in respect of company, directors and managers' meeting have been kept in accordance with the Act;
- to satisfy himself that the register of directors' interests in contracts is kept and entries are in accord with minutes;
- to examine or satisfy himself about the securities of the company;
- to obtain all the information and explanations which, to the best of his knowledge and belief are necessary for carrying out the audit;
- to satisfy himself that the company's annual financial statements are in agreement with its accounting records and returns;
- to examine group financial statements and satisfy himself that they comply with the requirements of the Act;
- to carry out tests of accounting records and entries to satisfy himself that the financial statements fairly present the position, performance and cash flow in accordance with GAAP, in the manner required by the Act and consistent with previous year;
- to satisfy himself that the directors report is not in conflict with fair presentation or distort the annual financial statements and accompanying notes;
- to report to the Registrar of Companies when he gets to know, or has reason to believe, that the company is not in operation and has no intention of resuming operations in the foreseeable future;
- to comply with any other duty imposed on him by the Act; and
- to comply with the relevant sections of the PAA Act.

The PAA Act (s20(1)) does not differ substantially but adds that:

- the audit should be carried out free of any restrictions;
- the auditor should satisfy himself that all material irregularities have been resolved to his satisfaction; and
- the auditor should also comply with other laws which may govern that entity.

In summary, the PAA Act extends the bulk of the provisions laid down in the Companies Act to other entities, which may not be governed by the Companies Act after making the three important modifications mentioned above.

If the audit is carried out free of any restrictions and matters referred to in s300 of the Companies Act and s20(1) of the PAA Act are fully complied with, the auditor can issue an unqualified audit opinion. Otherwise, he should state that the report is qualified and set out the facts or circumstances leading to the qualifications.

### **2.8.3 Recourse against the auditors**

If the auditors' work is negligent, the PAA Act (s20(9)) sets out strict conditions under which the auditor can be held liable by clients and third parties. Firstly, it has to be proven that the auditor issued a certificate which was malicious or pursuant to a negligent performance of his duties. In such circumstances the client can sue the auditors for breach of contract. Third parties can sue the auditor on the basis of negligence which means that they have to prove that they relied on the auditor's representations and as a result incurred a financial loss. However, the auditor should have been reasonably expected to know that:

1. the client would use the certificate or opinion to induce a third party to enter into a specific contract or any other transaction of a similar nature; or
2. the third party would rely on such a certificate or opinion for the purposes of acting or refraining from entering into the transaction.

The onus is on the third party or the client to prove negligence.

## 2.9 Organisation of audit practices

Auditors may engage in public practice individually or in partnership [PAA Act, s21]. The PAA Act further allows auditors to organise themselves as a company without limited liability. In addition, only natural persons who are auditors can be members, shareholders or directors. The fact that auditors have to practice in the form of entities without limited liability leaves them open to malpractice suits by users of financial statements. The PAA Act (s27(1)(h)) authorises the PAAB to mandate at its discretion practising members who should take professional indemnity insurance at their own expense. Losses which may have arisen as a result of the auditors negligence are covered to varying degrees by the indemnity insurance.

Whilst the continued existence of professional partnerships may appear to be rather risky in a litigious climate, contracting theorists argue that such partnerships are the best form of ensuring auditor independence. For instance, Watts and Zimmerman [1986] argue that if auditors incorporate with limited liability, this reduces the amount of assets available as a bond for their actions. As a result there is greater incentive for them not to be independent of their clients. Partnerships also have mutual monitoring mechanisms because each partner is jointly and severally liable for the other partners' actions [Fama and Jensen, 1983a; 1983b]. This mutual monitoring increases the competence and reduces the probability of a given auditor's yielding to a manager's pressure.

Being partnerships, audit firms are not obligated to disclose financial data. Firms may choose not to disclose cost data (employee costs, operating expenses, etc.) and output data (e.g. fees and billable hours). Read and Tomczyk [1988, pp.40-42] put forward the following arguments for full disclosure by auditing firms. Firstly, the primary responsibility of the auditor is to the public. Therefore, public interest overrides private concerns. Secondly, knowledge of the workings of the accounting firms, particularly large ones, can boost public confidence and trust in the profession. Thirdly, the sheer size and complexity of operations of the large firms makes them similar to any other big businesses. Therefore, to deflect public criticism and further scrutiny by regulators, they should provide complete financial disclosure. Finally, complete data would allow researchers to evaluate allegations that the profession is unduly concentrated and therefore impedes competition and undesirably impacts on the investing and lending public.

Often auditing firms merely give the total amount of fee billings for each year. Firms that once issued complete financial statements are Arthur Andersen, Touche Ross and Peat, Marwick, Mitchell & Co.. However, all subsequently stopped. For research purposes, there is no doubt that the disclosure of direct data would be vital to the study of the structure of the profession.

## 2.10 Guidelines on audit fees

The Code of Professional Conduct and the Disciplinary Rules sets guidelines for the basis of determining audit fees. The guidelines require that fees be a fair reflection of the value of the time spent taking into account

- the skill and knowledge required for the type of work involved;
- the level of training and experience of the persons necessarily engaged on the work;
- the time necessarily occupied by each person engaged on the work; and
- the degree of responsibility which the work entails.

Based on the above criteria, it is necessary for the auditor to keep time records as a basis for determining audit fees. The rates used to calculate the fees should be fair and reasonable in the circumstances. These guidelines are similar to those issued by the IFAC, the AICPA, ICAEW, NZCA and the Institute of Chartered Accountants of Australia. The IFAC [1985] adds that the rates used should be based on the fundamental premise that the organisation and conduct of the auditor and his client work are well planned, controlled and managed. The criteria set out above may be influenced by legal, social and economic conditions of each country.

Whilst it is the duty of the individual auditor or audit firm to determine appropriate charge out rates [IFAC, 1985], SAICA, [1993b] issued Circular 1/93 in January 1993 to explain the basis of calculating rates for staff. The circular states that rates should be calculated on an annual basis using the following formula:

$$\text{salaries} + \text{related costs} * 100\% + \text{percentage mark-up for overhead charges and margin}$$


---

Chargeable hours

Annexure A of the circular gives further guidance on the percentage mark-up for overheads, number of chargeable hours of staff and the rates for partners as follows:

*Percentage mark-up for overheads and margin: 120% to 150%*

*Chargeable hours of staff: 1200 to 1550 per annum*

*Rates for principals: R150 to R350 per hour excluding Value Added Tax*

Rates for specialists work would normally be higher than the normal rates for principals.

The following example illustrates the determination of a chargeout rate for a trainee accountant.

**Example:**

If an auditing firm pays an articled clerk R45000 per annum with chargeable hours per annum of 1400 and has a mark-up of 150% for overhead and margin, then the charge out rate of the clerk would be:

$(R45000 + R45000 * 150\%) / 1400 = R80$  per hour.

It is not particularly clear whether the Institute enforces these guidelines or whether firms are free to disregard them. One would expect firms to adhere to the guidelines as they are set by a body which governs their functions and which they have an influence over. A review of the 1995 PAAB Disciplinary Committee Report included in the Board's annual report, revealed cases involving allegations of overcharging by auditors. It is not evident from the report whether the actions against the members was a result of a complaint from a client or the Board's monitoring activities.

Auditors are precluded from fees in terms of an arrangement whereby no fee will be charged unless a specified finding is obtained or the payment of the fee is contingent on future results or findings. This prohibition apparently stems from the possibility of compromise of independence in such circumstances. Along similar lines, ETO30 on independence cautions that auditor independence may be undermined when one client disproportionately accounts for a high percentage of the auditor's income [para .21]. Similarly, an auditor's

independence may be impaired if fees due for professional services remain unpaid for an extended period of time [ET O30, para .23].

Whilst contingent fees are not allowed, fee estimates (or quotes) are allowed only if made truthfully at the time of setting the estimate [Circular 1/93, para. 17].

From the above discussion it is clear that audit fees are a function of the time and seniority of the staff involved in the audit work.

## **2.11 Chapter summary**

This chapter reviewed the history of auditing and the regulatory framework in which the profession operates. Although auditing has become enshrined in legislation, it would exist without such imposition. The value of the audit lies in minimising the risk of errors which may result in losses to investors and inefficient allocation of resources.

The qualifications required to be a public accountant are critical, together with the threat of sanction by regulatory bodies, to ensure that the value of the audit is maintained if not improved. It has emerged that the role of the auditor is essentially one of monitoring in a self regulation environment. The role of the PAAB appears to be one of ensuring that the profession delivers a high quality product to the users of financial statements by creating an environment where high ethical and performance standards are maintained. The extent to which the auditing profession and regulatory bodies monitor the credibility and competence of practising auditors is important for the determination of the value of the services charged by auditors. The continual update of skills of practising professionals imposes a cost which has to be recovered in the audit fee.

Having described the function of the auditor together with the regulatory environment in which the auditor operates, the stage is now set to describe the economic/business context within which auditors function.

“ This issue of possible monopoly power of the large accountancy firms is of importance because in most countries the audit of the financial accounts of large limited companies is compulsory, and Governments legislate to ensure that these audits are only carried out by those with the appropriate professional qualifications in accountancy. Thus the profession obtains a legally protected monopoly in this area. Whilst companies are free to choose their audit firm, large multinational companies are almost all audited by one of the Big Six audit firms. The question which then arises is whether or not these dominant firms are operating, or moving towards operating, a cartel with all the negative consequences that entails; or whether there is considerable competition in the market for auditing.”

[Loft and Sjöfors, 1993, p.156]

## **3. THE ACCOUNTING SERVICES MARKET**

### **3.1 Introduction**

The survey of the accounting services market provides an understanding of the framework in which audit fees are determined. In this chapter a discussion of the major suppliers is undertaken with a view to providing an understanding of the way in which the firms attempt to distinguish themselves. A brief history of the development of the largest suppliers is included with the resultant implications on the competitiveness of the audit services market are discussed.

### **3.2 The structure of the market**

According to Pound and Francis [1981, p.354], the accounting services market is made up of two sub markets: the audit services market and other services. The audit services market is probably the largest, more structured and regulated of the two markets. Other services mainly comprise of basic accounting services like secretarial services, tax return preparation and advice, systems design and installations, executive recruitment, financial management advice and information systems design and implementation, to mention but a few. It is generally difficult to put a precise boundary around the more general consulting activities.

The market for audit services is only open to qualified auditors who have met regulatory requirements needed to perform the attest function. The market for other services is open to auditors and other professions and there appears to be no minimum expertise requirements set by authorities for suppliers in this market.

#### **3.2.1 The demand and supply of audit services**

Regulation requiring compulsory audits substantially affects the structure of the audit services market by creating a demand for such services. This demand has been described as derived by Francis and Pound [1981], Christiansen and Loft [1992], and Maijoor [1994]. On the surface it may appear that auditors benefit from the effects of demand regulation on the market structure. Beneficial effects will only occur when such regulation increases the size of the market and, secondly, if beneficial effects are not competed away as a result of an increased number of auditors supplying services to the market [Maijoor, 1994]. The

conclusion reached in Chapter 2 was that the audit would exist even without legislative imposition. Therefore, if there is demand driven by legislation, it is likely to be minimal. Other bodies that require audits are stock exchanges and in some cases, banks and other credit institutions. These affect the demand for auditing although their reasons for requiring audited financial information are different to shareholders.

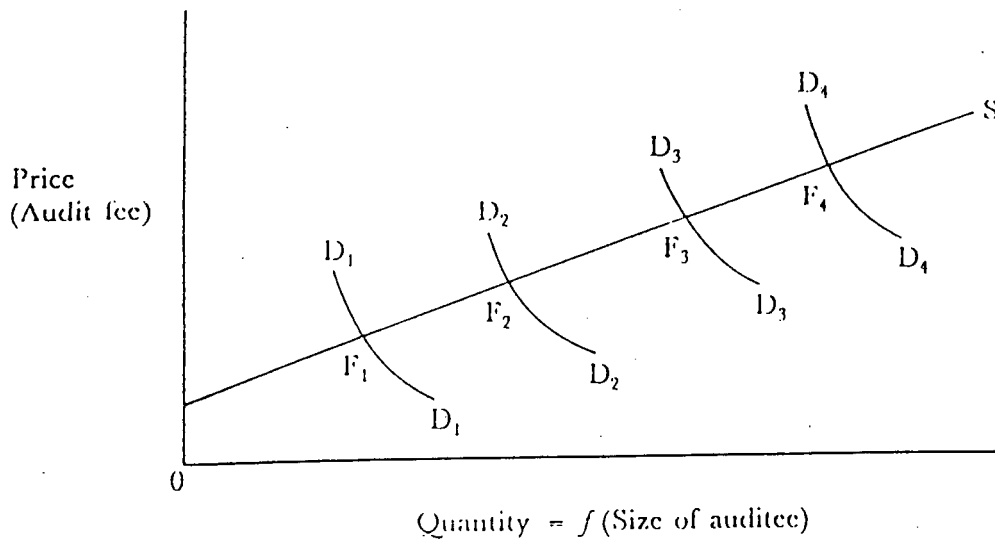
Pong and Whittington [1994] explain that the demand for audit services is dependent on the size of the auditee. The statutory requirement for audit services in conjunction with professional standards, serves to set the minimum amount of work that the auditor should perform. As a result, the demand for audit services is inelastic to fee and mainly dependent upon the amount of work required.

The users of audited financial information can be described as those defined as employees, lenders, suppliers, government and customers [SAICA, 1994a]. It is the users who will attach some value to the assurance offered by the audit although the cost of the audit is borne by the company. Without an audit the company would have to pay a higher cost for funds provided by shareholders and lenders [Elliott, 1994].

The supply of audit services will be determined by the cost functions of the suppliers [Pong and Whittington, 1994]. This will be a function of the amount of work done, regardless of the identity of the auditee (although special characteristics of the auditee may cause additional costs, which will be discussed later).

The set of relationships of supply and demand is illustrated in Figure 2 below [Pong and Whittington, 1994, p.1074]. **S** is the common cost function which applies across all audits. **D1, D2** etc. are the inelastic demand curves for audit services by auditees of different sizes. The intersections **F1, F2** etc. represent the equilibrium fees which will be charged.

Figure 2 : Supply and demand relationships for audit services



### 3.2.2 The suppliers of audit services

The suppliers of audit services have traditionally been treated as dichotomous [DeAngelo, 1981a] with one segment consisting of large, well known firms with international affiliations, now known as the "Big Six". The other group of suppliers consists of small and medium size firms some of which also have international affiliations but do not appear to hold the same level of visibility as the large ones. The Big Six are traditionally associated with a perception of high quality service whilst the other firms are seen more as lower quality [De Angelo, 1981a].

A large proportion of clients of the Big Six are large quoted multinationals whilst the client profile of the smaller firms tends to be made up of small to medium size companies which may or may not be listed. As a result of this pairing, the concentration statistics normally used have focused on listed companies which tend to be clients of the Big Six, thus presenting a picture of high concentration in the audit services market [Moizer and Turley, 1987; Tomczyk and Read, 1989]. Evidence from Simunic [1980] shows that as the size of listed companies decreases, the proportion of companies audited by the Big Six decreases. Simunic [1980] and Pound and Francis [1981] argue that the small companies segment would be more competitive as a result of a greater number of suppliers, hence, the term "competitive fringe".

In order to provide an understanding of the development of the dichotomy in the audit services market, a historical overview of the Big Six will be provided based on the analysis by Wooton and Wolk [1992]. The development of the Big Six basically followed the industrial revolutions in the eighteenth and nineteenth century. As the demands of clients increased in terms of size and complexity, the auditing firms grew with them. Up to the 1950s, the firms had generally followed a strategy of internal/organic growth. This strategy changed in the 1950s and 1960s as the large firms began to merge with small firms. In the 1960s and 1970s internationalisation became the buzzword and firms started merging with geographically diverse partners.

The 1980s saw another spate of large mergers between the eight largest firms which were then Arthur Andersen, Peat, Marwick, Mitchell & Co., Ernst and Whinney, Arthur Young, Touche Ross, Deloitte Haskins and Sells, KMG Main Hurdman and Price Waterhouse. In 1985, KMG Main Hurdman merged with Peat, Marwick, Mitchell & Co. to form the largest firm, KPMG Peat Marwick. In 1989, Ernst and Whinney and Arthur Young followed suit to form the second largest firm, Ernst and Young. Similarly, Touche Ross merged with Deloitte Haskins and Sells to become Deloitte and Touche. Deloitte and Touche later became Deloitte Touche Tohmatsu.

As the 1990s began the Big Eight had become the Big Six which were KPMG Peat Marwick [KPMG], Arthur Andersen [AA], Ernst and Young [E&Y], Coopers and Lybrand [C&L], Deloitte Touche and Tohmatsu [D&T] and Price Waterhouse [PW]. It was nearly the Big 5 when AA and PW opened merger talks. However, these collapsed. There have been some mergers between the large firms and medium sized firms, the most notable being between AA and BDO Binder in the UK.

The reasons for these mergers appear to be founded on the importance of economies of scale and synergies. Minyard and Tabor [1991, pp.80-81] list the following reasons for the merger mania.

The first reason is that stepped-up competition among the accounting firms necessitates the need to create critical mass to withstand competitive attacks. In his chronicle of the merger of KMG Main Hurdman and Peat, Marwick, Mitchell and Co, Cypert [1991] observed that given the advantages the eight largest firms enjoyed in capitalisation, marketing, recruiting, and virtually every other aspect of the profession, it would be impossible for one firm to overtake the others without a merger.

Secondly, the increase in specialisation of auditors requires scale economies which can be best exploited by a larger entity.

Thirdly, the need for investment in capital expenditure to undertake big systems consulting work which requires more resources. One of the cheapest ways of developing a substantial resource base is to merge thus creating a larger base.

Fourthly, clients put pressure on auditors to reduce audit fees. To satisfy client demand firms had to become low-cost producers. Low cost production may be made easier by large entities who have the required size to take advantage of economies of scale.

Fee billings and fee growth of the Big Six in 1992 showed mixed fortunes for the firms. KPMG Peat Marwick took first place with \$6,2 billion (7% increase), followed by Ernst and Young at \$5,7 billion (5,5%), Arthur Andersen at \$5,6 billion (13%), Coopers and Lybrand at \$5,4 billion (7,4%), Deloitte Touche Tohmatsu at \$4,8 billion (7%) and Price Waterhouse at \$3,8 billion (4,4%) [*Finance Week 200*, March 18-24 1993, p.170].

The dominance of the Big Six has been documented by various researchers and all studies show a dominance intracountry, continental and world-wide. Ninety percent of the top 1000 multinational firms are audited by a Big Six auditing firm [Jacob, 1991]. More than 90% of the Fortune 500 companies are audited by the Big Six [Jacob, 1991]. Moizer [1992, p.334] cites European statistics showing that the audits of large European companies are heavily dominated by the international networks of the Big Six firms. In particular, the Big Six audit 100 per cent of the top businesses in Belgium, Italy and the Netherlands. The firms also control more than half of the audit work in Germany and Portugal. In Denmark, the Big Six audits over two thirds of quoted companies [Christiansen and Loft, 1992, p.277].

Analysis of total billings by *The Accountant* [January 1992] show that the Big Six capture a large slice of fee income. In 1986, they had over 86% of the total fees generated by the top 12 audit firms and networks world-wide. By 1991, this had risen to nearly 88%. The extent of their market penetration is shown in Figure 3. The market share of each of the firms over the period 1986 to 1991 is shown in Figure 4. It is clear that Ernst and Young, Deloitte Touche Tohmatsu and KPMG Peat Marwick lost market share whilst Price Waterhouse, Coopers and Lybrand and Arthur Andersen gained market share.

The international dominance of the big firms appear to have been the result of environmental and market forces [Buckley and O'Sullivan, 1980]. Firstly, financial statement user groups have pressured to have corporations audited by nationally known firms. This is not a new phenomenon but has been in existence since as early as 1914 when it was noted that :

“ Statements put out by mercantile concerns desiring credit are frequently accompanied by accountants' certificates, and banks which buy commercial paper look with disfavour upon certificates audited by accountants unknown to them.”

[As quoted by Buckley and O'Sullivan (1980, p.30)].

Secondly, technological factors dictate that large clients require large auditors.

Thirdly, auditors' professional norms of independence and their rational, strategic desire to diversify risk, will lead them to minimise financial dependency on any one client.

Fourthly, regulatory and legal factors are expanding the scope of auditing. Consequently, the level of resources necessary to perform a given audit is increasing.

Fifthly, the desire to attract and hold top-quality personnel is a factor contributing to the growth of auditing firms.

Sixthly, the growth of industry specialisation demands commitment of fixed resources to develop specialist skills. A reasonable return on the investment is more likely when there is a high volume of audit hours worked.

Seventhly, the merger of the accounting firms resulted in greater concentration.

Figure 3: Market concentration - Big Six share

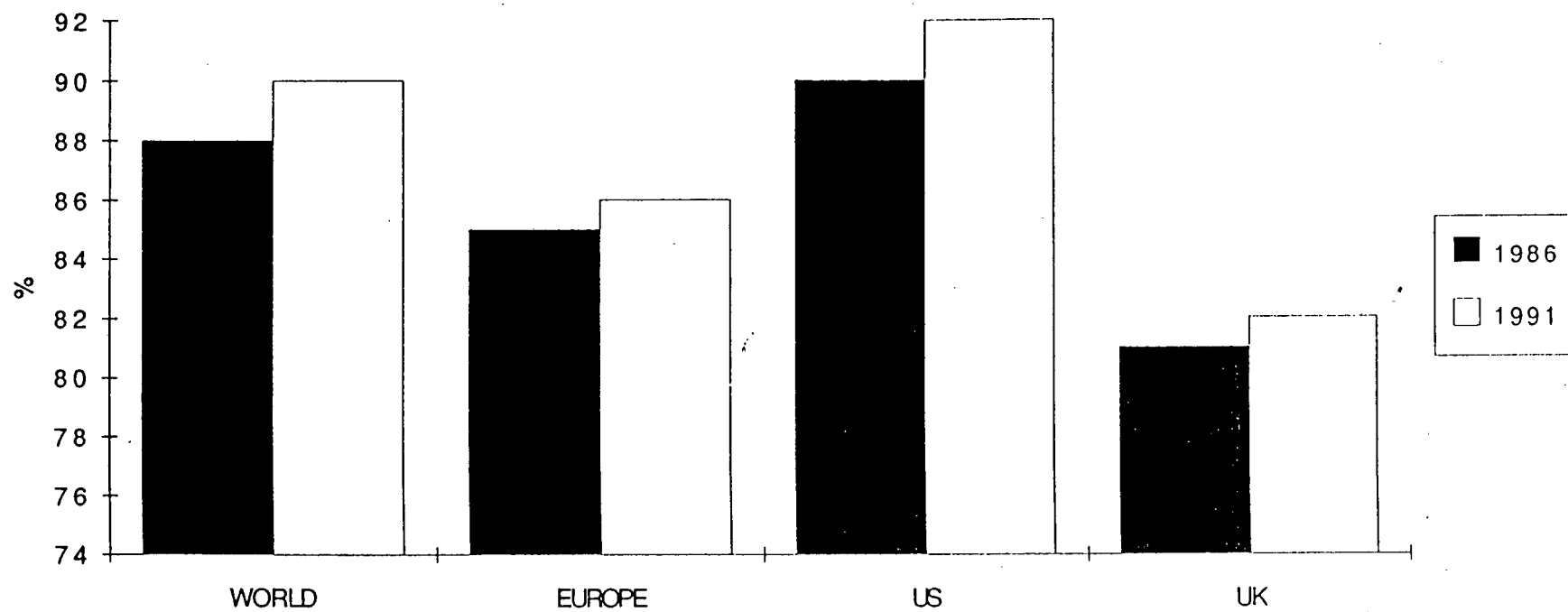
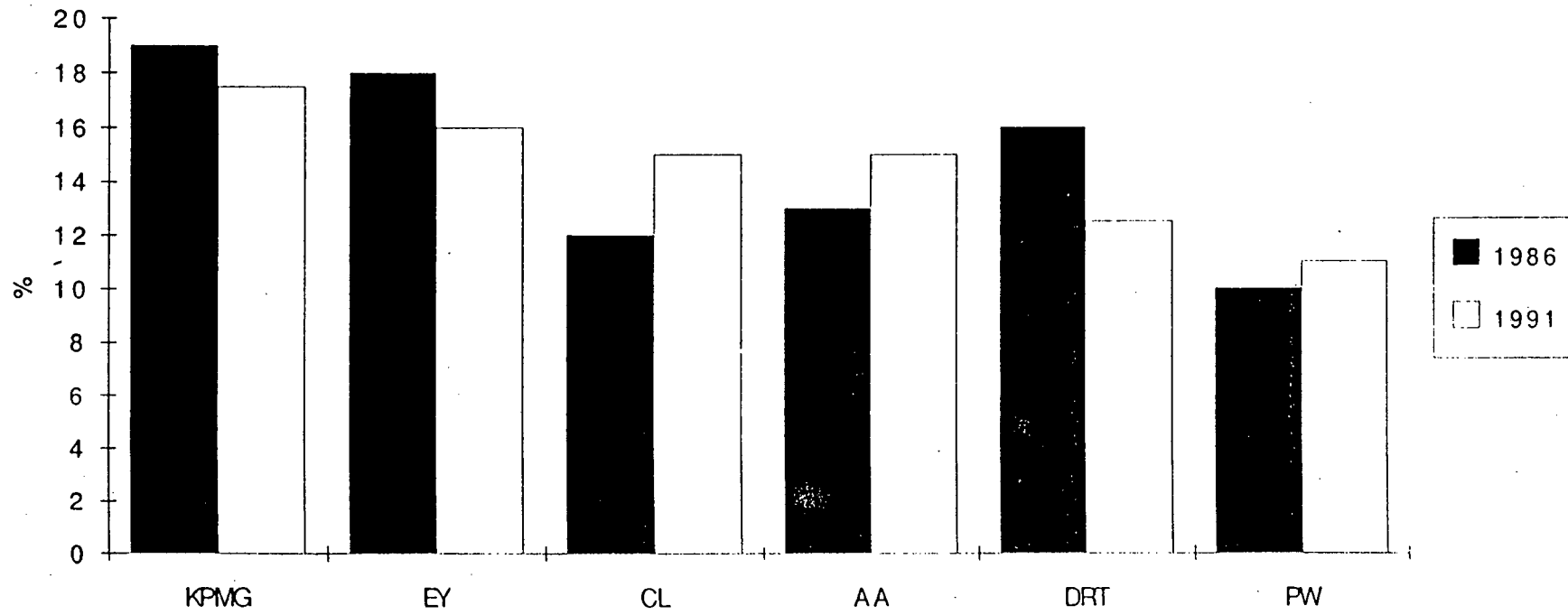


Figure 4: Market share of major audit firms



Lastly, concentration may be due to legal and economic conditions peculiar to a particular country. Davison, Stening and Tai [1984] found that auditor concentration in Australia was influenced by interlocking directorates. Their results suggested that “the links between companies audited by the same public accounting firms (and, hence, an auditor’s client profile) can be explained to a considerable extent by the links provided by those same companies having common directors” [p.316]. In South Africa, the concentration could be influenced by the conglomerate structure of the big corporations. Tom Wixley of Ernst and Young [*Financial Mail Top Companies Survey*, July 26, 1991] states that audits do tend to follow control:

“Strategically, the best audits are at the top of the tree. Audits tend to follow control. So controlling shareholders tend to appoint their own auditors and the bigger the tree the better because in time you tend to get that work.”

The individual firms have also adopted a deliberate strategy of internationalisation documented by Wu and Hackett [1977]. The firms’ drive to go global was driven by the need to serve clients properly [p.81], which was considered to be more important than short-term profit objectives [p.85].

Entry into foreign countries tended to follow an evolutionary strategy although there were some exceptions. The international firm would establish a correspondent relationship with an existing local firm to minimise the risk and cost of entry while providing a base for learning and upgrading among the two parties. The local demand from multinational clients as well as local clients often grew to a level where the performance of the correspondent office could not be assured. To meet this demand with quality services, the international firm might then go into an affiliate relationship involving a licensing agreement where the local firm uses the international firms name and technical services in exchange for royalty or service fees.

The international firms were very strict about the use of their brand names. Watts and Zimmerman [1986, p.316] also note that in the late nineteenth century, Price, Waterhouse and Company (already prominent in England) sent two non partner representatives, Jones and Caesar to establish offices in the US. However, it did not allow Jones and Caesar to use the firm’s name explicitly for fear of damage to Price, Waterhouse’s reputation.

The international dominance of the Big Six has led to the accounting services market being described as a mature oligopoly with a competitive fringe [Pound and Francis, 1981, p.356].

### 3.2.3 Competitiveness of audit services market

In a market that is dominated by few very large suppliers, concerns about the state of competition are bound to arise. In the audit services market, the US Staff Study charged that the US market was uncompetitive, whilst the AICPA [1978] hinted at the possible existence of excessive competition. Similar to the *Cohen Commission*, Bernstein [1978, p.92] noted a marked increase in competition, describing the market as "more cut-throat". A cursory review of accountancy journals by the author indicates that there is a perception amongst practitioners that competition in the audit services market is very intense.

To support this claim, the lack of growth in fee income and some leaked information on audit firms' profitability are often cited as indications of intense competition. Empirical research done in the US [Simunic, 1980; Palmrose, 1986a], Australia [Francis 1984; Francis and Stokes, 1986], Canada [Chung and Lindsay, 1988; Anderson and Zeghal, 1994], New Zealand [Firth, 1985] and in the UK [Chan *et al*, 1993] concluded that the audit services market was competitive. The question that has to be answered now is why the market for audit services is so competitive.

The AICPA [1978, pp.110-111] contended that the users of financial statements cannot distinguish audit quality differences between similar size firms. The Commission noted that, because of the influence of management in the appointment of auditors, the quality of the audit is of comparatively less concern to them. The Commission noted that:

"A "clean" opinion obtained from one reputable firm is about as valuable to the competent, honest financial manager as one from another reputable firm." [p.111].

If there is no discernible difference in quality, then there will be more price competition as cost-conscious management can bargain for a lower fee. Whilst the observations of the Commission are valid, Shockley and Holt [1983] present contrary evidence showing that certain classes of users of financial statements can distinguish between audit services rendered by audit firms in a similar size class. Whilst this would weaken the AICPA arguments, the fact remains that as

long as management has such strong influence over the appointment of auditors there will be greater price competition.

Linked to the influence of management in setting audit fees is the growing tendency of management opening audits for tender [*The Chartered Accountant in Australia*, August, 1990, p.36]. It is common knowledge in auditing circles world-wide that this has become one of the common ways of reducing the audit fee. Darnill [1992] provides evidence that companies which open their audits to tender invariably end up with a reduction in audit fee.

The second reason for increased competition is the spate of corporate mergers that took place in the 1980s. This shrunk the pool of clients whilst the number of suppliers remained virtually unchanged. Also, the elimination of duplicate accounting functions in the merged firm meant that the audit fee could not be equal to the sum of the audit fees of the companies before the merger.

Corporate mergers also resulted in a number of clients changing from small firms to the large ones [Haskins and Williams, 1988]. Competition amongst the large audit firms intensified as they vied for each other's clients [Bernstein, 1978].

Thirdly, Darnill [1992] notes that the audit services market has changed from being supply driven to being demand driven. This gives management more bargaining power in setting audit fees. In addition, in the past companies were reluctant to change auditors as there appeared to be a stigma attached to that. In the 1990s changes in auditors have become more frequent and clients are now placing demands on auditors beyond the requirement that the audit fee should be competitive.

Fourthly, clients have become more sophisticated and are generally demanding better value for money [*Accountant's Journal*, February 1990, p.33]. As a result they are more prepared to shop around if they are not satisfied with their present auditor and now have a greater choice of firms to choose from. At the same time, clients have become more price sensitive, more willing to ask for estimates in advance and to dispute fees. This has taken place at a time when the costs of accounting firms have risen and there has been a significant demand for capital expenditure investment in technology and office facilities.

Fifthly, the rules governing the marketing of audit services have been relaxed and in virtually all countries advertising is now allowed. Firms have been

scrambling more aggressively for a share of the market. They are now marketing a greater range of services than previously available from one firm.

Sixthly, there is a greater focus on the quality of service provided by professional firms, their independence and ethical standards [*Accountant's Journal*, February 1990, p.33].

### 3.3 South African market : An overview

Whilst there is a wealth of evidence on the structure of the audit services markets in the major English-speaking countries and continental Europe (including some Scandinavian countries), there are hardly any studies of the South African market. Part of the problem may lie in the lack of the availability of data due to auditing firms deciding not to divulge such information. *Finance Week* [*Finance Week 200*, March 18-24, 1993, p.170] in its annual survey of auditing firms noted that auditing firms refused to divulge information on the fee split, the split between chargeable and non chargeable staff, the number of trainees and some of their unlisted clients. Figures provided by the *International Accounting Bulletin* [February 22, 1995, p.8] are shown in table 1 below.

**Table 1: Leading accounting firms in South Africa - Fee data**

Firm	International Affiliation	Fee Income 1994 (R/m)	Fee Income 1993 (R/m)	Growth Rate (%)
Deloitte & Touche	Deloitte Touche Tohmatsu	278.0	250.0	11.2
Coopers & Lybrand	C&L	247.0	217.0	13.8
Ernst & Young	E&Y	216.0	204.0	5.9
KPMG Aiken & Peat	KPMG	215.0 <sup>1</sup>	190.0 <sup>1</sup>	n/a
Price Waterhouse	PW	188.0 <sup>1</sup>	165.0 <sup>1</sup>	n/a
Arthur Andersen & Co	AA	141.0 <sup>2</sup>	114.0 <sup>2</sup>	23.7
Kessel Feinstein	Grant Thornton	69.3	69.0	0.4
Fisher Hoffman Stride	Pannell Kerr Forster	52.8	50.5	4.6
BDO Spencer Steward	BDO Binder	n/a	n/a	n/a
Moores Rowland	MRI	29.9 <sup>3</sup>	26.4 <sup>3</sup>	13.3

## Notes:

1. Estimated by International Accounting Bulletin
2. Includes Arthur Andersen and Andersen Consulting, separate business units of the Arthur Andersen Worldwide Organisation
3. Figures refer to an association of firms comprising Baker Musikanth, Boule Saad & Levin, Goldberg Jaffe and Cohen Morris now collectively known as Moores Rowland

It is evident from the table that the Big Six network also permeate the South African market quite extensively. There is a fairly large gap between Arthur Andersen and Kessel Feinstein which is indicative of the dichotomy of the Big Six and the non-Big Six. In fact, all the major players in the market have international affiliates. The mergers of the international affiliates of the local firms also had the latter merging. Aiken and Carter, an affiliate of KMG Main Hurdman linked up with the local branch of Peat, Marwick, Mitchell & Co to form KPMG Aiken and Peat. Similarly, the local operations of Arthur Young and Ernst Whinney merged to form Ernst and Young in South Africa. When Touche Ross merged with Deloitte Haskins and Sells, Pim Goldby which was affiliated to Touche Ross merged with Deloitte Haskins and Sells, to form Deloitte Pim Goldby which later changed its name to Deloitte and Touche. Coopers and Lybrand followed with a merger with the local network of Theron du Toit to form Coopers Theron du Toit which has subsequently reverted to Coopers and Lybrand. That was not the end. Price Waterhouse merged with Wiehan Meyernel to form Price Waterhouse Meyernel.

One of the striking features of these mergers was the fact that the merged firm always had the name of the international affiliate prominently placed in its name. KPMG has the standard KPMG Peat Marwick logo and the international name precedes the local name. Similarly, Price Waterhouse Meyernel still uses the Price Waterhouse logo in its letterheads and external communications.

The adoption of a uniform international label has taken on more importance in South Africa with a number of local firms adopting their international names. Deloitte Pim Golby changed to Deloitte and Touche, Coopers Theron du Toit to Coopers and Lybrand and KPMG Aiken and Peat is phasing out the Aiken and Peat to remain as simply KPMG. A very detailed explanation by KPMG Aiken and Peat makes it very clear that the reason for the name change was motivated by the need to strengthen its identity as the global leader in providing quality professional services. The statement further explains that:

“Market research has revealed that our clients find it confusing to be presented with services under a different name from one country to the next. Presenting a clear and consistent image around the world will create and sustain a positive awareness of our services” [KPMG, 1994, p.2].

Other firms have always had the international names such as Arthur Andersen and Ernst and Young.

International affiliation is not only common amongst the large firms but the small firms as well have international affiliation. Fisher Hoffman Stride is affiliated to Pannell Kerr Foster, Kessel Feinstein to Grant Thornton International, BDO Spencer Steward to BDO Binder, Goldberg Jaffe to the International Group of Accounting Firms. International links are touted as providing benefits in research, technology, audit methodologies, training, marketing and recruiting [Cypert, 1991].

An attempt was made to assess the extent of the dominance of the Big Six amongst listed companies, using ranked market capitalisation at the end of 1992 and McGregor's Who Owns Whom [1993]. The table below shows the extent of the dominance :

**Table 2: Ranked market capitalisation and Big Six dominance.**

Rank	Big Six	Non Big Six
1 to 100	93	7
101 to 200	92	8
201 to 300	90	10
301 to 400	82	18
401 to 500	79	21
501 to 600	73	27
600 to 700	65	35
700 +	6	10

From the analysis, the dominance of the Big Six is more pronounced amongst large companies and this stranglehold decreases in tandem with the size of the company.

### 3.4 Other services market

Involvement of audit firms in nonattest capacity with their audit clients has been plagued with controversy. This section analyses the origins of auditor involvement in such services, the reasons for involvement and criticisms of audit firms. A literature search for studies on the structure of this market were fruitless. A possible reason for this may be the fact that it is very difficult to put boundaries around the basic range of services and most of them tend to be client specific [Simunic, 1984]. As a result, no detailed analysis will be performed on the structure of this market.

#### 3.4.1 Origins

Before independent audits became widespread, auditors were already performing a variety of other services [AICPA, 1978; Wooton and Wolk, 1992]. The 1960s was a period of a marked increase in auditor involvement in MAS which prompted the concern over their impact on the audit function [Wooton and Wolk, 1992]. The large accounting firms have continued to make substantial inroads into the other services market in recent years. *The Accountant* [3rd March, 1986, p.10] described the growth of MAS activities of large accounting firms as "spectacular and immodest". The growth in the proportion of total revenues sourced from MAS activities is shown in the table below extracted from Briloff [1994, p.31].

**Table 3: Growth in the management consulting revenues of the six largest accounting firms 1987-1991**

Firm	1991			1987			1987-1991 % Increase	
	World Gross Revs	World MAS Revs	% MAS	World Gross Revs	World MAS Revs	% MAS	World Gross Revs	MAS
AA	\$4948	\$2260	46%	\$2316	\$838	36%	114%	170%
C&L	\$5000	\$930	19%	\$2000	\$381	19%	150%	144%
E&Y	\$5406	\$862	16%	\$3480	\$717	21%	55%	20%
KPMG	\$6011	\$801	13%	\$3250	\$455	14%	85%	76%
D&T	\$4500	\$800	18%	\$2986	\$565	19%	51%	42%
PW	\$3603	\$733	20%	\$1804	\$345	19%	100%	133%

\$ amounts in millions

In 1992, the contribution of MAS to total revenues continued to increase as shown in Table 4 (adapted from Briloff, 1994, p.31).

**Table 4: Comparison of MAS revenues to total revenues for the six largest accounting firms for 1992**

Firm	Gross Revenues	MAS Revenues	% MAS
AA	\$5577	N/A	N/A
C&L	\$5350	\$1498	28%
E&Y	\$5701	\$1425	25%
KPMG	\$6153	\$1661	27%
D&T	\$4800	N/A	N/A
PW	\$3761	\$1015	27%

(\$ Amounts in millions)

As a result of their involvement in MAS activities the Big Six accounting firms have grown to be amongst the largest consulting firms in the world [see Table 5 Source: Briloff, 1994, p.4].

**Table 5: Growth in management consulting revenue of the eight largest consulting firms 1978-1991**

Firm	1991 MAS Revenues	1987 MAS Revenues	% Increase 1987-91	1978 MAS Revs	% Increase 1978-87
AA	\$2260	\$838	170	\$114	635
McKinsey	\$1050	\$510	106	\$100	410
C&L	\$930	\$381	144	\$83	359
Mercer	\$984	\$530	86	-	-
E&Y	\$862	\$717	20	\$51(a)	N/A
KPMG	\$801	\$455	76	\$70(b)	N/A
D&T	\$800	\$565	42	\$72(c)	N/A
PW	\$733	\$345	113	\$33	946

\$ Amounts in millions

(a) Revenues for Ernst and Whinney only

(b) Revenues for Peat Marwick only

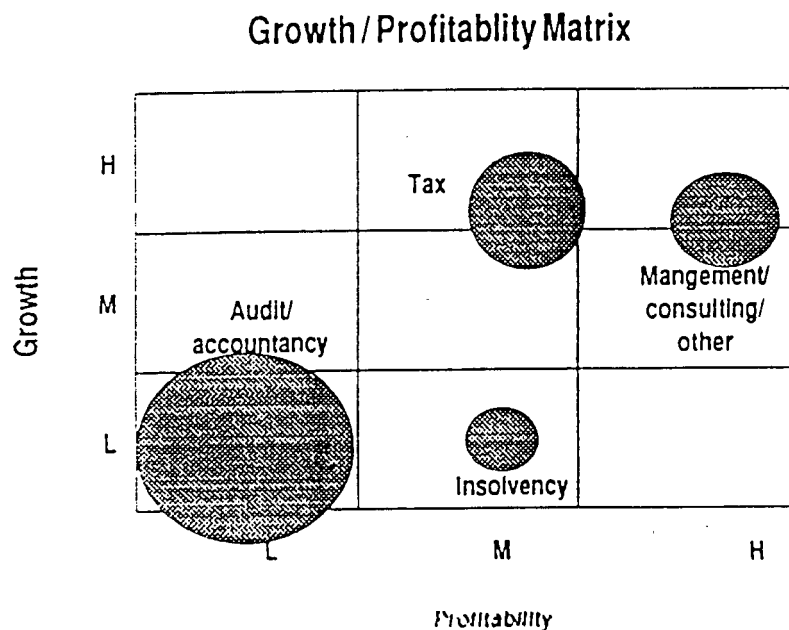
(c) Revenues for Touche Ross only

Ethical pronouncements do not preclude auditors from providing MAS services to their audit clients. ET 030 in fact argues that it may be "economical" for auditors to provide MAS to clients as they have intimate knowledge of the client's business, and many clients would be adversely affected if their auditors were banned from offering MAS.

### 3.4.2 Reasons for involvement

It is important to look at the reasons why audit firms have become so heavily involved in MAS services. *The Accountant* [January 1992, p.9] studied the accounting services and found that the audit services market had become saturated and there was very little growth. In addition, margins in this market were growing thin due to intense competition which was driving audit fees downwards. The other services market showed greater growth rates and therefore more profit appeal, although they are of a smaller size. The result of the survey was Figure 5.

Figure 5: Market survey of accounting services market



The growth/profitability matrix shows growth plotted against profitability for each market segment. The size of the bubble represents the value of the market. Audit/accountancy is the largest area of business, although it is of low growth potential and low profitability. Management consultancy and other areas of business are a relatively small part of overall business, but in the attractive position of being of medium/high growth and high profitability

Hillison and Kennelley [1988] provide some economic reasons for auditor involvement in non audit services. Firstly, the growth opportunities apparent from the above graph makes the non audit services (MAS) market attractive. Because of the rampant price-cutting on audits, audits may not be as profitable as they used to be. For some auditing firms MAS may have a higher profit

margin per rand of billings than audit services. This observation is supported by comments from Rick Cottrell, Coopers and Lybrand deputy chairman and managing partner who attributed the increase in fee income to increased market share in MAS [*International Accounting Bulletin*, February 22, 1995, p.8]. In the same article, Cottrell added that competition in the audit segment is “stiff” and “activity has slowed down in this area”.

Secondly, audit firms may have been driven by a need to meet client needs. The ability of an audit firm to offer a well-balanced and developed package of ancillary services appears important in developing and maintaining a reputation as a service-oriented firm.

Thirdly, MAS offer risk diversification opportunities. Through provision of MAS, audit firms do not become dependent on audit fees as the only source of income. Also in the US, there has been a great deal of malpractice suits against auditing firms arising out of audit failures. Given the risky environment faced in auditing, the movement of audit firms into non audit services can be viewed as a rational attempt to diversify risk faced by these professional partnerships.

Fourthly, non audit services broaden the career paths of trainee accountants, making the profession more appealing to a different group of persons than in the past. Providing alternative career paths may result in increasing the ability of audit firms to retain employees who have traditionally migrated to clients. As the responsibilities of auditors change and become broader, creative people with new ideas will be needed. Failure to attract and retain personnel capable of adapting to new demands could seriously impair the ability of the profession to remain relevant.

### **3.4.3 Advantages of accounting firms**

There a number of distinct advantages which favour accounting firms when it comes to consultancy services. These are [*The Accountant*, 3rd March 1986, p.10]:

**Size** This enables them to take on substantial projects.

**Client base** The accountants have a captive market of audit clients who turn to them for MAS.

**Range of offices** The geographical spread of accounting firms enables their consultancy arms to tap larger market.

**Availability of people** The accounting firms can draw upon a vast pool of in-house expertise built around their audit practices. The article quotes another consultant who said:

“ They [accounting firms] have some of the best brains in the country in some of their subject areas, and if that’s what you want, they provide a very good service.”

Also the involvement of the accounting firms, particularly their large advertisements, has increased the size of the MAS market.

#### 3.4.4 Disadvantages of accounting firms

Other than the independence issue, the style of the organisation and functioning of consultancies is different to that of audit firms [*The Accountant*, 3rd March 1986, p.11]. Specifically,

- The firm comes across as a general management consultancy and is not seen as credible by the client.
- Separate kinds of consultancy require different types of people, and each type needs a separate environment. One environment is just not appropriate for different kinds of consulting work.
- The very best people want a high degree of freedom, and they will not work in a highly structured, bureaucratic environment.

It is patently clear that audit firms do possess distinct advantages and capabilities particularly in delivering a quality service to the client. The disadvantages are more administrative than performance related.

#### 3.4.5 Criticisms

The main criticisms for auditor involvement in MAS services for their own clients arises from a concern about independence, the *raison de etre* of auditing. One of the ironies of this debate is that in the 1920s and 1930s auditor involvement in MAS was very prevalent and in fact quite welcomed [Wooton, and Wolk, 1992, pp.6-8]. A survey of literature studies of the MAS debate [Pany and Reckers, 1988] did not focus on the competence of auditors, but on the effects of MAS on the audit function. The issue is really whether the auditor is actually negatively influenced by MAS. The focus is on the perception that users have of the auditors involvement in MAS. It is this perception of the lack of

independence that may lead to the public losing confidence in the integrity of audited financial statements.

Those against the provision of MAS to audit clients argue that the auditor may in effect become an employee of the client, an advocate of the client, have financial interest in the success of the client, or be placed in the position of auditing his own decisions in which case he would be more dependent on the client [Gul, 1991, p.164]. Briloff [1994, p.30] calls it a “nexus of perversity” which is not in line with the status of auditing as a profession. Austin Mitchell [1992], Labour MP in the UK, further argues that:

“ It is unhealthy for auditors to offer non auditing services to their audit clients. It degrades the audit, making it a cut-price exercise to sell more lucrative services.”

Arguments in favour are that, most MAS work is non routine and increases the client’s dependence on the auditor. This in turn will enhance the auditor’s ability to resist management pressure and improve the auditor’s independence [Gul, 1991, p.164]. Francis and Pound [1981, p.355] add that:

1. An accounting firm which has provided an extensive audit service already has detailed knowledge of the client operations. Much of the preliminary work has been completed and avoids the inefficiency of introducing a new firm that would need to start again.
2. MAS capabilities within an audit team will enhance audit quality.
3. MAS increases the quality of young accounting staff.
4. The auditor’s review and evaluation of the clients’ internal control results in the identification of weaknesses in the system and a report to management on suggested improvements. This can facilitate an audit by improving the underlying structure of what is audited.

A review of empirical research spanning over 20 years by Pany and Reckers [1988] confirms the existence of a perception problem, although there is also evidence to the contrary. Pany and Reckers also argue that the results of these studies may have been influenced by a demand effect because the focus of the researchers had been transparent to the subjects and the researchers’ expectations were relatively obvious [Pany and Reckers, 1988, p.32]. Their own findings did not reveal a significant deterioration of perception of independence

among sophisticated financial statement users. Gul [1991] shows that the evidence on the effects of MAS on auditor independence is mixed and fairly inconclusive.

The response of the regulators to the problem varies across different countries. The SEC in the US required proxy statements [Scheiner and Kiger, 1982; Palmrose, 1988] to:

- describe each non-audit service provided by incumbent auditors;
- state percentage relationships, individually and in aggregate between non-audit and audit fees for non-audit services greater than three percent; and
- disclose whether non-audit services were approved by audit committees or boards of directors to consider the possible effects on independence.

These regulations did not appear to have an impact on the quantity or mix of non-audit services purchased [Palmrose, 1988]. The *Cadbury Commission* in the UK has also followed the SEC route, requiring disclosure of payments to auditors for other services.

### 3.5 Recent developments - Litigation

Litigation against auditors has soared to levels where the auditing profession is describing it as an epidemic [*Financial Mail*, August 21, 1992, p.36]. This has been more prevalent in the major English-speaking countries in the world particularly Australia, Canada, New Zealand, the UK and the US. The increase in litigation has been closely linked to highly publicised frauds and failures such as the Bank of Credit and Commerce International (BCCI), the Robert Maxwell debacle and the savings and loans scams in the US. In 1991, the Big Six were estimated to have spent about 9% of their total revenues - some US\$477 million - defending litigation suits against themselves [*Financial. Mail*, August 21, 1992, p.36]. By 1993 litigation costs came to more than \$1 billion or 19.4% of gross accounting and auditing revenues without the impact of insurance indemnity [*International Accounting Bulletin*, June 27, 1994, p.2]. The amount they paid for insurance coverage was equal to \$111 million per firm [*International Accounting Bulletin*, June 27, 1994, p.2].

The result has been an increase in premiums estimated at between 200 and 400%. Consequently, insurance costs have climbed to where they are the second largest cost item faced by accounting firms after salaries [Goldwasser, 1992]. The risk of litigation and the attendant costs of insurance are now part and parcel of doing business for auditing firms [Wallace, 1989, p.5]. Wallace [1989, pp.5-6] cites the results of an international study of the nature and determinants of litigation which showed that:

- public companies appeared in most litigation cases, and
- risk of litigation was more prevalent in finance, insurance, investment and real estate.

Entities falling into the above categories are therefore more risky and may require greater audit effort and hence pay higher audit fees [Wallace, 1989].

On a more general level, the increase in litigation increases the overhead of audit firms which leads to more expensive audits, all other things equal. For South African firms with international affiliation, the costs of insurance are determined internationally and each country contributes its share [Msibi and Pillay, 1992]. Therefore the effects of litigation in, say, the US could have an impact on the cost structure of the South African practice. Professional risk management procedures are more likely to be instituted on a global basis which impacts directly on South African member firms. Whilst in South Africa litigation has not reached the proportions in the developed economies, submissions made by the profession indicate that audit firms see the threat of litigation as serious enough to warrant representation to the South African Law Commission regarding curbing the liability of auditing firms.

### 3.6 Chapter summary

It has emerged that the dominance of the Big Six in the audit services market has been driven by market forces. In spite of the dominance, there is ample evidence of competition which goes against popular expectations that monopolistic pricing tendencies would be prevalent.

As the growth of demand for audit services has slowed down, auditors compensated for this by adopting a broader role as consultants. The issue which still has to be resolved is to establish the exact nature of the relationship between MAS and the attest function and the pricing of the latter. The following chapter of the literature survey sheds some light on these issues.

## 4. LITERATURE REVIEW

### 4.1 Introduction

The main purpose of this chapter is to present the current status of research on audit fees. There has been a growing body of research in this topic emanating from Australia, Canada, Hong Kong, India, Malaysia, New Zealand, Singapore, the U.K. and the U.S.. The bulk of the research has come from the U.S. Major findings from the available studies are summarised with an emphasis on comparisons with prior research at the time each study was completed.

The studies are by country and in order of precedence to demonstrate how earlier research became the foundation of future investigation, thus shedding more light into the factors that influence audit fees. Some studies on municipal and other public sector bodies are also included to assess whether the variables determining audit fees are different between private companies and public sector bodies.

### 4.2 United States

Research into audit fees began in the early 1970s in the U.S. and focused mainly on the calculation of audit fees as a percentage of sales or total assets and analysing differences by industry mainly. Hobgood and Sciarrino [1972a] surveyed 797 US manufacturing companies and found that in 1970, the average US company was paying 0.04% of its annual sales in audit fees. However, this percentage ranged from 0.18% for companies with sales under \$50 million to 0.03% for companies with sales over \$1 billion.

When the survey was extended to 798 non manufacturing companies [Hobgood and Sciarrino, 1972b], a similar pattern was observed with companies with sales less than \$50 million paying 0.10% of their annual sales in audit fees whilst those with sales over \$1 billion paying 0.02%.

Both studies indicate that audit fees as a percentage of sales did not bear a positive relation with size as measured by sales. Unfortunately, the authors did not explain the reasons behind these observations. Also, there were no tests of significance on the averages to examine whether they were significantly different between company sizes as measured by sales.

When the management of the companies surveyed were asked about the reasonableness of the audit fee in relation to size and complexity of operations, some voiced their dissatisfaction charging that the “Big Eight firms, because of their monopolistic control of the profession, generally charge higher fees for their services” [Hobgood and Sciarrino, 1972a, p.28]. It is worth noting that the managers expressing this comment did not seem to relate the high prices to a perception of higher quality of services offered by the Big Eight.

The managers then gave some factors that were most commonly used in judging the reasonableness of audit fees. These were [1972a, p.29]:

- Size and calibre of audit firm staff;
- Size of company and location of its audited units currently and in previous years;
- Relation of audit fees to sales volume;
- Comparison of audit fees paid with those paid by other companies of similar size in the same industry;
- Comparison between budgeted and actual audit fee paid; and
- Management’s personal experiences with other audit firms.

Elliott and Korpi [1978] analysed the effects of a number of variables, measuring size, industry and complexity on audit fees. Their sample was drawn from the clients of Peat, Marwick, Mitchell and Co. in the US. In general they were able to explain a significant amount of the variance in audit fees. Their most successful models used the size measures of total assets and sales. Overall, the most significant variables affecting audit fees were found to be [pp.18-19]:

- The size (sales or total assets depending upon the primary or dominant nature of business);
- The degree of complexity in locations and product lines;
- The degree of accounting and financial centralisation;
- The reduction in scope due to reliance on internal auditors;
- The number of audit reports required; and
- The ratio of actual to standard fees.

Simunic [1980] provided the pre-eminent study in the identification of variables, explaining audit fees and the effect of the structure of the audit services market on audit fees. Furthermore, his model provided a framework for evaluating the competitiveness of the audit services market. The data used in this study consisted of 397 responses from a survey sent to publicly-held corporations in the US during 1977. The first step in the study was to identify factors affecting audit fees. Using these firm-specific factors as a control in the regression equation, the competitiveness of the audit services market was tested by first classifying auditees as either small or large and the auditors as either Big Eight or non-Big Eight. The assumption in this analysis was that the market for small audits is competitive because of the greater number of suppliers relative to large audits where the Big Eight were dominant suppliers.

The variables that were hypothesised to have a relationship with audit fees were (a) size of the auditee, (b) the complexity of the auditee's operations, (c) auditing problems associated with certain financial statement components, especially, inventories and receivables, (d) the industry of the auditees and (e) whether the auditee is publicly or closely held.

The size of the auditee (measured by total assets) was significant, and so was complexity (measured by number of subsidiaries, proportion of inventories and receivables, percentage of foreign assets). For the test of competition, emphasis was on the auditor variable which had a coefficient that was not significantly different from zero for all audit firms with the exception of Price Waterhouse (PW), which was significant across auditee size classes. Simunic explains that the significantly positive coefficient for PW may represent a price difference paid by auditees for a differentiated service [p.188].

The overall conclusion in this study was that the Big Eight firms tended to charge lower fees than non-Big Eight firms. His conjecture was that the Big Eight firms enjoyed scale of economies which are passed on as lower prices to auditees [p.188]. The only weakness in this study was that the author did not investigate sufficiently the possible product differentiation within the Big Eight firms [Pound and Francis, 1981].

Shockley and Holt [1983] examined the basis of product-differentiation within the Big Eight group of auditors. Because of its exploratory nature the study was limited to the banking sector with a focus on the thirty largest banks in the US. A questionnaire was sent to the chief financial officer of each bank and analysis of the responses was performed using multidimensional rank order.

The analysis revealed an ability to systematically differentiate between Big Eight auditing firms on the basis of qualitative attributes. The most important factor was market share of the banking industry. The reasons for this are quite speculative with the most plausible being that the subjects related market share and name recognition with industry expertise [p.560]. Of the ten desirability and usefulness factors tested, conservatism which was related to independence, professionalism and reliability was the most important.

Wallace [1984a] sought to provide a benchmark for determining a reasonable audit fee [p.34]. The variables tested were the ratio of foreign assets to total assets, the number of separate operating locations and operating revenue. Seventy-one companies for the 1981 financial year end were used.

For the total sample, all variables had a significant positive relationship with audit fee. When the results were sub analysed between different categories of size and industry, only the number of locations was significant across all categories. The descriptive power of operating revenue declined. When operating revenue is used as a basis for forming subgroups, the foreign asset variable was insignificant at 20% for financial institutions. Wallace suggests that assets may be a better indicator of size for financial institutions than revenue [p.39]. The model developed showed the effect of expanding operations, investment in fixed assets and decentralisation would have on the audit fee, i.e. increase the audit fee.

Wallace [1984b] ascertained the relative costs of internal and external auditors in a study covering 32 companies with sales averaging \$2.1 billion. The premise in this study was that internal auditors can lower external audit fees by improving a company's accounting controls, performing financial examinations on which the external auditors can rely and assisting in a number of ways [p.16]. The regression model used had a number of variables commonly associated with determination of audit fees: operating income, net income, total assets, foreign assets, type of audit report, type of ownership, number of subsidiaries and operating locations. An additional variable that was of specific interest was the total expenditures on the internal audit department.

Operating revenue, net income, type of audit report, number of operating locations and the internal audit costs were significantly related to audit fees. The coefficient of the internal audit costs variable was negative, adding support to the assertion that internal auditors can cut the external audit fee. In effect, per Wallace's research, on average, each dollar spent on internal audit costs would reduce the external audit fees by 4.5 cents [p.20].

The evidence presented here suggested that savings on the external audit fee may be improved if more hours are allocated to internal audit assistance of the external auditors.

Two glaring weaknesses in the study were the small size of the sample and the concentration on large companies. In fact, one would expect larger companies to have more elaborate control systems which would invariably include an internal audit department. Strangely enough, the author did not provide an analysis of how the size factor may have influenced her results.

Simunic [1984] evaluated the relationship between the audit fees and the provision of non-audit services. He tested for the existence of pricing effects arising out of knowledge spillovers when the audit function and the provision of non-audit services are performed by the same firm. The thesis of the study was that the cost functions for the production of audit and non-audit services were interdependent because of favourable knowledge spillovers. The test of the hypothesis involved a comparison of fees, other things being held constant for a control group of companies which did not purchase non-audit services from their auditor, to a group which purchased both services. The data was taken from the 397 observations on audit fees covering the financial years ending in 1977 used in Simunic [1980].

The hypothesis that there were spillover effects between provision of non-audit services and audit services could not be rejected. The purchase of non-audit services from the auditor was associated with a significant increase in the audit fee. This was interpreted as arising from "a beneficial knowledge spillover between services" [p.699]. This observed relationship would arise if the provision of audit services gives rise to knowledge useful in non-audit fees provision and/or the provision of non-audit services reduces the marginal cost of auditing and audit demand is relatively elastic [p.698]. Therefore, economically auditors earn economic rents as a result of performing both services which they retain instead of passing them to their client in the form of a reduced audit fee.

It would appear from Simunic's analysis that these benefits were not being passed on to clients in the form of lower audit fees. The perception harboured by some critics of the auditing profession had been that the provision of audit services and non-audit services would result in lower audit fees used to gain market share [e.g. AICPA, 1978]. The only drawback of Simunic's work was that the *types* of non-audit services were not distinguished. Clearly, not all non-

audit services have audit implications e.g. executive recruiting has no impact on auditing.

Simon [1985] presented an extension of Simunic [1980 and 1984] on the determinants of audit fees and the relationship between audit fees and non-audit services. Audit fees for 79 firms resulting in 179 observations for the years 1978 to 1983 were extracted from proxy statements kept in the libraries of several universities in the Chicago area.

The findings in this study generally supported earlier studies showing that audit fees are related to (a) firm size (number of subsidiaries) and complexity (measured by inventory), (b) non-audit services. However the differentiated fee structure observed for Price Waterhouse by Simunic [1980] was non-existent showing that it may have been a transitory phenomenon [p.71].

Palmrose [1986a] examined whether there is a systematic relation between audit firm size in terms of (a) absolute size, and (b) relative market shares, and (c) audit fees. The three hypotheses tested in this study related higher audit fees charged by large firms to (a) market (monopolistic) powers and (b) higher quality of services. On the other hand the third hypothesis related lower audit fees to economies of scale. The control variables were total assets, number of special reports other than annual financial statements required by the client, client participation through internal audit support, industry classification, report modifications, ownership structure, number of locations, auditor specialisation and auditor size.

The significant variables for the total sample of 361 companies were assets, locations, number of reports, internal audit support, ownership structure and auditor size. With the exception of the report modification variable, industry classification did not affect the significance of the explanatory power of the variables. In effect, the results suggest that "higher audit fees are associated with Big Eight audit firms thus supporting either higher quality services or monopoly pricing by the large suppliers" [p.108].

To distinguish between the two competing explanations, data for the number of hours spent in each audit engagement for 302 companies were obtained and substituted in the regression model in place of the audit fee. Again the Big Eight auditor variable was significant. Therefore, overall the evidence weighed more towards Big Eight auditors being associated with higher quality services [p.108]. A test for monopoly pricing involved the segmentation of the clients by size and

testing the significance of the Big Eight variable. The Big Eight coefficient was found to be positive and significant for small auditees but not for large leading to the conclusion that the Big Eight offered a differentiated product.

Palmrose's findings differ from Simunic [1980] who found that the Big Eight firms tended to charge lower fees due to economies of scale.

Palmrose [1986b] re-examined the effect of non-audit services on audit fees. Her approach differed slightly from Simunic [1984] in that the non-audit services were split between tax, accounting and non-accounting services. This decomposition allowed for investigation of whether the proximity of the service to auditing services influences the existence and magnitude of any beneficial effects from joint supply. An additional variation was the inclusion of non-audit services provided by auditing firms other than the incumbent auditor. The examination covered 298 public and closely held companies from twelve industries with Big Eight firms as the incumbent auditors. The time period covered October 1980 to October 1981.

Audit fees were regressed against control variables assumed to affect their general level, together with four test variables for fees paid to incumbent auditors for tax, accounting-related services, non-accounting related services and fees paid for non-audit services to non-incumbent auditors. 87% of the companies purchased non-audit services from incumbent auditors and larger companies purchased non-audit services more frequently.

All types of services showed a positive relationship with audit fees regardless of size. For small companies, only tax and accounting related services were statistically significant, whilst for large companies all were significant with the exception of tax services. Accounting related advisory services showed the most significant correlation with audit fees. A significant finding was that the variable for non-audit services rendered by audit firms other than the incumbent auditor was also significantly correlated to audit fees. This raises doubts about the joint-supply explanation advanced by Simunic [1984] as there would be no joint-supply benefits between audit services of the incumbent auditor and the non-audit services of non incumbents [p.410]. As a result, audit fees should not really be affected by fees for non-audit services purchased from non-incumbents.

Palmrose ventures the explanation that the audit services acquired from the other audit firms may have audit implications, e.g. changes in organisation structure

necessitating changes in accounting and control systems requiring additional audit work for the incumbent auditor at the time of the change [p.410]. Nevertheless, Simunic's [1984] assertion of joint supply was weakened by these findings.

Rubin [1987] applied research carried in the private sector to the public sector namely, municipalities. According to him, the environment and procedures surrounding the audit contracting process in the public sector differs from the private sector e.g. the financial statement users, accounting systems and the type of financial reports are all different in the public sector. Using Simunic's [1980] framework, he developed a model for the pricing of audit services on a sample of 189 cities. Each of the factors tested were based on previous studies particularly, Simunic [1980], Palmrose [1986a] and Francis [1984], and identified as having an effect on audit fees. The factors for size, complexity and audit risk were given measures applicable to municipalities.

Municipal size, financial risk and complexity were the most important factors that explained audit fees. The dominance of the Big Eight auditing firms was less than in the private sector. The auditor variable was not significant, suggesting that "the Big Eight firms were not associated with significantly higher audit fees in either the large or small city market" [p.234]. Overall, the evidence showed that the municipal audit market was competitive at the time.

Rubin's findings brought out some similarities in the determinants of audit fees between the private and public sectors. It showed that the size and complexity explain audit fees in both sectors of the audit market. The absence of a discount on initial engagements was consistent with the findings of Francis [1984] in Australia for the private sector.

Baber, Brooks and Rucks [1987] also investigated the public sector market for audit services. Their emphasis was on the structure of audit fees paid by the 100 North Carolina county governments during the period 1980 to 1984. Firstly, the study related differences in audit fees to differences in the financial and political characteristics of the county governments. Secondly, they investigated the structure of audit fees surrounding a change in auditor. The impact on audit fees of state and federal regulations, county size, audit firm size, change in auditor and auditor opinion were investigated with a view to providing more evidence on the findings of Rubin [1987]. Some financial factors namely, debt per capita and income per capita were also included together with political factors based on party memberships of the Board of County Commissioners and the turnover of

the Commissioners. In investigating the effect of auditor change, this study adopted a different approach by examining audit fees *before* the auditor change to test whether auditors anticipate such changes and then cut their fees.

They observed significant relations between audit fees and the measures of audit firm size, audit scope and county population; but neither the auditor change nor the auditor's opinion variables were significant at conventional levels. Both the political and financial variables were also significant. Rubin [1987] also observed the significance of the size, complexity and financial risk variables. However, he did not find the auditor variable to be significant.

New audit engagements showed a mean fee reduction of about 20% versus an average fee increase of 7,5% for continuing engagements. The audit fees did not immediately revert to their preswitch levels. The reduction in audit fees for initial engagements goes against Rubin's [1987] finding for the public sector and Francis [1984] for the Australian private sector which showed no marked differences in audit fees following auditor changes. A possible explanation advanced for this difference was that differences in audit markets could lead to differences in the relative magnitudes of audit fees for initial engagements.

Maher, Tiessen, Colson and Broman [1987] investigated the behaviour of audit fees for 78 companies in the period 1978 to 1981. This was a period when the regulatory bodies (SEC and the AICPA) were looking closely at the competitiveness or lack thereof of auditing firms in the US. The main focus of the study was therefore to examine if audit fees were keeping up with inflation in light of the perceived intensity of competition observed by the *Cohen Commission* [AICPA, 1978].

The changes in audit fees were mainly explained by changes in accounts receivable and extent of diversification. After adjusting for inflation, audit fees were decreasing at a rate of 3,9% per annum from 1977 to 1981. The decrease was not particularly driven by any particular industry or auditing firm. The indication from this study was that the ongoing changes in the competitiveness of the auditing environment "could result in a downward trend in audit fees" [p.208].

Francis and Simon [1987] concentrated on the pricing of audit services in the small client segment of the market. The study sought to reconcile the findings of Simunic [1980] and Palmrose [1986a] over the existence of a premium charged by Big Eight audit firms in the small segment of the market. This study used

three classes of audit firm size other than the Big Eight/non-Big Eight dichotomy: (a) Big Eight firms, (b) other national firms and (c) other firms having local or regional offices. The sample selected had 220 companies of which twelve were initial engagements.

The most significant variables were those representing size (total assets, number of consolidated subsidiaries), complexity (inventories and receivables, number of foreign subsidiaries), audit opinion and the Big Eight auditor variable. With regard to the auditor variable, this evidently implies the existence of a Big Eight premium over all non-Big Eight auditors. This finding is consistent with Palmrose's [1986b] study of the US market, with studies of the Australian market [Francis, 1984 and Francis and Stokes, 1986], and a study of the UK market by Taffler and Ramalingam [1982]. There was no evidence of a "second tier" firm premium over local or regional auditors.

The authors then evaluated the impact of price-cutting on the twelve initial engagements. Unlike Francis [1984], the fees for initial engagements were significantly lower than those of continuing engagements. No interpretation was made on the effect on audit quality of such price-cutting behaviour.

Balachandran and Ramakrishnan [1987] analysed the effect of audit firm size on audit fees using an economic model based on the agency framework. Using mathematical derivations, they prove that merging of auditors when there is mutual monitoring results in an improvement in risk sharing which would tend to decrease expected audit fees. While their analysis present a useful framework within which audit fees can be studied, it has not been supported by real life data. It does, however, give some understanding of the relationship between audit firm size and audit fees.

Simon and Francis [1988] expanded the research on price-cutting on initial engagements done by Francis and Simon [1987]. They sought to determine whether (a) price cutting systematically occurs on initial audit engagements; and (b) if it does, to determine when audit fees recover or return to normal. A large sample of 214 public companies changing auditors over the period 1979-1984 was tested along with 226 control firms not changing auditors over the same period. The presence of price cutting was tested for the initial year as well as the second through to the sixth year.

The results showed an average discount of 24% in the initial year and 15% for each of the next two years. By the fourth year, audit fees were not significantly

different from normal levels for continuing engagements. The significance of this study was that it affirmed the existence of “economically significant price-cutting behaviour and that auditors use a multi-period pricing model” [p.267]. Therefore, these findings refute the notion based on economic theory that the initial price discount is a sunk cost which is irrelevant for subsequent decision making as suggested by DeAngelo [1981]. In effect, there is a real possibility that auditor independence may be reduced until the initial fee discount is recovered [p.267].

It is interesting to note that Francis [1984] in Australia failed to find price cutting in initial engagements in the private sector whilst the evidence of the public sector yield mixed results (see Rubin [1987] for municipalities and Baber *et al* [1987] for counties).

Palmrose [1989] investigated the relation between audit contract type to audit fees and audit hours. She suggested that contract type affected uncertainty of risk and incentives to the auditor and the client [p.489]. In a fixed fee contract, the audit fee is set and agreed upon before the audit starts. Therefore the auditor will bear the consequences of deviations between expected and actual fee. Furthermore, fixed fee contracts generally provide greater incentives for auditors to perform the audit in the minimum time because all the savings will accrue to the benefit of the auditor [p.489]. The alternative type of contract has audit fees based on hourly and daily charges normally referred to as cost-reimbursement contracts (i.e. “cost-plus”). In this case the risks shift to the client. Therefore the hours spent on a fixed fee contract should be less than in a cost-plus contract. Consequently the audit fee should be less for a fixed fee contract.

Using multiple regression analysis, variables generally found to be related to audit fees were included in the model as independent variables, together with audit contract type as an additional variable. Audit fees and hours were used as dependent variables. The data consisted of 361 companies with 183 having fixed fee contracts and 178 having cost-plus contracts representing the 1980-81 time period.

Contract type was significantly related to the audit fee only, but not to audit hours. Therefore audit hours did not significantly differ between different types of contracts. Although fixed fee contracts tended to be more common in the early years of auditor/client relations, the price cutting behaviour on initial engagements did not adequately explain lower fees associated with fixed fee

contracting. Fixed fee contracts therefore tend to have lower audit fees but the incentives do not result in reduction in audit hours.

Wallace [1989] studied the association between unique business and audit risk and audit fees. In effect, Wallace had observed comments of some writers and practitioners about the changes in the environment in which auditors operated, and the possible impact that this might have on business and audit risk. A combination of covariance, factor and regression techniques were applied to a sample of 117 companies and the audit fees they reported in 1981. The major factors examined were total assets, number of subsidiaries and divisions, operating revenue, industry classification, percentage of foreign assets, quality control, vulnerability to litigation against the auditor, and the number of years the external auditor had been involved with the client as independent variables, with audit fees and audit hours being dependent variables.

The regression model lacked significance [p.19] and there was no systematic association beyond size effects. Wallace notes that the results could have been contaminated by the use of seasonal billing rates, portfolio-based fees directed at the industry segment rather than at individual firms. Furthermore, adjustments for risk may be in the form of staff assignment and use of qualified opinions rather than billing rates [pp.30-31].

In summary, the evidence presented here indicates that the price of audit services has little correspondence with business risk. Risk appears to be tied more to the extent of work than pricing behaviour [p.30]. The bottom line is that audit fees were not sufficiently risk-adjusted. It is apt to note the concern raised by the author regarding the absence of market correction to offer lower fees in relation to lower risk [p.35]. There may be some profits to be made in bidding down fees to accrue profits. A speculative suggestion by the writer is that fees may have been driven down by *clients* who may perceive that their risk profile should be reflected in the audit fee.

Ettredge and Greenberg [1990] extended Simon and Francis [1988] work on fee-cutting on initial engagements. They analysed the association between quality, industry expertise and technological efficiency of the auditor, 'low balling' and the number of audit tender offers with the percentage fee cut on initial engagements. All 389 auditor switches between 1984 and 1987 were covered of which 163 had full data available.

The mean and median fee cut reported were 25% and 23% respectively. Note that the average was similar to that of 24% reported by Francis and Simon [1988]. Also Francis and Simon [1987] found some evidence of fee cutting. Francis [1984] did not find any evidence of a price discount in Australia while the evidence from the public sector shows no discount for municipalities (Rubin, 1987) and a 20% discount for counties. The key findings of this study were as follows [pp.207-209]:

1. Firms switching from Big Eight to non-Big Eight auditors (or vice versa) received cuts that add (subtract) about 11% to (from) the percentage fee cut expected for switches to auditors of the same class.
2. Larger fee cuts were associated with switches from an auditor who charged more than expected, given a client's characteristics to an auditor who charged less than expected.
3. If the new auditor has more expertise than the old auditor, the client received a larger fee cut.
4. Clients experience an additional fee cut of about 1% for each additional bidding auditor.

The results lend some weight to the existence of a Big Eight premium. They also suggest that audit firms with a larger market share of a particular market enjoy a cost advantage in that industry which are at least passed on to clients in the form of lower audit fees [p.209].

Given the conflicting findings of prior research regarding the impact of auditor change on audit fees in both the private (Francis [1984]; Francis and Simon [1987]; Simon and Francis [1988]) and public sectors (Baber *et al* [1987]; Rubin [1987]), Roberts, Glezen and Jones [1990] developed a model to explain auditor changes in a sample of 271 public independent schools in Texas with a view to reconciling these contradictory findings. Their study analysed the role of audit fees in the auditor change process, whilst the previous studies cited focused the effects of auditor change on audit fees.

Auditor change was used as a dependent variable with the explanatory variables classified into the (1) client-auditor relations (auditor opinion, non-compliance reports for internal accounting control, school board and administration), (2) economic set (change in auditor, bonds issued in the current year, size of the

school district), and (3) the political set (changes in school board composition and superintendent tenure).

Auditor changes were significantly related to changes in the audit fee, receipt of non-compliance reports for internal controls, the school board, and the size of the school district. These findings imply that reports by independent auditors of material weaknesses in internal accounting and irregularities by the school board, are likely to result in replacement of auditors. Secondly, school districts changing auditors are more likely to have current-year audit fees that are lower than their previous year's fees than school districts that did not change auditors. This supports earlier findings of apparent fee cutting like Baber *et al* [1987] and Simon and Francis [1988]. The relation between auditor change and a reduction in audit fees may mean that [p.228]:

1. "Low-balling" activity occurred in the Texas school district audit market;
2. School districts changed to firms that can perform the audit more efficiently; or
3. Differences in audit quality exist in the Texas school district audit market, and school district officials may have obtained lower fees by knowingly contracting for audits of a lower quality.

In effect this study demonstrated that a change in auditor can be as a *result* of high audit fees and a *cause* for a change in audit fees. The evidence presented thus far does not give any pointers to the overall importance of each of the two observations.

Abdel-Khalik [1990] evaluated the viability of explaining the relationship between management advisory services and audit fees in terms of knowledge spillovers as adopted by Simunic [1984] and Palmrose [1986b] from clients' viewpoint. He questioned the reasoning behind clients paying a "penalty" for acquiring two products from one supplier instead of two suppliers [p.296]. *A priori*, the presence of knowledge spillovers should not be expected to result in an upward pressure in the cost of audits due to the resultant cost savings. He suggests that [pp.300-301]:

1. A client's ability to capture the benefits of knowledge depend on the client's evaluation of the cost of search and displacement of the current auditor.
2. The audit firm's incentive to pass on to the client the economic benefits of the knowledge spillovers depends on the audit firm's monopoly power in the relevant segment of audit markets.
3. Determinants of both type of incentives include the client's assessment of localised economic growth and competitive conditions.

The methodology adopted used an econometric analysis of the client's cost of self-selecting the incumbent auditor to provide both the advisory and audit services, by evaluating the probability that a client will self-select into either selecting the incumbent auditor or another auditor/consultant. Eighty four non-financial companies from five states were used in the analysis for the fiscal years relating to 1987.

The results obtained in this study differed from those of Simunic [1984] and Palmrose [1986b]: audit fees of the sample companies were not affected by the choice of sourcing management advisory services. This signified an absence of cost or benefit accruing to clients for selecting the incumbent auditors to supply management advisory services. The author concludes that [p.320]:

"The results are consistent with expectations in that it would not be rational for clients to pay higher audit fees simply because they also pay the firms of their auditors for additional sums of money for management advisory services."

Solomon [1990] questioned the methodology adopted by Abdel-Khalik [1990] and hence the generalisation of the findings beyond the sample of 84 firms. Some of the key criticisms raised were:

1. The statistical analysis adopted did not adequately take into account demand for advisory services.
2. The study was designed such that failure to reject the null hypothesis effectively confirms the author's position, i.e. that audit fees do not differ because of the decision to acquire non-audit services from either the incumbent auditor or some other choice.

3. No tests for non-response bias were performed as Abdel-Khalik had used a survey to gather the data.
4. No information was given on the criteria for inclusion in the sample of clients to which the questionnaires were sent.

In effect, Solomon suggests that the findings of Abdel-Khalik do not repudiate the basic reasoning given by Simunic [1984] and Palmrose [1986b]. Therefore, Solomon reasons that the cause of Abdel-Khalik's results was due to four primary reasons. Firstly, clients who purchased both audit and other services from the external auditor could have been problem firms that required other services along with an extraordinary quantity of audit services. Secondly, some advisory services can create changes in the client's organisation that have significant audit implications. Thirdly, the MAS market may not be competitive. Finally, the categorisation of fees may be arbitrary. The suggestion made was that the audit firm partners may manipulate the fee categorisation due to the compensation schemes and the power traditionally held by audit partners relative to management consulting partners.

Gist [1992] focused on regulatory aspects of the client that may explain variation in external audit fees. His approach involved inclusion of variables proxying regulatory aspects of the client over and above the standard control variables used by Simunic [1980] and Palmrose [1986a]. The inclusion of these regulatory variables was based on the premise that economies of scale exist for the audit firm in dealing with the regulatory complexity faced by the client.

The assumption made based on the work of Arnett and Danos [1979] and Danos and Eichenseher [1981], was that "once the auditor acquires the specialised knowledge necessary to service clients with increased regulation and disclosure requirements, he can service additional clients at a lower marginal cost than it took to service the first few"[pp.80-81]. This would give rise to economies of scale which would be reflected in a lower audit fee. Gist also linked regulatory complexity with the number of registration forms filed by the auditor on behalf of the client with the SEC. The nature of the client industry was used as a binary variable, with one assigned to companies in regulated industries and zero if the company is a member of a non regulated industry.

In a usable sample of 95 listed publicly-held companies, firms representing 263 observations supplied audit fee data for the period 1983 to 1985. Multiple regression analysis was applied to the variables using the audit fee as a dependent variable.

The variables for the regulatory aspects were all significant. The number of filings made with the SEC was negatively related to the audit fee, indicating possible knowledge spillovers in which work from registration of statements overlaps with audit work such that the latter is reduced. The industry regulatory complexity variable was positive, indicating that firstly, as regulation demands greater auditor experience, auditors will price in order to recover their investment. Secondly, the need for specialisation can create a barrier to entry in fewer auditing firms willing to perform a given audit. Therefore with only a few firms servicing this demand (or as this demand increases), the effect should be an increase in audit fees.

This study shed more light on the effect of regulation on audit fees. Whilst the evidence is rather mixed, there are some pointers to further research to examine which of the two explanations, scale economies or specialisation effects, is more dominant in explaining the relationship between regulation and audit fees.

Margheim and Kelley [1992] extended the work of Palmrose [1989] by surveying the perceptions of audit partners of the positive and negative effects of fixed fee billing arrangements and audit firms' responses to those effects. A questionnaire was sent to the partners of Big Six audit firms. A total sample of 203 usable responses were received from partners with an average of 20 years in public practice, who had participated in the setting of audit fees for an average of 13 years and were currently setting fees for approximately 21 clients per year.

Overall, the results showed a shift towards fixed fee billings as opposed to hourly billed arrangements. The respondents believed that fixed fee audits had lower fees and profits. Auditors responded by being more efficient in their work. This efficiency resulted from reducing work in low risk areas and asking the client personnel to do more audit work. In addition, the respondents believed that audit firms would reduce audit time budgets and that staff would feel more time budget pressure which could result in increased underreporting of time. There was disagreement on the effects of fixed fee billing arrangements on audit quality.

The results of the above study were not entirely consistent with Palmrose [1989]. She found that billing arrangements had no effect on external audit hours, whilst the perception of partners was that audit hours had been reduced. This may have been influenced by the sources of data: Palmrose gathered audit hours from client personnel whilst Margheim and Kelley surveyed partner opinions. However, the fact that fixed fee audits had lower fees than hourly billed audits was consistent with her finding.

Therefore, it is clear from these studies that the method of setting the audit fee is an important determinant of audit fees. Information on such arrangements can only be gathered through communications with auditors and their clients.

Davis, Richiutte and Trompeter [1993] replicated the work of Simunic [1984] and Palmrose [1986a] on the association between audit fees and non-audit services. Unlike preceding studies, they relied on actual audit hour and billing rates data provided by an accounting firm. The relation analysed was between (a) non-audit services and audit effort measured in terms of audit hours; and (b) non-audit services and audit fees.

The findings replicated the finding of Simunic [1984] and Palmrose [1986b] in finding a positive association between audit fees and non-audit services. Firms purchasing non-audit services required additional audit effort in terms of audit hours than those that did not. Secondly, all the non-audit services variables were not significantly related to audit fees.

Based on the assumption that demand for audit services is inelastic, these results were inconsistent with audit production efficiencies arising from knowledge spillovers, or that such benefits from efficiencies are passed on to the clients [p.147]. However, if the demand for auditing is elastic as suggested by Simunic [1984], then the evidence would be supportive of that notion.

Ward, Elder and Kattelus [1994] extended the existing municipal audit fee models (e.g. Baber *et al* 1987, Rubin 1987), by incorporating additional variables that reflect the unique aspects of the municipal accounting and auditing environment. These measures related to auditor expertise, year end adjustments passed by the auditor and the type of audit qualifications, and measures of agency costs related to the level of taxpayer funding services.

A multiple regression model was developed using 1988 audit fees from 92 cities and villages and 79 townships in the Michigan area. Generally a large proportion of the variables previously examined in Rubin [1987] and Baber *et al* [1987] were also found to be significant in explaining audit fees. A significant finding in this study was the statistically significant coefficient of the auditor experience variable. The fact that it was also positive suggests the existence of a fee premium for auditor industry experience [p.407].

Private sector studies give mixed evidence on the existence of a premium for auditor industry specialisation. For instance, Palmrose [1986a] was unable to detect a fee premium for publicly traded companies using a dichotomous measure of industry expertise based on client sales. On the contrary, Ettredge and Greenberg [1990] found that the first-year fee reduction was larger with the change to a more experienced auditor. This was consistent with lower fees due to auditor experience.

The explanation advanced for the difference in the findings seems to rest on the manner in which the auditor experience variable is measured. Fee premiums for experience were detected using dichotomous measures, and lower fees have been detected using a continuous variable [Ward *et al*, 1994, p.408]. Ward *et al* [1994, p.408] then argue that dichotomous measures capture reputation effects while continuous measures may better capture economies of scale.

The number of adjusting entries passed by the auditor at year end was also positively related to the audit fee. These adjustments therefore form an important element of the auditor's cost function in the public sector. The opinion qualifications were not significant and therefore supporting the evidence provided by Rubin [1987] and Baber *et al* [1987]. The agency costs were positively related to the audit fee. The findings were interpreted as meaning that higher audit fees are more prevalent in highly taxed environment, where public officials have incentives to demonstrate accountability.

The political variables showed no significant relation to the audit fee. The finding here confirmed the comment made by Baber *et al* [1987] that the link between audit fees and political competition is tenuous. The findings by Ward *et al* would seem to reinforce the argument that "auditing may not be the most effective monitoring device for many forms of political behaviour" [p.409].

Ward *et al* certainly added a new dimension to the nature of auditing in the public sector. One similarity between the public sector findings and private sector findings is the importance of auditing as a form of monitoring contracts.

Copley, Doucet and Gaver [1994] demonstrate that the audit quality and audit fees are mutually determined by the interaction of the client's demands for, and the audit firm's supply of, audit quality. Their approach used simultaneous equation estimation procedures based on the proposition that the audit fee and audit quality are simultaneously determined through the selection of the auditor. The first equation used a proxy for quality as the dependent variable with the audit fee as one on the independent variables. The proxy for quality was defined as "a latent variable" which was "unobserved," but only with respect to sign. [p.248]. The quality index was assumed to be linked to the outcome of the quality review by the responsible government official. In the second equation, the audit fee was the dependent variable, with the quality index used in the first equation as one of the independent variables. The data for the equations was drawn from 188 audit reports drawn from a population of audited federal assistance programmes and reviewed by the U.S. General Accounting Office in 1985.

Their results show that audit quality is negatively related to the audit fee. This suggests that the demand for audit quality is sensitive to the fee, and that higher audit fees may therefore reduce the levels of quality demanded [p.253]. In addition, the quality index coefficient was positive, suggesting that differences in quality are reflected in audit fees. This added further evidence to the existence of a brand premium for quality differentiated audits.

As far as prior research methodologies relying on single ordinary least squares equation, the authors results showed that the a two stage estimation procedure would results in differences in inferences between the two estimation procedures. These differences suggest "the presence of simultaneous equation bias within the audit fee/quality relation, which may explain the inconsistent results obtained for other quality measures employed in single equation audit fee analyses"[p.254].

Whilst the methodology adopted in this study has some merit, it is not possible to identify a similar measure that could be used in private sector studies that is available to individuals. This limits the practical applications of their methodology in research efforts focusing on the private sector.

Gist [1994] attempted to examine some specific factors that lead to large firms' economies of scale. The hypothesis tested were:

- H<sub>1</sub>: There is a significant and positive interaction effect between variables measuring audit firm size and client capital market activity on external audit fees.
- H<sub>2</sub>: There is a significant and positive interaction effect between variables measuring audit firm size and client industry membership on external audit fees.

These hypotheses were tested using a sample of 107 companies covering the years 1983-1985. The sample was split between the large companies (total assets greater than \$150 million) and small companies (total assets less than \$150 million) and by auditor size (Big Eight and non-Big Eight). Five regulated industries and five non-regulated industries were included in the sample. The regulatory variables were included in a multiple regression equation as test variables, in addition to those that had been identified (e.g., by Simunic [1980], Wallace [1984a] Simon [1985] and Palmrose [1986a]) as affecting audit fees.

The results supported the hypotheses stated above. The coefficient for capital market activity was negative and significant for clients with Big Eight auditors. In addition, the audit fee for clients with Big Eight auditors and involved in security registrations, had lower mean audit fees compared to when the auditors were not involved. The mean audit fee analysis also showed that the mean fee when a non-Big Eight audit firm was involved was higher than when a Big Eight audit firm had been engaged. The author states that this observation may be due to the fact that the security registration process may reflect the volume of work by the Big Eight firms and their specialisation [p.391].

The audit fees charged by both Big Eight and non-Big Eight audit firms appeared to be lower in regulated industries as compared to non regulated industries. The analysis of interactive effects showed that the relationship between audit fees and industry complexity was stronger for Big Eight auditors.

The conclusion reached by this study was that client regulatory complexity confers greater scale economies and opportunities to larger firms compared to small ones. This study confirmed the work of Gist [1992], Eichenseher and Danos [1981] and Danos and Eichenseher [1982, 1986] on the relationship between auditor concentration in certain industry and possible scale economies. These economies are passed to clients in the form of a lower audit fee.

A recent study by Pearson and Trompeter [1994] investigated the relationship between supplier concentration and competition in the market for audit services. This study concentrated on the unregulated industries, since the work of Danos and Eichenseher [1982, 1986] and Eichenseher and Danos [1981] showed that concentration is higher and more sustainable in regulated industries. They picked 140 life and health insurance companies and 101 property and casualty insurance companies for detailed examination of the following key issues:

1. The relationship between concentration and audit fees.
2. The validity of concentration as a surrogate for competition by examining competition among the market leaders (defined as industry specialists).
3. The effect of industry specialisation on fees by clients that switch auditors between market leaders and non leaders.

The methodology adopted did not differ substantially to the regression analysis used in all the other similar studies, which incorporated control variables found to have a significant effect on audit fees by, among others, Simunic [1980], Francis [1984], Palmrose [1986a] and Wallace [1989]. The surrogate for industry concentration was computed by summing the market shares of the three largest providers of audit services within an industry. A positive coefficient for this variable would indicate that high industry concentration is associated with high audit fees.

Their results showed that audit fees are significantly and negatively associated with concentration. This finding was consistent with the claim that high concentration leads to reduced price competition. The finding provided "more evidence of significant economies of scale accruing to market leaders" [pp.124-125]. A possible explanation rendered for this is that market leaders are able to use industry specialists more efficiently, thus providing "economies of expertise" [p.125]. Non leaders would then be forced to keep their fees down to compete with market leaders.

Their examination of auditor switches followed the same methodology as Ettredge and Greenberg [1990]. In the sample of 47 auditor switches, there was roughly an equal proportion of switches between market leaders and from non leaders to market leaders. Auditor changes between market leaders showed a significant reduction in audit fees and also in switches between non leaders. All had statistically significant negative coefficients. Unlike Ettredge and Greenberg

[1990], they did not detect a statistically significant fee cut for companies switching to market leaders from non leaders.

The above findings provided evidence of significant price competition among market leaders for each other's clients. Further, they support the claim that market leaders are able to earn a return on an investment in reputation. This interpretation "would support the argument that the market for audit services can be characterised as monopolistically competitive in which there is limited product differentiation and that certain clients are willing to trade off the opportunity to receive the audit services of a specialist" [p.128]. Additionally, market leaders do not have to offer significantly lower fees relative to non leaders to attract clients away from nonleader. They can maintain their relatively high audit fees by cashing in on their higher reputations.

### *Summary of US Studies*

The research from the US is growing in number and in sophistication of methodologies used in studies on audit fees. The variables used to explain audit fees have been extended and the analysis of audit fees has been extended to cover the public sector. The body of literature examined above is unanimous in certain explanatory variables of audit fees, whilst in others the evidence is mixed and there are a number of unresolved issues. Specifically, in both the public and private sectors, audit fees are found to be significantly influenced by auditee size (measured in terms of assets, turnover, population) and complexity (number of audit reports, receivables, inventories, number of subsidiaries). In the private sector, the effect of auditor changes leads to a significant reduction in audit fees which may extend beyond the initial year of engagement. The public sector evidence is mixed with some studies showing a reduction whilst others do not.

The existence of the Big Six premium is unresolved although there is strong *a priori* justification for its possible existence. Simunic's early study identified one firm as charging a premium. Subsequent studies in the private sector (Palmrose [1986a], Francis and Simon [1987] and Ettredge and Greenberg [1990]) all point out the existence of a premium. In contrast, public sector studies do not find a Big Eight premium.

Auditor expertise/ industry specialisation also yields mixed results. The two competing explanations are the reputational effects which would result in higher fees, and the economies of scale argument which leads to lower fees for industry specialists. The earliest study on this issue by Palmrose [1986] found no

premium or fee reduction whilst later studies by Gist [1992, 1994] and Pearson and Trompeter [1994] all found a premium albeit for different reasons. The major point of departure in these studies is that Gist explains the existence of a premium in terms of reputation and auditor expertise, whilst the latter argue that concentration in certain industries leads to a premium for market leaders.

The influence of MAS on audit fees also remains unresolved. Abdel-Khalik [1990] contradicts the findings of both Simunic [1984] and Palmrose [1986b]. However, the joint-supply theory advanced by Simunic [1984] was severely weakened by Palmrose [1986b] results. What is perhaps needed is input by practitioners on whether there is a link between the cost function of audit fees and MAS.

The proxies of audit risk are not yet clear. Financial risk identified in public sector studies is significantly related to audit fees. Other measures such as losses, ownership structure and audit report qualification, yield mixed results. This points to difficulty in identifying the nature of audit risk.

## **4.2 United Kingdom**

Briston and Perks [1977] estimated the level of audit fees paid to external auditors in the U.K. for the period 1976-77. A sample of 50% of the largest 500 companies was used to establish the average audit fee as a percentage of turnover along the same lines as done by Hobgood and Sciarrino [1972a, 1972b]. Using this percentage as a standard for companies of different sizes (as measured by turnover), the total audit fee for listed companies were put at £109,7 million for 1975-76. The authors also stated that the estimate could have been understated by as much as 20%.

Fanning [1978] criticised the approach used by Briston and Perks on the basis that in his (Fanning's) survey of 450 listed companies, "there was no such thing as a common percentage of sales used to assess charges" [p.47]. Fanning's analysis showed that fees charged ranged from 0,02% to 0,09% of turnover. Generally, companies with turnovers between £45 and £55 million had audit fees averaging 0,08% of turnover. Companies with turnover of £5 million or less had an average of 0,38% of turnover. His estimate of total audit costs for all listed companies (excluding the top 100 companies ranked by market capitalisation) was £212,85 million for the 1976-77 period. This was well above the estimate of Briston and Perks [1977] even after taking into account the approximated underestimate extent of 20%. Fanning assumed a general increase in audit fees

ranging from 15 to 30% to compute the estimated audit fees of listed companies as between £307 and £347 million for 1978.

This study showed that there was a variation in the percentage as had been observed in Hobgood and Sciarrino [1972a, 1972b]. However, the work of Hobgood and Sciarrino [1972a, 1972b] showed larger firms having a lower average of audit fees as a proportion of sales. It would seem that the work of Fanning indicated that audit fees, as a percentage of sales, bore a positive relation with size as measured by sales.

Taylor and Baker [1981] investigated major publicly available variables which would explain variation of audit fees of manufacturing companies in the UK. Using a sample of 126 companies with sales greater than £100 million and applying factor and regression analysis, they observed that total assets and the number of subsidiaries explained the most variance in the two factors of size and complexity. The correlation with the audit fee improved for each of the size variables when the square root transformation was used [p.58]. An interesting observation was that the intercept term was consistently negative, contrary to the expectation that there is a fixed cost to an audit [p.60]. The authors speculate that the reason for this could be that the fixed cost is small or negligible [p.60].

Taffler and Ramalingam [1982] designed a three variable model based on a sample of 192 British manufacturing firms. The model used turnover, auditor size and industry affiliation as measures of firm size, auditor reputation and complexity respectively. Industry and turnover showed a significant positive correlation with the audit fee, whereas auditor size showed a negative correlation. In addition, the study revealed that small companies were associated with lower audit fees, and joint audits with higher ones. In the period covered by the study (1973-1977) audit fees increased by 29%. The results suggested that there were economies of scale to large auditing firms.

Ramzy [1988] solicited opinions from financial directors and auditing firm partners through a questionnaire on the determinants and the procedure for setting audit fees. The factors which both parties considered to be important were used to design a model for predicting audit fees for a sample of 65 manufacturing companies in the UK. Debtors, the number of subsidiaries, and employment costs were the most significant explanatory variables affecting audit fees. The increase in audit fees was not at the same rate as the increase in size due to economies of scale.

Chan, Ezzamel and Gwilliam [1993] extended the research on the determination of audit fees done in the UK by including extent of ownership control, location of client and diversification as additional variables. Secondly, semi-structured interviews were carried out with partners of Big Six firms to solicit other "relevant issues." A sample of 280 companies was chosen for audit fees relating to the year ending 31st December 1987.

The most important variables were sales, profitability, audit delay (the length of time between year end and the signing of the audit report), diversification, ownership control, location, auditor size and number of subsidiaries. The auditor variable was significant across all size of entities indicating the existence of a Big Eight premium in both large and small segments of the market. This observation provided further evidence in the UK that large auditors offer a differentiated product in terms of quality and degree of sophistication which is reflected in the price. Contradictory to Firth [1985], the audit delay and unsystematic risk (risk specific to the client) are significant.

Pong and Whittington [1994] charged that the linear regression model was a deficient *ad hoc* model which prior researchers had only discussed cursorily. They argued that the transformation of the dependent variable to a logarithm implies a multiplicative model when in essence linear regression is additive. They added that prior models did not adequately capture the interaction of independent variables such as auditor size, client size and complexity.

To deal with these shortcomings they suggested that a quadratic model would be more suitable for capturing size effects, especially economies of scale. Also, the interaction between independent variables was captured by taking the product of these variables. This model was applied to 3349 observations gathered between 1981 and 1988 amongst listed companies on the London Stock Exchange. The longer time period allowed for analysis of the possibility of a time trend in the real (inflation-adjusted) level of audit fees.

The overall results were not significantly different from prior international research. Auditee size as measured by either total assets or stock plus debtors had a significant effect on audit fees. Note that other researchers such as Simunic [1980], Francis [1984], Firth [1985] and Chan *et al* [1993] among others, used debtors and stock as measures of balance sheet complexity. Of particular interest was that the quadratic term for assets had a significant negative coefficient, suggesting fairly strong evidence of economies of scale with respect

to auditee size. Similar to Chan *et al* [1993], the results identified a Big Eight premium and a higher charge for clients with a greater number of subsidiaries.

“Lowballing” was also prevalent especially for newly-appointed auditors who were not members of the Big Eight. The profit variable had an effect which was sensitive to model specification. In its unadjusted form, it tended to have a positive effect on audit fees suggesting that the audit fee may be based on the client’s ability to pay. When it was reduced to a dummy variable, small loss making auditee firms receive a discount on their audit fee, but larger loss-making firms are charged a premium by their auditors.

Probably, the most significant finding of this study was the existence of economies of scale in auditing. However, in the final analysis, the modified version of the usually adopted regression analysis used in this study did not offer any major difference to previous studies.

### 4.3 Australia

Pound and Francis [1981] investigated the extent of differential pricing between (a) Big Eight and non-Big Eight firms and (b) within the Big Eight group of accounting firms. The sample covered 458 listed companies covering six industry groupings. Using a Spearman Rank Correlation analysis, asset size was found to be a satisfactory explanatory variable for audit fees. Only one industry, builders supplies, evidenced systematic price differences. In general the Big Eight group had higher prices than the non-Big Eight group of accounting firms. Within the Big Eight group, there was no evidence of systematic pricing policy difference.

The overall conclusion was that in the accounting services market, the emphasis may be on non-price rather than price competition [p.363], which means that accounting firms seek to differentiate their products through other means, such as non-audit services [p.368].

William and Turpie [1983] criticised the conclusions reached by Francis and Pound [1981], charging that the methodology employed and the data used could not support their propositions. Specifically, they charged that:

1. the data used did not include costs and mark-up which shows translation of profit goals into pricing behaviour;
2. no attempt was made to measure homogeneity of quality within each group of auditors; and

3. there was no presentation of comparisons of non-audit services for non-Big Eight auditors.

As far as the critics were concerned, they doubted whether differences in the level of non-audit fees amount to product differentiation of audit services as both are separate and divisible [p.319]. The reason for this was that it is possible a company can employ a non-Big Eight firm for audit work, and a Big Eight firm for non-audit services.

Francis [1984] addressed the empirical question, how audit prices are affected by auditing firm size. A secondary investigation assessed the impact of a change in auditor on audit fees. Thirty companies were selected from each of the years 1974 to 1978 for a total sample of 150 companies. Companies were selected at random from the industrials listing of the Sydney Stock Exchange. The intent was to replicate the seminal work of Simunic [1980] in the Australian context. Three control variables were not available: percentages of foreign assets, number of operating subsidiaries and number of years the audit firm had been engaged by the client. In addition, percentage of assets in current assets was used rather than percentages of assets in receivables and inventories. The remaining five control variables used by Simunic were retained. Three additional control variables were used. These pertained to liquidity and financial structure: the quick ratio and equity to debt ratio. The third new variable, month of year end, was introduced to control for off-peak pricing.

Assets, number of subsidiaries, percentage of assets in current assets and auditor variables, were all significant for the total sample. When the sample was divided between the small and large companies, only the percentage of assets in current assets was not significant for small companies. It is worth noting that the auditing firm size was significant across company size and was positively related to audit fees.

Of the twenty six auditor changes examined, twenty one had higher than predicted fees and five had lower than predicted. A time series analysis of audit fees was performed to compare the audit fee for the first and second years of the engagement following the change in auditor. A price level adjustment was made to compare audit fees between consecutive years. In effect, the results did not support the existence of price cutting.

Francis's findings reinforced the argument that there is a differentiated demand for audit quality. The higher audit prices by the large audit firms were an indication of product differentiation by the large audit firms. This Australian finding was consistent with the finding of Taffler and Ramalingam [1982] in Britain, but contradictory to Simunic [1980] for US research. Reconciling his findings with those of Simunic [1980], Francis states that the main reason behind the differences could be due to the fact that there are economies of scale in the US market which offset higher prices related to product differentiation [p.148]. Hence, "if such scale economies do not exist in the British or Australian markets, pricing there would only reflect product differentiation; whereas, the effect of product differentiation on US audit prices may be offset by scale economies" [p.148].

The test results in price cutting were at variance with the alleged price cutting behaviour to gain new clients. The higher initial audit fees indicate that there are initial audit start-up costs which are recovered immediately [p.148]. There was no evidence of future fee raising. Francis states that the findings are not necessarily inconsistent with low-balling because "it would still be possible for initial audit costs to exceed initial audit fees, even if initial audit fees are higher than subsequent fees" [p.148].

Francis and Stokes [1986] attempted to reconcile the contradictory findings of Simunic [1980] and Francis [1984]. Simunic [1980] found no significant differences in audit prices between Big Eight and non-Big Eight audit firms in the US market for both a sample of small (defined as sales less than \$125 million) and large (sales greater than \$125 million) companies. On the other hand, Francis [1984] observed higher Big Eight prices in samples of both small and large companies. Control variables used were similar to those in Francis [1984], with an additional variable to control for off-peak pricing. The total sample was 192 companies split equally between large and small.

Again, the size and complexity control variables (assets, number of subsidiaries, inventories and receivables), audit firm and audit risk proxy variables (gearing and audit qualification), were significant in the small auditee segment, whilst the audit risk and auditor variables were not significant for the large segment. Moreover, for the large auditees, auditee profitability was significant.

The results indicated that Big Eight firms charge significantly higher audit fees in the small auditee market. This was consistent with Palmrose [1986a] and Francis [1984] but contradictory to Simunic [1980]. However, the insignificance

of the auditor variable in the large segment was in line with Simunic's [1980] finding. The finding in the small client segment indicated the existence of product-differentiation by the Big Eight firms [p.392]. In the large auditee segment, the finding would tend to refute the evidence of cartel pricing by the Big Eight firms.

Referring to the inconsistency between Francis [1984] and Simunic [1980], Francis and Stokes showed that the Big Eight premium is sensitive to the definition of auditee size. Therefore, Simunic's sample of small audit firms may have been influenced by the presence of large firms [p.392].

Barkess and Simnet [1994] provided Australian evidence on the association between audit fees and non-audit services. The model, based on information from 2094 observations over the period 1986-1990, specified non-audit fees as a dependent variable regressed against assets, sales, audit report qualification, auditor size, industry classification and audit fees. The results of their regressions were that audit fees were significantly and positively correlated with other services similar to Simunic [1984] and Palmrose [1986a]. This did not support Abdel-Khalik's [1990] expectation that clients are more sophisticated and are unwilling to pay more for the provision of both services from the same supplier, than from two different sources.

#### **4.4 New Zealand**

Firth [1985] focused on explaining cross-sectional differences in the audit fees of companies whose shares were traded on the New Zealand Stock Exchange (NZSE). The sample consisted of 96 companies listed in the manufacturing sector of the NZSE. The other sectors were omitted because they could weaken the explanatory power of explanatory variables due to different operating characteristics [p.28]. Compared to the studies done before this one, Firth included a variable for unsystematic risk, as a proxy for audit risk that may be borne by the auditor. Total assets, accounts receivable and unsystematic risk were all found to be statistically important in explaining audit fees. The significance of total assets concurred with the findings of Simunic [1980], Wallace [1984a, 1984b] and Taffler and Ramalingam [1981].

To test for the existence of a Big Eight premium, the sample was divided into small and large firms and the regression rerun with auditor size as the dummy variable. Similar to Simunic [1980] but contrary to Taffler and Ramalingam [1981] the auditor variable was not significant, adding to the suggestion that

large audit firms do not charge a premium for their services. A possible reason advanced for this is that the use of international names of accounting firms was allowed only after 1983. This may indicate less “brand-name” recognition and thus partially explain the lack of evidence of product differentiation in New Zealand [p.34]. The author concludes that although there was a high level of concentration within the auditing profession in New Zealand, this did not lead to monopoly pricing [p.36].

#### 4.5 Canada

As part of their survey of US manufacturing companies' audit fees, Hobgood and Sciarrino [1972a] included 133 Canadian companies. A similar trend to the US companies was observed with smaller companies paying on average 0.07% of their annual sales in audit fees whilst larger companies paid between 0.02% and 0.05% of their annual sales.

Chung and Lindsay [1988] replicated Simunic's [1980] study in the Canadian context. All variables used by Simunic were included, with the exception of the “subject to” opinion which was discontinued in Canada in 1980 [p.30]. The variables measuring size, using the number of subsidiaries and complexity, using percentages of foreign assets, accounts receivable and inventories, proved to be the best predictors of the audit fee. When the sample was partitioned on the basis of size, there was no change in the significance of the variables.

Of special interest was the auditor variable which was positive, but not significant in the small auditee market, but negative and still not significant in the large auditee market. In general, the results did not support the allegation that the Big Eight audit firms are monopolising the market for audit services in Canada [p.43]. This finding is similar to the conclusion of Simunic [1980] and Firth [1985] about the US and New Zealand audit services markets respectively. This finding goes against observations in the UK [Taffler and Ramalingam, 1982], US [Palmrose, 1986a; Francis and Simon, 1987] and Australia [Francis, 1984].

A more comprehensive study of the determination of audit fees was done by Anderson and Zeghal [1994]. This paper examined in a greater depth pricing differences between Big Eight auditing firms after controlling for auditor size, industry effects and the relationships between internal and external auditor as done by Wallace [1984a], Simunic [1980] and Chung and Lindsay [1988]. In addition, the analyses was structured to examine the two competing hypothesis for audit quality: audit firm size model and reputation or brand name model.

The study covered data from 172 firms giving 374 observations for the years 1980, 1982 and 1984. The period 1980 covered a time period when auditing firms were not allowed to advertise, whilst 1982 and 1984 observations capture the post change structure.

Similar to Chung and Lindsay [1988], Anderson and Zeghal found that the size (measured by total assets) and complexity (number of subsidiaries, inventories and receivables) were significant determinants regardless of company size. The regression coefficient of the audit quality variable was positive and statistically significant for the small auditees and insignificant for the large group when the variable was measured using a continuous metric. This was interpreted as suggesting evidence of price competition, product differentiation across all market segments, and economies of scale in the large auditee market [p.202].

Further analysis of pricing differences across the Big Eight firms showed no significant pricing differences across firms in the large auditee segment, but pricing differences were detected in the small auditee segment. This indicated that the pricing structures for small auditees are distinctive within the Big Eight group which is normally treated as a homogeneous group in most studies. The industry variable was only significant in the small auditee segment and only the transport, communication and utilities industry proved to be significant. The authors do not venture a probable explanation based on the uniqueness of the industry for the observation.

This study shed some more light onto the effects of audit firm size, industry, and reputational effects on Canadian audit fees. One of its major contributions was demonstrating the superiority of using a continuous variable for measuring audit quality over the widely used dummy variable. Moreover, it confirmed the significance of auditee size and complexity as key determinants of audit fees.

#### **4.6 India**

Simon, Ramanan and Duger [1986] applied the methodology developed in prior studies to 117 nongovernment-owned Indian companies. The audit fee was regressed against assets, inventory, receivables, number of subsidiaries, profitability, audit report opinion and auditor size. A variation from prior studies involved the allocation of the binary variable to the audit report variable. All prior studies which included this variable had not distinguished between reasons for qualification. This study only gave "1" if the qualification related to weaknesses in internal controls. Profitability and audit opinion were the only

insignificant variables. In essence, audit fees demonstrated a close association with company size, complexity and risk [p.35]. Furthermore, the existence of a Big Eight premium implied that the Big Eight firms in India commanded higher fees due to product differentiation, as also observed by Francis [1984] and Francis and Simon [1987].

#### **4.7 Singapore**

Low, Tan and Koh [1990] applied earlier pricing models to a sample of 291 companies during 1986. The minor variation on prior models was the inclusion of contingent liabilities as indicators, together with gearing and liquidity, of going concern difficulties.

The models predictive power ranged from 11% for industrial and commercial concerns to 98% for property companies. The size variable measured by total assets was the most important variable across all sectors, thereby supporting evidence from the US, UK, India, Australia, New Zealand and Canada. The gearing variable was significant only in the properties and mining sectors, whilst the inventories and complexity variable were only significant in the hotel industry. A breakdown of the industrial and commercial sectors revealed that liquidity is an important determinant in construction companies, complexity in manufacturing, loss and complexity for service entities and contingent liabilities and inventories for trading sector.

A curious omission in this study was the auditor type variable which had been examined in all previous studies. The authors did not even make a passing comment on the possible effects of this variable on the level of audit fees.

#### **4.8 International**

Haskins and Williams [1988] investigated whether factors identified by preceding researchers as being associated with audit fees were consistent (a) across countries and (b) amongst Big Eight firms (across firms). Audit fees from 410 large companies in Australia, Ireland, New Zealand, the UK and the US were analysed.

Size and complexity variables were significant in four out of the five countries, with New Zealand being the only exception. This is rather surprising as Firth [1985] had found size and complexity variables to be an important determinant of audit fees. However, both sets of variables were significant across all Big Eight firms.

These results demonstrated that, firstly, pricing may be related to homogeneity of accounting practices and professional accounting environments. Secondly, the theory of product differentiation via price may not be valid among Big Eight firms. It would thus appear that “there is a great deal of uniformity in Big Eight fees across countries with similar accounting and auditing environments and across the firms” [p.190].

Simon, Teo and Trompeter [1992] provided a comparative study of audit services market using 357 companies from Hong Kong, Malaysia and Singapore. The basic research approach relied on linear regression models of audit fees determinants similar to that of Simunic [1980] and all the work that flowed from that piece of research. Each country had its own separate estimated regression equation with the following variables included: total assets, inventories, receivables, subsidiaries and auditor size. All the variables included were significant in all three countries, with the exception of the auditor variable which was not significant in Malaysia. Furthermore, the Big Eight audit fees were 26% and 31% higher in Singapore and Hong Kong respectively.

The explanation for the insignificance of the auditor size variable in Malaysia was based on the regulatory and business environment in that country. In substance, the results implied less or reduced demand for quality differentiated audits because [p.239-240]:

1. The national regulatory environment results in international investors being less involved in the financial markets. Therefore, there is less perceived need for financial statements to be audited by firms with an international reputation.
2. Many Malaysian companies are family-controlled, which may result in less demand for financial statements audited by a reputable firm since the majority of shareholders have other sources of information on the performance of these companies.

The results of this study suggest that there is considerable similarity in the influence of size and complexity variables in these developing countries and the developed ones [p.239]. The influence of the size of the auditor continues to give mixed and inconclusive evidence which may be influenced by socio-legal factors.

## 4.9 Chapter summary

The chapter demonstrates that the techniques used in the study of audit fees have improved from merely comparing averages, to using more powerful factor, probit, and multiple regression analyses to understand the determination of audit fees. Due to these advancements there has been a marked improvement in the usefulness of research in this area.

The results of the studies give evidence of some consistencies in the determination of audit fees, but also leave certain issues unresolved. The most consistent similarity across different countries is that audit fees are, as expected, a function of size, complexity and risk [Simon, et al, 1986, p.35]. Although most studies suggest that complexity is important, it is not particularly clear whether this is complexity in terms of the scope of the operations, or the balance sheet composition which has the most significant effect on the level of audit fees [Chan *et al*, 1993,p.765]. Evidence as to the effect of auditee risk measured in terms of gearing, liquidity and profitability is also mixed. There is also no consensus on the impact of auditor size on audit fees. The most common results show that the size may be irrelevant, i.e. clients do not distinguish between different firms, or relevant in which case there would be economies of scale and reputational effects which will be captured in the audit fee. The existence of the auditor size premium may be influenced by country-specific factors in spite of increasing globalisation of auditing.

Therefore, major research findings on audit fees so far indicate that:

- The size of the audit fee is largely explained by client characteristics associated with audit effort and audit risk;
- Companies appear to be willing to pay a premium for audits performed by Big Six firms;
- Auditors may not fully adjust audit fees to reflect underlying client risk; and
- Auditors discount the fees they charge new audit clients.
- Clients who receive MAS from their auditors seem to pay higher audit fees.

However, the evidence is far from being reasonably conclusive. It therefore means that this study will focus to some degree on the unresolved issues in prior studies whilst adding further weight to existing determinants.

## 5. THEORETICAL FRAMEWORK

### 5.1 Introduction

This chapter aims to identify the theoretical framework within which audit fees are determined. An *a priori* justification for a link between audit fees and various factors is presented together with the definitions of the variables expected to affect audit fees. In essence, the framework links the fee considerations listed in the Code of Professional Conduct for auditors with specific measurable client and auditor characteristics.

Audit fees have three primary components [Wallace, 1989, p.4]:

1. number of hours of auditing service;
2. price per hour; and
3. percentage realisation rates (i.e., collection of billings)

In developing an explanatory model of the audit fee function, three classes of factors exist: auditor-specific factors, general factors affecting the auditee company, and auditor-specific effects [Pound and Francis, 1981, p.360]. These factors are expected to influence the primary components of the audit fee. General factors (e.g. economic conditions) are assumed to be randomly distributed with no significant predictable effect on individual auditee companies.

### 5.2 Factors determining audit fees

The factors expected to influence audit fees can be split broadly between those relating to the company being audited, and the auditor carrying out the audit. This being an analytical and exploratory study, the variables included in the model were based solely on prior research in overseas countries. Whilst the practice of auditing in those countries may be influenced by cultural, legal and socio-economic factors [Simon *et al*, 1992], these may be offset by the growing internationalisation of auditing. As a result there are bound to be similarities between different countries irrespective of the state of development.

As a matter of fact, historically, the South African cultural, legal and socio-economic structure has been largely influenced by events in the developed world, particularly the UK. The Companies Act, which prescribes governance issues in business, was largely moulded by UK legislation and case law. Hence there is an expectation that the UK research may be more representative of what could happen in South Africa. Due to a similar link with the UK, research from Australia, Canada, Hong Kong and New Zealand may also be of more relevance to the thesis than the Indian, Malaysian and US research. This is despite of the fact that the former two countries are in a similar stage of economic development as South Africa.

## 5.2.1 Client factors

### 5.2.1.1 Size

Larger organisations enter into more transactions that may require more review time. Agency theorists [Jensen and Meckling, 1976; Watts and Zimmerman, 1983] who view the audit as means of reducing agency costs, deduce that when agency costs are greater, there is increased demand for a higher level of audit quality. Their proposition is that as firm size increases, so do agency costs. An effective monitoring mechanism would be to engage a high quality auditor to monitor contracts. This analysis leads to the conclusion that larger firms are more likely to engage large high quality auditors who will charge a premium.

Johnson and Lys [1990, p.283] also argue that large auditors are expected to mix with clients of a similar size to achieve efficient utilisation of resources. Comments by partners in South Africa indicate that large audit firms prefer large clients because they are relatively cost-efficient as clients. Larger companies are generally better organised with a better infrastructure, their own computer systems, and often their own internal auditors [*Financial Mail Top Companies Survey*, July 26, 1991, p.289]. Tom Wixley, Senior Partner at Ernst and Young, adds that

“Big clients are more efficient if you look at it on a per partner basis. Our scarce resources are partners and one partner can handle more in the way of large fees in large audits than in small audits” [*Financial Mail Top Companies Survey*, July 26, 1991, p.290].

However, Francis and Wilson's [1988] analysis of agency costs, client size and auditor choice leads them to conclude that "neither client size/growth nor agency costs explain a large portion of the demand for larger-sized Big Eight auditors." This is in spite of the general finding of research dealing with auditor selection which found that larger corporations are more likely to select larger well known auditing firms [Danos and Eichenseher, 1986]. It is still a valid proposition to expect the audit fee to be directly related to size, even within the agency theory framework.

The choice of the best proxy for size is problematic as there is insufficient guidance on a generally accepted measure of size. Elements of financial statements that may be used as indicators of size are turnover, total assets, gross profit, net profit and shareholders equity [SAICA, 1984]. Prior research in audit fees shows lack of consensus on the acceptable measure of size. Wallace [1984a] used operating revenue, Simunic [1980,1984] used total assets, Elliott and Korpi [1978] used sales, net income before tax, equity and net income, Francis [1984] used sales.

According to Simunic [1980, p.172], total assets is more of a reliable measure because "auditors have traditionally approached the audit process through the balance sheet relying on the fact that verification of balance sheet indirectly verifies reported income." In contrast, sales is related to an audit of transactions [Pong and Whittington, 1994, p.1075]. SAICA [1984, para. 103] prefers the use of more stable indicators naming sales and total assets as such stable indicators compared to net profit. The choice of the size variable is also dependent on the dominant nature of the auditee's business [Elliott and Korpi, 1978]. Ramzy's [1988] survey of auditors and financial directors found a strong preference for the use of total assets and sales as indicators of size [p.115]. This study uses total assets (ASSETS), turnover (SALES), and net income before tax (NIBT) for measuring size.

Size variables have been found to be the most consistent and significant explanatory variables for audit fees across different countries. A positive relationship between auditee size and audit fees has been documented in many prior studies: Simunic [1980], Palmrose [1986a, 1986b] in the US; Francis [1984] in Australia; Firth [1985] in New Zealand; Taylor and Baker [1981] and Taffler and Ramalingam [1981] in the UK; Low *et al* [1990] in Hong Kong; Chung and Lindsay [1988] and Anderson and Zeghal [1994] in Canada; Simon

*et al* [1993] in Malaysia and Simon *et al* [1986] in India. This relationship was also observed in public sector organisations by Baber [1983] and Rubin [1987].

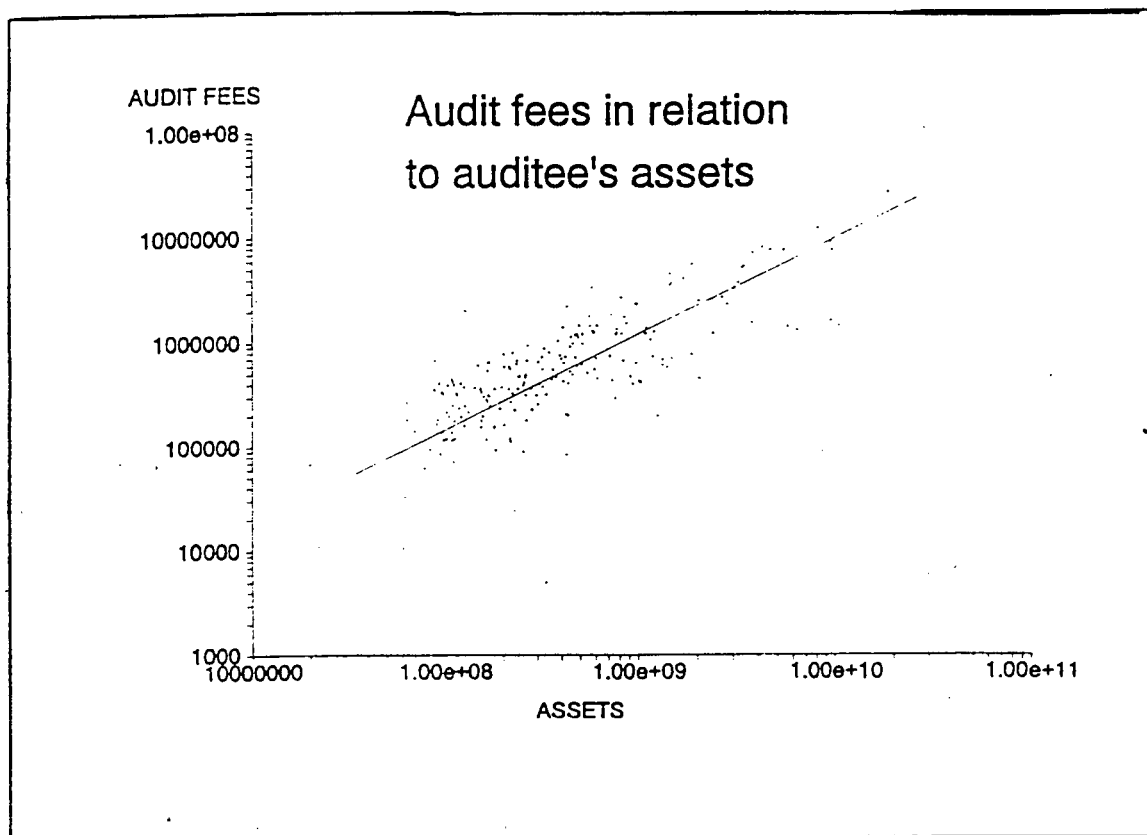
These studies detected a non-linear relation between audit fees and size which justifies a logarithmic transformation of the SALES and ASSETS measures in this model. (NIBT cannot be transformed either by the logarithm or square root functions as profits can be negative). In addition, because auditing is based largely on statistical sampling, the sample size required to keep audit risk at an

acceptable level increases at a decreasing rate [Simunic, 1980, p.172].

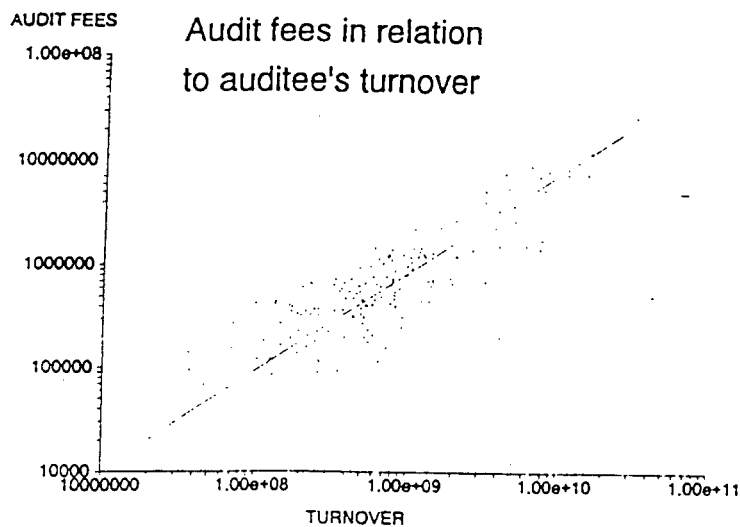
Empirically, Hobgood and Sciarrino [1972a, 1972b] showed that the audit fee increases at a decreasing rate when size increases. Firth [1975, p.26] explains that economies of scale in the auditor's production function and the fact that large companies are likely to have more sophisticated internal audit procedures that may reduce the workload of the external auditor, the audit fee is likely to be a decreasing function of size.

Gloeck, De Jager and Venter [1993, p. 105 & p.121] regressed total assets and turnover against the audit fee for 200 listed companies featured in the *Financial Mail Top Companies Survey*. The graphs depicted below indicate a reasonably direct correlation between the two size variables and audit fees.

**Figure 6: Audit fees in relation to auditee total assets**



**Figure 7: Audit fees in relation to auditee's turnover**



The graph for the relationship between turnover and audit fees (figure 7) shows that the angle of the general trend line for the assets/ audit fees graph, was significantly flatter than the same line representing the turnover/audit fee relationship. The above discussion leads to the first null hypothesis stated below:

***Hypothesis 1 :*** *Audit fees are not related to client size.*

***Hypothesis 1a:*** *Audit fees are positively related to client size.*

### 5.2.1.2 Complexity

Complexity arises from the organisational structure of the client. Two aspects of complexity dealt with in literature are: scope of the client operations and balance sheet composition [Chan *et al*, 1993]. Ramzy [1988] detected some similarities in the measure of complexity between financial directors and auditors: both chose the number of subsidiaries and the number of countries in which the client operates as key indicators of complexity. These attributes are used more as measures of scope complexity.

#### ***Scope complexity***

Scope complexity measures the degree of centralisation and diversification of an entity's operations [Chan *et al*, 1993]. S289 of The Companies Act requires any company that holds control in another company to produce consolidated financial statements consisting of a balance sheet, income statement and cash flow statement incorporating the assets, liabilities, income, expenses and cash

flow of the company it controls. GAAP Statement AC110 [SAICA, 1992] also requires the equity accounting of associate companies (i.e. where there is significant influence) and producing equity accounted financial statements. The auditor of the investor company is required to report on the consolidated financial statements. The auditor has to ensure that generally accepted auditing standards are fully applied by the auditors of the entities that have to be consolidated and equity accounted [SAICA, 1990].

There is considerable effort involved in co-ordinating an audit of such a diversified group. Describing the task of the lead auditor in a group audit, Tom Wixley, Senior Partner of Ernst and Young, says,

“ It amounts to project management. For a client like Transnet where we are the lead auditors, our lead partner is engaged full time [in] simply co-ordinating all the auditors in the group.” [*Financial Mail Top Companies Survey*, July 26, 1991, p.290]

It is expected that the audit fee will be related to the number of entities consolidated and/or equity accounted. There are a number of reasons why a group with a large number of subsidiaries might pay a higher audit fee than a single company of comparable size. Reasons given by some audit partners in the UK interviewed in Chan *et al* [1993, p.767] are that:

1. There are costs associated with the audit of separate financial statements each of which has to comply with a variety of statutory and professional requirements for disclosure. These statutory levels may also act to reduce materiality levels for each subsidiary below those in force for the group as a whole and therefore require a greater extent of audit testing.
2. There may also be additional monitoring and inquiry costs if not all subsidiaries and associates are audited by the group auditor.
3. The group auditor may have to pay particular attention to intragroup transactions, the taxation implications of pricing policies and existence of related party transactions. These concerns will be more pressing if subsidiaries are not wholly owned and the need to protect minorities has to be taken into account.

4. If subsidiaries operate in a variety of different fields there are likely to be additional learning and expertise costs and some economies of scale in testing may be lost.

Measures which can be used as proxies for scope complexity are the number of operating locations [Wallace 1984a], number of principal subsidiaries, location of plants, the degree of centralisation of financial control, the degree of computerisation of accounting records, nature of the client's business, type of industry, number of product lines, changes in client's structure, complexity of transactions [Ramzy, 1988], extent of diversification [Chan *et al*, 1993], number of business segments [Chung and Lindsay, 1988], and proportion of foreign subsidiaries to total subsidiaries [Simunic, 1980; Simon, 1985].

For the purposes of this study, the scope complexity variable will be captured using the number of consolidated subsidiaries and equity accounted associate companies (ENTITIES). These are preferable because they are easily available and observable. A problem with subsidiary companies is that financial statements do not make a distinction between operating and dormant subsidiaries. Dormant subsidiaries should not contribute significantly to the level of audit fees. In addition there is no indication of the different sizes of the subsidiaries.

An obvious omission in the discussion of consolidated financial statements in the preceding paragraph are joint ventures. GAAP Statement AC 119 on joint ventures [SAICA, 1993] requires that entities which are proportionately controlled be proportionately consolidated. The basic reason for the omission was that in the period covered by the study there were fairly few joint ventures. In the sample, there is only one company that had a joint venture.

Taylor and Baker [1981, p.57] argue that complexity variables should not show economies of scale, although the auditor may experience a learning curve in dealing with numerous subsidiaries and foreign operations. However, due to heteroscedasticity problems, the variable for scope complexity was transformed using the square root function.

### ***Balance sheet complexity***

With respect to complexity of the balance sheet, the focus is on asset items traditionally perceived to be more problematic to audit. Debtors and inventories pose the greatest verification problems for auditors [Woolf, 1979].

### ***Stock***

Taylor, Kritzing and Puttick [1992, p.263] emphasise the importance of stock verification because :

“ As a general rule stock represents a substantial portion of the total current assets of a business. It follows that the value placed on stock has a very material effect on the reported profits...”

Woolf [1979, pp.190-191] concurs and expounds this further, giving more reasons for the difficulty in auditing stock. He notes that:

1. The amount at which stocks are stated in the financial statements is almost always material in relation to the accounts as a whole. Materiality is bound to increase the dimension of the verification problem.
2. The amount of stock affects profits as any overstatement (understatement) of the stock figure represents an overstatement (understatement) of equal amount of the profit figure.
3. Companies using the periodic system of inventory recording would tend to rely on physical stocktaking procedures for the determination of closing stock. The absence of perpetual records makes the stock figure more susceptible to manipulation.
4. In manufacturing companies, stock categories may increase as the total stock amount consists of raw materials, bought out components, work-in progress and finished goods, and each of these (together with further subdivisions) creates its own valuation difficulties.
5. The verification process may involve a special and highly technical approach as some items of stock require careful identification for the determination of quality and technical specifications.

6. The assessment of condition of stock maybe quite difficult, especially the identification and provision for slow-moving, obsolete or scrap items.
7. Stocks may be held in a variety of locations, in all of which counting must proceed simultaneously to avoid omissions and/or double counting caused by subsequent movement of goods between locations. Certain goods may be held by outside parties, as agents, consignees, or on a sale or return basis, in which event the auditor may be obliged to accept certificates from third parties.
8. Manufactured goods pose a special problem as the auditor has to deal with allocation of overheads in accordance with GAAP Statement AC108 on inventories, which requires an appropriate portion of overhead to be absorbed into inventory [SAICA, 1983]. The decision on the absorption of overheads requires an assessment of suitable bases with some element of subjectivity on the part of management. This adds to the auditor's difficulties.

### *Debtors*

Debtors in certain instances may require more effort because of the nature of the balance. The auditor evaluating receivables must form qualitative as well as quantitative judgements and must, for the most part, utilise indirect rather than direct evidence. Receivables have to be audited in conjunction with sales and cash receipts. Some of the retailing and wholesale companies have large debtors books which consist of thousands of customers with fairly small balances. For example, The Edgars Group has about 2,7 million account holders [Edgars Report Annual Report 1993] whilst the Foschini Group has about 1,45 million [Foschini Group Annual Report 1993]. In such concerns debtors may be the key asset, e.g. the Edgars Group has debtors of R895,9 million on total assets of R1667,5 million [Edgars Group, 1993 Annual Report].

The auditor has to verify whether the balances are recoverable based on past experiences and future expectations of items of disposable income, and state of the economy, among other items. The provision for any doubtful debts then requires a subjective assessment of future events which is unpredictable and therefore more risky. This would require the auditor to engage more qualified personnel with a possibility of working longer hours on the verification of the debtors balance.

Hourly fees increase with complexity because auditors with greater skill and superior judgement are required in more complex situations and extended audit procedures are required as audit complexity increases [Thornton and Moore, 1993, pp.342-343]. The audit fee is therefore expected to be positively related to client complexity.

The relative size of debtors and inventory in relation to total assets is a more accurate indicator of audit effort, as the audit effort required will be measured by the materiality of the balance in relation to the size of the entity. So the complexity of the balance sheet is measured by the proportion of total assets in debtors and inventory (INV+DEBTOR). This is not the only way that balance sheet complexity can be measured. Francis [1984] used the percentage of total assets in current assets, Simunic [1980], Maher *et al* [1987], Chung and Lindsay [1990] used the proportion of assets in debtors and the proportion of assets in inventories.

Wallace [1984], Simunic [1980], Simon [1985], Firth [1985], Francis and Stokes [1986] and Palmrose [1986a] found the level of inventories and debtors to be significant explanatory variables. In contrast, Firth [1985] found receivables to be a significant variable, but not inventory, in his pricing model. He described this finding as puzzling and offered no plausible explanation for it. The second null hypothesis is then stated as follows:

**Hypothesis 2:** *The audit fee is not affected by the complexity of the client.*

**Hypothesis 2a:** *The audit fee is positively related to client complexity.*

### 5.2.1.3 Audit opinion

It is believed that audit effort is affected by the type of opinion included in the annual report. A qualified report may convey a negative signal to investors [Firth, 1985]. For the auditor, it may signal an increased risk of adverse actions against the auditor [Simunic, 1980; Palmrose, 1986a, 1986b; Francis and Simon, 1987]. The time spent on an audit where a qualified opinion is issued will be longer, due to the increased extent of audit procedures to eliminate any uncertainties or disagreements [Ng and Tai, 1994].

Auditors try to avoid a qualification and will issue a qualified one if the extended audit work does not resolve the uncertainty or the disagreement [Ng and Tai, 1994]. It also appears that management does not welcome a qualified

report, so they try to negotiate or exert pressure on the auditor to waive the qualification [Whittred, 1980]. This is likely to be dealt with by the most senior person in the audit, i.e. the partner in charge, which may be more costly because of the higher charge out rate.

Simunic [1980], Wallace [1984a], Francis and Stokes [1986], Palmrose [1986a], Francis and Simon [1987] and Simon and Francis [1988] found the audit opinion to be a significant explanatory variable. In contrast Francis [1984], Maher *et al* [1987] and Simon [1985] in their studies found the audit opinion variable not significant. For the purposes of this study, audit opinions are classified as either qualified or unqualified. Companies receiving a qualified audit opinion (except for, adverse and disclaimer) are assigned a 1. Companies receiving an unqualified report are assigned a 0.

***Hypothesis 3 : The audit fee is unaffected by the audit report opinion.***

***Hypothesis 3a : An adverse audit opinion results in a higher audit fee***

#### **5.2.1.4 Auditee Risk**

Two types of risk that would have to be discussed under auditee risk are the auditor's business risk and audit risk. Definitions are given as follows:

*Business risk* is "the probability that the auditor will suffer loss to his professional practice" [Brumfield, Elliott and Jacobson, 1983, p.60].

*Audit risk* is "the risk that the auditor will unknowingly express an inappropriate opinion on financial information" [SAICA, 1986, para. 02].

Audit risk can influence business risk because an inappropriate opinion can be a major consideration in the events that lead to loss or injury to the auditor's professional practice. Conversely, business risk may affect the assessment of audit risk by the auditor.

The principal elements of business risk are [Brumfield *et al*, 1983, p.60]:

- Litigation;
- Sanctions imposed by regulatory bodies;
- Impaired professional reputation as a result of litigation; and
- sanctions or adverse publicity.

On the other hand, audit risk is affected by [SAICA, 1986]:

- Intrinsic susceptibility of an assertion to material error;
- Effectiveness of internal controls in preventing material errors;
- Effectiveness of the auditor's procedures in detecting material errors.

Brumfield *et al* [1983, p.65] provide a guide on factors, shown in table 6, which gives some factors which the auditor has to take cognisance of in assessing business risk.

It is interesting to note that most of the factors included in the guide can also be used as an assessment of the inherent susceptibility to material error, a key component of audit risk.

One of the more easily identifiable and measurable factors, relates to the client's existing financial position and operating performance. Relating business risk to audit fees Brumfield *et al* [1983] state that:

“Billing rates for clients could be adjusted based on the assessed level of business risk (i.e., higher rates for clients with greater business risk). Because adjusting the rate structure in this manner could affect a firm's competitive position, the trade off between potential loss from a diminished competitive position would have to be considered”  
[p.68].

A survey of UK auditors by Ramzy [1988] indicated that the risk involved in the audit was one of the key factors used in determining audit fees. She concludes that the risk which the auditor accepts will increase the level of the fee [p.114]. A rather unfortunate aspect of this study is that there is no exact explanation of the term “risk”. (The summary of the responses referred to “risk in the audit work” without any further elaboration or definition [Appendix 4, p.208]).

The state of the financial position and performance of the client can be linked to business risk through the consideration of risk of failure of the client (i.e. going concern difficulties). GAAS Statement AU294 on going concern [SAICA; 1986a, para. 08], gives some guidance on some key financial indicators to be considered for assessing going concern difficulties. These are:

**Table 6: Business Risk Factors**

Business risk factors*	Level of business risk	
	<u>Lower</u>	<u>Higher</u>
The economy in which the company operates.	Healthy.	Depressed; stagnant.
The industry in which the company operates.	Established; stable; relatively uninfluenced by external conditions.	Relatively new; unstable; greatly influenced by external conditions.
The company's management philosophy with regard to both operational and accounting matters.	Conservative.	Aggressive.
The company's control environment, including the possibility of management override.	Strong administrative controls; control-conscious management; low possibility of management override.	Weak administrative controls; management isn't control conscious; high possibility of management override.
The company's previous audit history.	Unqualified opinions for previous audits; no prior disagreements with auditors; few adjustments.	No prior audit history; qualified or adverse opinions for previous audits; prior disagreements with auditors; numerous adjustments.
Rate of turnover for top management and the board of directors.	Low.	High.
The company's financial position and operating performance.	Strong.	Weak.
The company's existing or potential litigation.	Insignificant.	Significant.
The business reputation of the company's management and principal owners.	Good.	Poor.
The relevant experience of the company's management and principal owners.	High.	Low.
Ownership of the company.	Nonpublic.	Public.
Client understanding of the auditor's responsibilities.†	Clear.	Unclear.
Conflicts of interest, regulatory problems or auditor independence problems.	Insignificant.	Significant.
The location of the company.	Large city.	Small community.
The level of business acuity or sophistication within the community in which the company operates.	Low.	High.

\*Because the terms used in this exhibit are general, the risk levels indicated may be subject to individual interpretation. In addition, many of the listed factors may also indicate the level of inherent or control risk

- Net liability or net current liability position;
- Substantial fixed term borrowings approaching maturity without reasonable prospects of renewal or repayment, or excessive reliance on short term borrowings to finance long term assets;
- Adverse key financial ratios;
- Substantial losses;
- Arrears or discontinuance of dividends;
- Inability to pay creditors on due debts or difficulty in complying with loan covenants;
- Changes from credit to cash on delivery at the request of suppliers; and
- Inability to obtain financing for necessary new product developments or other necessary investments;

For this study the emphasis will be on adverse key financial ratios which are commonly used to predict company failures.

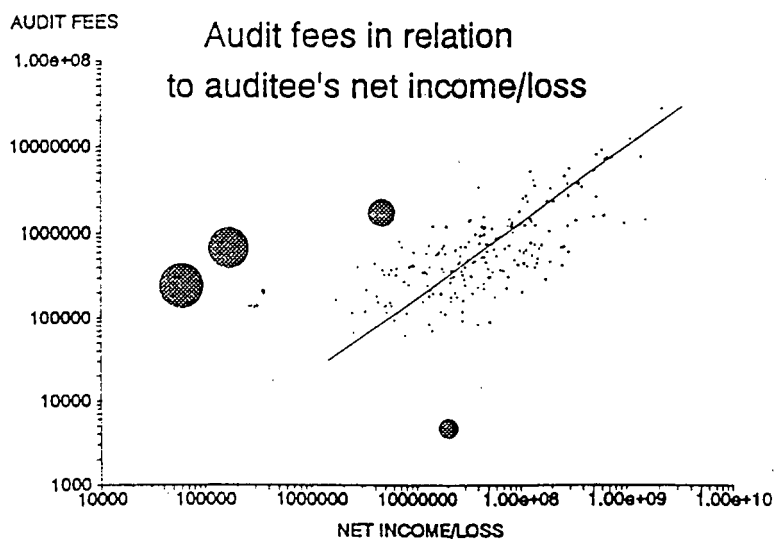
One of the models developed in South Africa to predict bankruptcy is the De La Rey model. It includes debt to equity ratio, current ratio, return on assets, cash flow profit after tax as a proportion of total assets, and total stocks divided by inflation-adjusted assets [Correia, Flynn, Uliana and Wormald, 1993, p.197]. The model appears to have emphasis on liquidity, profitability and gearing. It gives a reasonably reliable indication of the predictors of going concern difficulties that a client may face.

It is useful to discuss the three factors separately, to understand their individual implications for the audit fee. Although professional ethics governing the conduct of auditors indirectly forbid auditors from charging audit fees based on the client profitability, Firth [1985] intimates that the level of profitability may be an indicator of the client's ability to bear audit costs. This could be defined on the basis that audit firms may charge low fees when their client is going through difficult financial times, and correspondingly, will charge high fees when economic circumstances are good [Firth, 1985; Taylor and Baker, 1981]. Firth further adds that if there is little or no competition, there may be a

premium above cost if the client is thought to be able to bear it. Therefore, the more profitable a client, the less the burden of the audit fee and hence an increased fee will not be challenged.

Conversely, a profitable company may be indicative of one that keeps extremely tight control of its costs, and this could be used as an argument against expecting a premium in the audit fee. Additionally, very profitable firms may have above average accounting and control systems and this could make the audit easier and cheaper to conduct [Firth, 1985, Footnote 6, p.28]. In a similar vein, Wallace [1989, p.4] notes that, ironically, loss-making clients may incur lower actual fees although they pose a higher risk to the auditor due to the uncertainty over collection of the audit fee billings. In order to assess, rather crudely, the relationship between profitability and audit fee, Gloeck *et al* [1993, p.116] plotted the audit fee against the log of net income before tax for 200 companies listed in the *Financial Mail 1992 Top Companies Survey*. Their graph, shown below, indicates a weak correlation between the audit fee and client profitability.

**Figure 8: Auditee profitability and audit fees**



They note that net income does not have the same direct correlation to audit fees as does turnover [p.116]. As far as this thesis is concerned, the focus on the relationship between the audit fee and profitability is analysed on the basis of risk of client failure only.

Liquidity could be construed as a means of measuring a client's ability to pay its debts. Whilst clients with low liquidity may indicate a greater risk of failure, Wallace [1989, p.4] suggests that clients with liquidity pressures will often

increase fee pressures, resulting in reduced audit fees in the presence of what is likely to be a higher audit risk.

Gearing refers to the percentage of debt in the capital structure of the entity [Correia *et al*, 1993]. The higher the level of debt, the greater the risk of default and hence bankruptcy. Along similar lines, agency theorists like Chow [1982] argue that firms with higher debt to equity ratios are more likely to be audited. Because an increase in debt results in an increase in agency costs [Fama and Jensen, 1983a], it is more likely that higher quality auditors would be engaged which would translate to a higher audit fee [Watts and Zimmerman, 1983].

Looking at financial distress of the client as a whole, Chan *et al* [1993, p.782] express the opposite view that some auditors in seeking to improve goodwill may charge lower fees to distressed clients which could mitigate the effect of client risk on audit fees. Thornton and Moore [1993] further suggest that high risk clients may select lower quality auditors who charge less per hour because, “the supply price of the audit increases as the uncertainty of cash flows increases” [p.340]. This in turn motivates management to demand an overall lower level of credibility and reduces the likelihood of selecting a high quality auditor [Copley *et al*, 1994]. It is clear that any hint of the use of the client’s ability to pay as basis for determining audit fees, implies lack of compliance with the Code of Professional Conduct and hence unethical conduct of the auditor. The author expects that South African auditors would be beyond reproach in this area, basing audit fees on the level of effort. It is therefore expected that the audit fee will vary positively with indicators of going concern difficulties.

The level of gearing (GEARING), liquidity (LIQUIDITY) and profitability (PROFIT) are employed in this study as indicators of auditee risk. These are measured by the debt to equity ratio, current ratio and return on assets as calculated in *McGregor’s Who Owns Whom* [1991, 1992, 1993]. Clearly, these measures are not without criticism, particularly because they are reliant on book values which are influenced by age of assets, accounting policy choices and capital structure. These criticisms are not deemed to be serious enough to render the results totally unreliable. In any event, these ratios are still widely used in practice which is evidence of their usefulness.

Other researchers [e.g. Simunic, 1980; Taffler and Ramalingam, 1982; Francis, 1984; Wallace 1984a; Maher *et al*, 1987; Chung and Lindsay, 1988] have used the presence of a loss in the previous three years as indicators of financial difficulty. Simunic [1980] and Maher *et al* [1987] found this variable to be a

significant explanatory variable for audit fees, whilst the remainder of the authors quoted above did not detect any significance.

**Hypothesis 4:** *The audit fee is not affected by client going concern difficulties.*

**Hypothesis 4a:** *The audit fee is positively related to client going concern difficulties.*

Note that profitability and liquidity ratios are expected to bear an inverse relationship with audit fees whilst gearing should have a positive relation.

#### 5.2.1.5 Ownership

Large companies tend to have a greater number and diversity of shareholders. Furthermore, in larger companies there is more likely to be a greater separation of ownership and control. In terms of agency theory, as ownership becomes more divorced from control, there would be more extensive, and therefore more costly auditing [Chan *et al*, 1993, p.780]. The choice of the auditor may also be influenced by the structure of control. Evidence from Malaysia suggests that in instances where there is minimal separation of ownership, control and managing, firms tend to choose lower (smaller) audit firms which would translate to a lower audit fee [Simon *et al*, 1992].

It could, on the other hand, be argued that the thoroughness of audit work is a reflection of the legal obligation in the audit firms relationship with the client company, and that this will be invariant across different levels of ownership control. Whilst this may be true, this paper is more concerned with the scope rather than the intensity of the audit work. Chan *et al* [1993] found ownership structure to be a significant variable across the whole sample and for the large auditee subsegment, but not for small size auditees.

It is hypothesised that the extent of audit services demanded will be a function of the ownership control variable, with companies having a diverse ownership requiring a more extensive and higher quality audit over and above that necessary to fulfil the minimum necessary requirements. In this study, the proxy for ownership (OWNERSHIP) was based on directors beneficial and nonbeneficial holdings exceeding 50% of the issued ordinary share capital. McGregor's *Who Own Whom* [1991, 1992, 1993] was used to gather information on directors holding. Companies where the directors holding exceeded 50% were allocated 0, where it was less than 50% it was designated 1.

Arguably, directors can exercise *de facto* control even if they own less than 50%, if the shareholding of the company is widespread with a large number of shareholders owning small parcels of shares. For our purposes, the Companies Act deems control to be when one person controls more than 50% of the voting power and the letter of the law will be followed.

***Hypothesis 5 : Audit fees are unrelated to company control.***

***Hypothesis 5a: Companies controlled by directors have lower audit fees than companies that are not.***

#### **5.2.1.6 Audit delay**

Audit delay is a timing variable that attempts to capture the effects of tight reporting deadlines. It measures the lag between the accounting year end and the audit report date. Cross-sectional differences in audit delay may indicate cross-sectional differences in the relative extensiveness of the year end field work [Ng and Tai, 1994, p.44].

The effect of time-deadline pressures was recognised by the AICPA [1978] as one of the underlying factors in audit failures. The study noted that the most pervasive picture of audit failures involved “one partner supervising fifteen to twenty engagements, many with identical year ends, working considerable overtime, unable to find adequate time to review work papers, and faced with several crucial decisions, some of which were ultimately made incorrectly” [AICPA, 1978, p.115]. The report further adds that some of the errors are caused by auditors “working too many hours for too many clients” [p.119].

In a market like the JSE, timely reporting is important as timeliness of financial information is one of the key attributes of useful financial information [SAICA, 1990]. Investors would prefer timely information for making economic decisions. Companies are therefore more likely to push for the release of annual financial statements within the “normal” expected period. It is common knowledge that the investment community expects interim and annual results within a certain time period after the end of the financial period. A cursory review of press comments indicates that after about a month and a half of the financial period, there is speculation about the results to be issued. Often undue delay tends to be surrounded by speculation of bad results.

From an auditing point of view, short lags could be a reflection of tight reporting deadlines which might only be met with inefficient auditing [Chan *et al*, 1993, p.770]. Differences among companies may also be due to (a) some companies agreeing to a delay in the audit until it is suitable for the auditor; (b) some companies accounting systems and final accounts preparation taking longer; and (c) the audit taking a long time [Firth, 1985]. Longer lags might reflect audit problems requiring additional audit work to resolve. Reason (a) may suggest that a lower audit fee may be bargained for, and reason (c) may suggest a higher audit fee. Thus the effect of audit delay is unclear. Chan *et al* [1993] observed a significant negative correlation between audit fees and audit delay. Their study did not support the hypothesis that tight deadlines impose additional audit costs. In contrast, Firth [1985] did not observe any effect on audit fees by audit delay.

Studies on determinants of audit delay indicate that some of the factors which are hypothesised to affect audit fees, such as auditee size, complexity and risk, are also determinants of audit delay [Ng and Tai, 1994]. This could result in confounding effects. Such effects are more likely to manifest themselves in a high correlation between the independent variables which can be corrected in the analysis of results.

This variable (DELAY) was proxied in terms of the number of days between the client's financial year end and the date of its audit report. A possible variation would have been to measure time lag in weeks as done by Chan *et al* [1993]. The choice of this metric is favoured because it is easy to measure and understand. The use of this metric, however, may require assumptions about scheduling of work among clients, differences in timing of audit work among clients in making their audited financial statements available, the number of auditors assigned to the engagements, and the degree of overtime actually experienced in the jobs [Ng and Tai, 1994, p.44]. These factors are hardly observable or measurable. Therefore, it is more logical and more practical to use publicly available and observable information than unobservable or unmeasurable data.

***Hypothesis 6 : Audit delay does not affect the audit fee.***

***Hypothesis 6a : The relationship between audit delay and audit fees is indeterminate.***

### 5.2.1.7 Reports

Whilst the auditor expresses an opinion of financial statements consisting of a directors' report, income statement, balance sheet and cashflow statement, some listed companies issue additional reports upon which the auditor may be required to issue an opinion. Typically, the reports include a value added statement, segmental analysis, current cost adjusted financial statements, supplementary inflation adjusted financial statements, five year or ten year review of performance, financial summaries or highlights, analysis of operating and other expenses, employment data, planned capital expenditure and financial ratios. In some instances there may not be a directors report, but an elaborate chairman's and/or a managing director review of the operations.

Although the additional reports do not form part of financial statements as defined in the *Companies Act*, the auditor is expected to review the financial information referred to in the chairman's review for consistency with the audited financial statements [SAICA, 1984]. Some of the reports, such as inflation accounting adjustments, involve a considerable workload that is of a high technical nature [Firth, 1985]. This requires additional audit effort and such reports would be reviewed by more senior staff resulting in a higher cost and hence audit fee.

This variable was tested and found to be significant by Palmrose [1986a] and Rubin [1987]. Similarly, Firth [1985] included current cost adjusted financial statements in his model, which he found to be significant. Where a company provided basic financial statements (historical cost balance sheet, income statement, directors report and a cash flow statement) this was denoted by 0. Each additional report was given 1. Both Palmrose [1986a] and Rubin [1987] transformed the number of reports variable using the log function to linearise it, thereby minimising heteroscedasticity problems, whilst Firth [1985] did not. In this study, this variable (REPORTS) is not transformed as the transformation of the size and scope complexity variables appears to sufficiently address heteroscedasticity.

**Hypothesis 7:** *The audit fee is unrelated to the number of additional reports issued by the client.*

**Hypothesis 7a:** *The audit fee is positively related to the number of additional reports issued by the client.*

## 5.2.2 Auditor factors

### 5.2.2.1 Size

Audit fees are affected by auditor size in three ways [Simunic, 1980; Francis, 1984; Anderson and Zeghal, 1994]:

- By product differentiation;
- By economies of scale; and
- By non-competitive pricing.

#### *Product differentiation*

Product differentiation is said to exist where there are perceptions of differing quality of the product offered [Simunic, 1980]. As a result, researchers' analysis of product differentiation among auditors has depended on the notion of audit quality [Francis, 1984]. Audit quality is defined as the probability that an auditor will both (a) discover a breach in the client's accounting system and (b) report the breach [De Angelo, 1981a, p.186; Watts and Zimmerman, 1986]. This in turn is a function of the auditor's competence and independence. There is no reason for believing that there are differing capabilities amongst auditors to detect breaches because their competence standards are uniform, although Chow and Wong-Boren [1986, p.7] suggest that such abilities could differ. Differences are therefore more likely to lie in the incentives of auditors to be independent [De Angelo, 1981a, p.189].

De Angelo [1981a] suggests that large audit firms have a greater incentive to report breaches than small firms. This is due to the existence of client-specific quasi-rents which are defined as "the excess of a given period's revenues over the avoidable costs incurred in that period, including the opportunity cost of auditing the next-best alternative" [p.188]. These rents result from technological advantages that accrue to the incumbent auditor. Larger firms stand to lose more client-specific rents if a loss in reputation occurs because they have more clients. For this reason, there is a greater incentive for larger audit firms to supply higher quality audits in order to avoid a loss in reputation, and thus accounting firm size serves as a proxy for audit quality.

Alternatively, large firms have a larger number of clients and are therefore less dependent on one particular client. Such a relationship enhances audit quality [De Angelo, 1981a, p.193]. Another reason advanced relates to the structure of

professional firms. It argues that Big Eight firms have more collective wealth among partners, and therefore outsiders are more likely to search financial statements certified by larger audit firms for indications of negligence and misconduct [Chow and Wong-Boren, 1986, p.6]

Differences in audit quality show the existence of product differentiation. The perception of audit quality is more important for large clients compared to small and medium sized ones [Deis and Giroux, 1992]. Such differentiation is not observed directly [Simunic, 1980; Chow and Wong-Boren, 1986; Pound and Francis, 1981], but it is reflected in price differentials [Pound and Francis, 1981, p.358] with the identity of the supplier being the principal differentiating characteristic of service [Simunic, 1980, p.170]. Firms which have invested in "reputation capital" ( e.g. employee training programmes, firm publications and advertising) are able to earn a return on this investment through higher prices for their services [Simon *et al*, 1992, p.235]. It follows then that, all other things equal, the audit fees charged by large audit firms are expected to be higher than those charged by small relatively low profile firms.

There is empirical evidence from the US to support the perception that audit quality is related to audit firm size. The AICPA [1978] conducted extensive discussions with users and found that users considered the name and reputation of the audit firm to be their principal source of information about the quality of the audit. Knapp [1991] found that audit committee members assessments of audit quality are significantly influenced by auditor size. Although the results may have been influenced by exposure of audit committee members to audit firms of different sizes, the data showed a perception that Big Eight auditors were more likely to discover and report a breach than smaller audit firms.

Wilson and Grimlund [1990] observed a switch of clients from auditors who were facing disciplinary action from the SEC. Such actions damage the reputation of the auditor, casting doubt on his credibility which may taint the credibility of the client's financial statements [p.47]. Such losses of clients would be more detrimental to large firms, which adds support to De Angelo's propositions. Barlev [1974] found that audit quality was observed in the new issues market with Big Eight firms used as signals of greater audit quality.

Big Six firms make sizeable investments to build and maintain visibility of their brand names [Pound and Francis, 1981]. All else equal, higher quality auditors command higher fees per hour than lower quality auditors, because they provide more assurance to users of financial statements for each hour worked [Thornton

and Moore, 1993, p.336]. Given a competitive market structure, the absence of scale economies, and the existence of differentiated demand, it is expected that audit fees will be positively related to the size of the audit firm.

### *Economies of scale*

Economies of scale may accrue to auditors, particularly those of large companies [Schiff and Fried, 1976, p.14]. This is due to the fact that technological considerations require an appropriate matchup of auditee size and auditor ability to conduct the audit [Johnson and Lys, 1990]. The large audit firms [Pound and Francis, 1981, p.357; *Financial Mail*, 26/07/1991, p.289]:

- Have the expertise and resources to develop and implement a standard audit methodology applicable to a large proportion of their clientele;
- Are more readily able to service firms which employ advanced technology; and
- Have an infrastructure to efficiently service clients with a wide geographical spread and the need for complex accounting rules.

Balachandran and Ramakrishnan [1987, p.116] add that the partnership structures of large audit firms gives them a more optimal risk sharing ratio, which lowers agency costs with a resultant decrease in audit fees. In addition to the above factors, economies of scale can arise in recruiting employees, developing general and specialised audit and accounting expertise, managing the audit firm, marketing the firm's services, and providing for partners' retirement [Danos and Eichenseher, 1981, p.605].

The change in market conditions may also give large firms a competitive advantage [Danos and Eichenseher, 1986, p.637] *viz.*: increasing advertisements and marketing sophistication, rising litigation costs, and the advent of audit committees formally reviewing audit proposals. Arnett and Danos [1979, pp.98-105] suggest that audit technology may also render client size *per se* an important variable in determining audit-firm differentials. Larger audit firms have a greater percentage of inexperienced personnel and finer in personnel ranks. These phenomena may indicate differences in cost structure according to audit firm size, with larger firms applying less costly human resources and more sophisticated management systems.

Johnson and Lys [1990, p.283] attempt to explain the common tendency of large firms to be audited by large auditors. They explain that market competition induces the pairing of large firms with large clients as audit firms that normally audit small clients may be unable to offer their services at competitive prices to large geographically dispersed companies, because they lack economies available to firms already serving this market. Conversely, firms that typically audit large geographically dispersed clients will be unwilling to allocate productive resources to small localised corporations (at competitive prices), unless this reduces the cost of resources that would otherwise be idle. Hence, large auditors will naturally pair with large companies.

Small firms on the other hand, are inefficient producers of large audits because of the need to develop more client specific (rather than standardised) audit methodology, and extensive travelling or subcontracting with other auditors to deal with auditee size and multiple location problems [Gist, 1994]. Also, complex accounting transactions and reporting requirements may require specialised auditor expertise. The cost of human capital investment required for these skill specialisations can be spread over more audits, thus creating scale economies. However, small firms face diseconomies of scale because these costs cannot be recouped over a larger number of audits.

Johnson and Lys [1990, p.282] warn that, although branch office investments reduce the incremental cost of auditing clients with geographically dispersed division, fixed costs may be increased because of the need to co-ordinate and monitor multi-office activities.

Cost advantages of large firms over small firms may be present across all client sizes, but the cost advantages should certainly increase with the size of the client if larger clients involve greater time spent on routine tasks [Danos and Eichenseher, 1986, p.637]. Such savings should be passed on to the client in the form of lower audit fees to be observed in the pricing model. Lower audit fees being charged by large audit firms is evidence of economies of scale effects, *ceteris paribus* [Anderson and Zeghal, 1994, p.197].

### ***Monopoly pricing***

The effect of market structure on audit fees was first postulated and empirically tested by Simunic [1980]. Intuitively, the competitiveness of the market for audit services would have an impact on audit fees. The test for competition was based primarily on the observed signs of the auditor variable in two separate

regressions formed by partitioning all observations into two audit market segments for large and small auditees. The small auditee market was assumed to be competitive because of the large number of suppliers. This segment forms a benchmark for competitiveness by which findings in the large auditee segment were interpreted. The nine different outcomes used to interpret price differentials are given below:

**Table 7: Framework for studying audit prices [as adapted by Francis and Stokes, 1986]**

Large Auditees	Small Auditees		
	B8>b8	B8 = b8	B8<b8
B8>b8	[1] C,P	[2] M	[3] M,S
B8=b8	[4] C,P,D *	[5] C	[6] M,S
B8<b8	[7] C,P,D *	[8] C,D *	[9] C,S

**Legend:**

- B8 = Big Eight audit fees
- b8 = Non Big Eight audit fees
- C = Competitive pricing for large auditees
- M = Monopolistic pricing for large auditees
- P = Big Eight product differentiation
- S = Big Eight economies of scale
- D = Non-Big Eight diseconomies of scale

**Explanation of the nine scenarios**

- [1] B8>b8 in both market segments indicates that pricing is competitive throughout the market, and because B8>b8, the higher price indicates B8 product differentiation.
- [2] Since prices are the same in the same small market segment and B8>b8 in the large segment, B8 monopolistic pricing exists in the large segment of the market.
- [3] [6] B8<b8 in the small segment indicates that scale economies exist for large producers throughout the market, but because B8≥b8 in the large segment, B8 monopolistic pricing exists in the large segment.

- [4] [7]  $B_8 > b_8$  in the small segment indicates  $B_8$  product differentiation throughout the market, but since  $B_8 \leq b_8$  in the large segment, the  $b_8$  have diseconomies of scale (higher prices) in the large segment.
- [5]  $B_8 = b_8$  in both market segments indicates a competitive structure with no product differentiation or scale economies.
- [8]  $B_8 = b_8$  in the small segment indicates competition throughout the market and  $B_8 < b_8$  in the large segment indicates the  $b_8$  have diseconomies of scale (higher prices) in the large segment.
- [9]  $B_8 < b_8$  in both segments indicates competitive pricing throughout the market, and because  $B_8 < b_8$  scale economies favour large producers throughout the market.

\* These are characterised as diseconomies of scale to non Big Eight firms, rather than economies to the Big Eight because they pertain only to one segment (large clients) of the market. Simunic [1980, p.171] argues that under traditional economic theory, scale economies, if they exist, would be applicable to all production, not just related to specific market segments. However, if two distinctly different audit markets exist, then these scenarios would be appropriately characterised as Big Eight scale economies, rather than diseconomies to the non Big Eight in the large auditee market segment [Francis and Stokes, 1986, p.384].

In a competitive market, systematically higher prices charged by one group of suppliers would be consistent with product differentiation in that group. Any such product differentiation presumably would exist in the services of well-known, larger brand name suppliers as the Big Six auditing firms [Francis and Stokes, 1986, p.384]. Further, such product differentiation should be observable both in the small and large market segments. Product differentiation by Big Six firms may be confounded by the presence of Big Six economies of scale

Contradictory evidence on the effects of auditor size have been presented in previous studies. In the US, Simunic [1980], found no price difference between big and small auditors, while Palmrose [1986a], Francis and Simon [1987] found that audit fees for Big Eight firms were higher than non-Big Eight firms for small auditees. Higher audit fees reported for relatively small companies audited by the Big Eight were also reported in Australia by Francis and Stokes [1986], in Canada by Anderson and Zeghal [1994] and in the UK by Taffler

and Ramalingam [1981]. In addition, public sector evidence from Rubin [1987] and Baber *et al* [1987] supports the existence of a Big Eight premium. Francis [1984] on the other hand, reported that Big Eight audit fees were significantly higher than non-Big Eight prices in samples of both small and large companies in the Australian markets. In New Zealand, Firth [1985], in Canada, Chung and Lindsay [1988], and in Malaysia, Simon *et al* [1990] found no significant pricing differences.

Auditor size (AUDITOR) is measured by whether a firm is affiliated to one of the Big Six international firms or not. Audit firms with an affiliation to the Big Six international network were given 1 whilst the rest were given 0. This is consistent with most prior studies such as, Simunic [1980], Francis [1984], Firth [1985], Palmrose [1986a], Chung and Lindsay [1988] and Chan *et al* [1993]. A continuous metric used in Anderson and Zeghal [1994] could not be used because the audit billings of all the firms in the study were not publicly available. The relationship of audit fees with the size of the auditor can thus be negative or positive.

*Hypothesis 8 : The audit fee is not affected by auditor size.*

*Hypothesis 8a : The effect of audit firm size on audit fees is indeterminate.*

### 5.2.2.2 Management advisory services

Audit clients have a choice of using the incumbent auditor to supply MAS or another auditor. There appears to be a general preference by audit clients to use their own auditors for MAS [Palmrose, 1988]. Review of literature and general press clippings, implies that there are definite profit considerations on the auditor's part in the provision of non-audit services to audit clients [Hillison and Kennelley, 1988]. Auditing and other services unavoidably overlap. The provision of both audit and MAS to the client may be beneficial to the client [AICPA, 1978, p.95]. The beneficial effects emanate from potential cost advantages to the client arising out of "knowledge spillovers," which are transfers of knowledge that may occur when the auditor provides both audit and MAS.

Knowledge spillover is hypothesised to occur when "the total costs of one firm jointly performing both non-auditing and auditing services are less than the sum of the costs when each service is performed by a different firm" [Barkess and Simnet, 1994, p.99]. This belief exists because certain types of MAS demanded

by clients require the provider to have a detailed understanding of the company's operations, personnel, etc. [Hillison and Kennely, 1988]. If the auditor can avoid information-gathering costs to carry out the non-audit engagement, the client may benefit as the additional knowledge gained through the conduct of the non-audit service may reduce the amount of audit time necessary [Hillison and Kennely, 1988]. The form of knowledge spillover, and the resulting cost interdependency can be complex. Specifically [Simunic, 1984, p.681]:

- (1) Knowledge can flow from auditing to non-audit services or vice versa;
- (2) The fixed cost, variable cost or both costs of the services may be affected;
- (3) The knowledge spillover can be client-specific or general.

Explaining the spillovers from non-audit to audit services, Simunic [1984, p.684] observes that:

“When MAS produces auditing knowledge as a by-product, a potential auditor, who can (but may not be asked to) perform both services, will assess a joint total cost function as well as separate costs for each services. As with all externalities, the benefit from knowledge spillover is a joint effect in the sense that unless both services are performed, the cost savings cannot occur. However, since the two services are billed to clients separately, the cost savings must somehow be assigned to one, or perhaps both of the services.”

Evidence from the US and Australia indicates that such cost savings, if they exist, are not necessarily passed onto the client in the form of a lower audit fee [Simunic, 1984; Palmrose 1986b; Turpen 1990; Barkess and Simnet, 1994]. In contrast, results from Davis *et al* [1993] using more direct evidence and therefore providing stronger proof, suggest that “either that knowledge spillovers from non-audit services do not lead to auditing efficiencies or, alternatively, that the benefits of efficiencies are passed on to clients” [p.147]. This confirmed, albeit partially, Abdel-Khalik's [1990] finding of the absence of either costs or benefits accruing to purchasers of other services from the incumbent auditor.

The positive association between audit fees and MAS is founded on the notion that if auditors do not pass on cost savings, as a result of knowledge spillover effects, they in effect earn economic rents in the form of higher audit fees for a

given level of effort [Davis *et al*, 1993]. Knowledge spillovers permit joint suppliers to provide services at a lower overall cost [Beck *et al*, 1988, p.54] irrespective of changes in audit quality. To justify this, Beck *et al* [1988, p.53] use the following example. Suppose that knowledge spillovers enhance audit quality and that all market participants are aware of this fact. Given these circumstances, competitors would face additional costs if they attempted to provide audit services of equivalent audit quality. Alternatively, suppose that competitors are unwilling to increase the quality of their audit services due to lack of perceived demand or market participants' inability to discern quality differences. In such an environment, a joint supplier would have incentives to modify the nature, timing and extent of tests as a means of reducing audit costs. Since cost-saving measures could not be implemented without jeopardising the existing (equilibrium) quality level, a joint supplier would enjoy a cost advantage.

Evidence from the US suggests that some audit firms assess the decision to offer audit services at a price which takes into account non-audit services [Wallace, 1989, p.4]. This implies that the pricing of audit services would be affected by the pricing of MAS, as originally stated in Simunic's supposition. The hypothesis to be tested are :

***Hypothesis 9 : For a given client in a given period, the cost functions of MAS and audit services are independent.***

***Hypothesis 9a : For a given client in a given period, the cost functions are interdependent because of favourable knowledge spillovers between services.***

The basic test for the relationship between audit and non-audit services involves a comparison of fees, other things held constant, for a control group of companies which did not purchase non-audit services from their auditor, to one which purchased both services [Simunic, 1984]. In the absence of non-audit fees paid to non auditors in the control group, the tests are based on differences in audit fees which are interpreted as follows [Simunic, 1984, p.689]:

***Basic test***

Audit fee difference (MAS purchasers minus non purchasers).

### ***Interpretation***

*Positive* : Net spillover from auditing to MAS and/or a net spillover from MAS to auditing with price elastic audit demand.

*Negative* : Net spillover from MAS to auditing.

The collection of data for non-audit services is not without limitations. Some of the large audit firms have formed consultancy companies which provide other (consultancy) services to audit clients. The amounts paid to such companies are in some cases, not disclosed as part of auditors remuneration, although such companies are in substance controlled by the same accounting firm performing the audit [Glöeck *et al*, 1993. p.95]. There may be a serious drawback in using only the amount paid to auditors (labelled MAS) for other services to capture the relationship between audit fees and management advisory services.

#### **5.2.2.3 Location**

The auditors fee is a function of the cost involved in carrying out the audit. These costs include salaries of audit and non-audit staff, rent, equipment, insurance, etc., [Ramzy, 1988]. The cost structure of each audit firm is expected to vary according to the location of the auditor, due to the differences in the costs of salaries and rent which are perceived to make up the biggest proportion of the auditor's expenses [Christiansen and Loft, 1992, p.287]. The major centres in South Africa have different cost structures, as the salaries and rentals are influenced by location between different centres.

Informal discussions between the author and some first year trainee accountants in Johannesburg and Cape Town showed that the starting salary in 1994 in Johannesburg was between R2400 and R2800, whilst Cape Town had a range of R1900 and R2100. As a matter of fact, a survey of starting salaries by a personnel agency showed starting salaries to be higher in Johannesburg than in any other major city in South Africa [*Sunday Times Cape Metro*, 17/5/92] In addition the cost of living in the Johannesburg area appears to be the highest [*The Star*, 7/1/92]. Because of the higher cost of living in Johannesburg in general, it is expected that salaries would be generally higher in this area to compensate for the higher cost of living. Because labour is the largest component of the auditor's costs [*CPA Journal*, August 1994], the cost structure has to bear some resemblance to the wage disparities between major centres.

Christiansen and Loft [1992, p.287] posit that the important costs of the audit are now less variable; they include those of hiring specialised consultants, investments in the education of staff, research and development, and tangible fixed assets. Whilst the nature of the costs may be changing, their determination is likely to be influenced by the location of the auditor's office base as these costs have a high labour component.

It is expected that auditors with offices in Johannesburg will have a higher cost structure which will be reflected in higher audit fees. The location variable (LOCATION) was captured using a binary variable, 1 for Johannesburg and 0 for other centres.

***Hypothesis 10: The audit fee is not affected by the location of the auditor's office.***

***Hypothesis 10a: Johannesburg-based auditors charge higher fees compared to other auditors in the country.***

#### **5.2.2.4 Expertise**

The advertising efforts of some of the country's firms emphasise a certain degree of specialisation in some industries. Judging from the tone of the advertisements, the link between specialist focus and expertise is obvious. Three advertisements inserted in the *Financial Mail* are included to demonstrate the emphasis on specialist skills. All three inserts were in special editions dealing with a particular industry.

("Specialisation of auditors" as used in this study, refers to auditors holding a relatively large market share for audits of clients within certain industries. It is not implied that auditors have devoted a substantial portion of their resources to the auditing of certain industries.)

This trend in specialisation in certain industries by audit firms was first noted in the US by Zeff and Keller [1967]. Subsequent studies showed that specialisation did not vary over an extended time period [Rhode *et al*, 1971; Schiff and Fried, 1976; Dopuch and Simunic, 1980; Danos and Eichenseher, 1986]. From another perspective, audit firm's industry expertise has been found to be a prominent differentiating attribute reported by buyers of Big Eight audit services [Shockley and Holt, 1983]. This obviously begs the question, why would auditing firms specialise in certain industries?

Eichenseher and Danos [1981, p.486] suggest that specialisation arises due to the desire “to exploit economies of scale.” But then how would such economies of scale arise? The acquisition of expertise in the accounting, economic, tax, and managerial characteristics of an industry is a type of fixed cost which, up to a certain point, results in declining average costs in the supply of that expertise [Buckley and O'Sullivan, 1980, pp.32-33]. The audit firm hires individuals with the required expertise to service more than one client [Danos and Eichenseher, 1981]. The experts are required to :

- acquire a detailed knowledge of the industry;
- understand the needs of the clients; and
- develop a range of products and services to meet those needs  
[*The Chartered Accountant in Australia*, April 1991, p.42].

So, an auditor who already has experience in an industry can offer more efficient and lower cost audits to other firms in the same industry. Eichenseher and Danos [1981] analysis of the audit services market demonstrates that the viability of audit firms in the context of industries requires the servicing of a large number of clients. As a result, Danos and Eichenseher [1982, p.605] advanced a “survivorship” hypothesis for pursuing economies of scale. Their thesis is that in a competitive environment, the survival of audit firms is dependent on firms operating at a minimum cost level. Scale economies will create an environment where survival is a function of size.

The AICPA [1978, p.112] suggest that the economies of scale are related to the regulatory complexity of the client. Such complexity requires the auditor to have the technical know-how of how to deal with them. The resultant technical economies of scale for audit firms are sourced from the specific format and measurement rules that regulatory bodies mandate for accounting reports of firms subject to their jurisdiction [Eichenseher and Danos, 1981, p.488]. Similar scale effects can be expected to occur within the contexts of clients issuing new securities and complying with industry specific regulation [Eichenseher and Danos, 1981, p.488].

# THE ERNST & YOUNG MISSION:

## “TO CONTRIBUTE MOST TO OUR CLIENTS’ SUCCESS”

At Ernst & Young, we understand a simple truth. As our clients grow so do we. So while our mission might sound a little idealistic, it has served us well.

From small beginnings in Cape Town in 1850 to a practice of 168 partners, a staff complement of over 1600 and 26 offices country-wide, we’ve become leaders in auditing and business consulting in the construction, insurance, transportation, mining and retailing industries, to mention but a few.

How do we contribute to our clients’ success?

- By thorough examination which reveals exactly how sound their businesses are.

- By uncovering opportunities for new ventures.

- By creating new efficiencies through information technology.

- By sound tax planning.

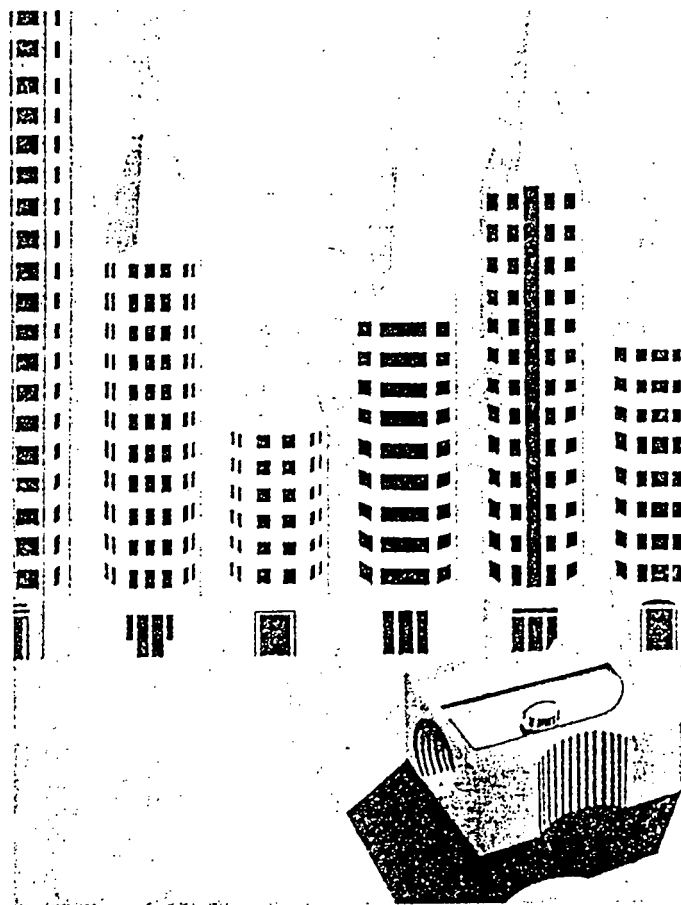
- By enabling people to perform at their peak.

- Or by helping to set new strategic direction.

We understand that true profits aren’t made by cutting corners. Rather, they are the result of exhaustive analysis, professional knowledge and the insight only years of experience can bring.

 **ERNST & YOUNG**

**As Banking & Finance  
Specialists we have  
sharpened our skills . . .**



**to help keep your eye on the forest  
without losing sight of the trees**

**KPMG is the largest and leading professional organisation  
serving the Banking & Finance Industry today.**

For further information contact John Louw,  
Partner Banking & Finance Group: (011) 332 7101

**KPMG** Aiken & Peat  
Banking & Finance Group

# To Understand An Industry, It Helps to Grow With It.

*In the past 100 years, we've grown to be specialists. In many industries. Including all aspects of Financial Institutions and Banking.*

*Our professionals know how to translate industry knowledge into action. To help our clients identify opportunities and solve problems.*

*Our specialised Financial Institutions Team offers services in Statutory Audit, Organisation and Management of Treasury Activities, Regulatory Consulting, Risk Management, Securitisation, Corporate Paper Programme Development. And more.*

*When it comes to issues in your industry, we are organised to focus the right resources on your needs.*

**Deloitte &  
Touche**



**We Listen. We Deliver.**

For further information, contact our Financial Institutions Team at (011) 806-5000.

Contrary to the above sentiment, audit firms with specialist industry experience might see industries in which they are leaders as an opportunity to recoup the eroding profit margins by charging higher fees [Sanders, Allen and Korte, 1995]. Empirically, Gist [1992, 1994] provides evidence for the existence of a premium for auditor expertise in regulated industries.

To measure the effects of industry specialisation (EXPERTISE), the percentage of firms audited in the sectors covered by the study is used. If an audit firm audited one client this is designated 0. If more than one client is audited, the variable was denoted 1. Other researchers [Palmrose, 1986a] used auditee sales to compute market shares. This measure is unsuitable for this study because not all listed companies disclosed turnover within the sample period. Prior to 1993, companies could choose not to disclose turnover. From 1993 onwards, this privilege fell away. Furthermore, market share measures based on client sales are dominated by large-client relationships [Eichenseher and Danos, 1981, p.484].

Prior research on the influence of auditor specialisation is mixed. Palmrose [1986a] found this variable to be insignificant whilst Ettredge and Greenberg [1990] found that the reduction in first year fees is larger when a client changes to a more specialist auditor. This result is more consistent with lower fees due to auditor expertise. Ward *et al* [1994] on the other hand, detected a premium for auditor experience when measured by a dichotomous variable. It appears that the expertise premium is associated with a dichotomous measure whilst lower fees have been associated with continuous measures. To test for the sensitivity of results to this classification scheme, the analysis will be performed using a binary code and a continuous measure. The continuous measure uses the percentage of companies audited in a particular sector.

***Hypothesis 11: The audit fee is not affected by the number of audit clients in the auditee's sector.***

***Hypothesis 11a: The number of clients in a particular sector can either positively or negatively affect the audit fee.***

### 5.2.2.5 Change in auditors

The impact of auditor switching on audit fees appears to arouse professional and regulatory concern. One of the earliest concerns over the charging of low audit fees for new audit clients was expressed by the *Cohen Commission* [AICPA, 1978]. The Commission referred to allegations that some firms charged lower fees for the first year or first few years of an audit, with an expectation of recovering the initial loss in subsequent years [AICPA, 1978, p.121]. The Commission expressed concern over the threat that such a practice posed to the auditor's independence.

De Angelo [1981b] provides a model for explaining why audit firms would set the initial cost of an audit lower than the true cost of the audit. In auditing circles this practice is referred to as "low balling". The economics-based analysis adopted recognises the existence of significant start-up costs for initial audit engagements. These costs may be due to [De Angelo, 1981b, p.118]

- the necessity to verify the details making up those balance sheet accounts that are of a permanent nature, such as fixed assets, patents and retained earnings;
- the lack of familiarity with the client's operations by the auditor in an initial engagement;
- balances brought forward have to be verified in more detail in an initial engagement.

The initial costs would only be incurred by other auditors, thus giving the incumbent auditor an advantage. The auditor-client bonding gives rise to client-specific quasi rents in the form of future profits to the incumbent auditor. The expected profit for the auditor will thus be based on the profit on the initial year of the audit plus the present value of quasi rents from future audits. Auditors bidding for the initial engagement hold rational expectations about the future advantages to incumbency and submit bids based on these expectations. Competition for the initial audit forces auditors to lower their bids until zero profits (in net present value terms) are expected.

This can only happen when the future profits from the audit are positive and the initial audit fee is set below actual cost. The supposition in this framework is that auditors will only bid for an audit if the future profits from the audit are greater than zero. The amount of the initial “discount” is directly related to the expected future profits, i.e. the greater the future profits the greater the discount, *ceteris paribus*.

Watts and Zimmerman [1986, pp.314-315] provide a numerical example of quasi rents and lowballing. Assuming that there are start up costs for the initial year of the audit, take the auditor’s costs for the initial year to be R150 and R100 for each subsequent year. If the client changes auditors, the new auditor will incur costs of R150, some of which will be passed to the client in a higher fee in later years. Suppose the auditor can charge R102 without triggering an auditor change. The R2 difference between fees and costs represents future-quasi rent that the auditor is able to capture because the R50 start-up costs have already been incurred. This rent is specific to this client.

Given the existence of price competition in the audit services market, the future quasi rent is bid away at the time of the initial audit. If the present value of future quasi rents is expected to be R10, the potential auditor’s minimum bid will be R140. Competition ensures that at the initial bid, no auditor earns a return in excess of total costs.

Cursory review of world-wide auditing journals reveals that price cutting on initial engagements is rife. In the UK, Price Waterhouse were accused of lowballing when they tendered for the audit of Prudential Insurance at a “discount” of £700,000 [*Accountancy*, July 1992, p.27]. In South Africa, comments from a local partner of a Big Six affiliate indicated the suspicions of the existence of low balling [Msibi and Pillay, 1992]. The increase in low balling appears to have been spurred on by general cost consciousness of clients who now open audits to tender. The admission of the existence of lowballing has become more brazen even among auditors. For instance, a panel of partners interviewed by the *CPA Journal* [August 1994, p.20] admitted that:

“We [auditors] have made the audit a loss leader to gain access to clients”,

and further adds that:

“If you price the audit properly, you will get none of the business.”

Changes in auditors may also be motivated by reasons other than fee pressures. These are listed by Addams and Davis [1994] and Francis and Wilson [1988]. According to these studies, the audit fee may not be the most important factor in choosing an auditor. However, it is worth noting that it is one of the more important factors in choosing an auditor for small firms, per the research by Addams and Davis.

Ettredge and Greenberg [1990] suggest that the extent of initial fee cut will be determined by the financial health of the client, change in auditor class, technological efficiency of the auditor and industry expertise, and the number of bidding auditors. Observe the similarity in industry expertise cited as a reason for choosing an audit firm and the extent of fee cutting in the initial year.

The AICPA [1978] described evidence of lowballing as anecdotal, although there is a perception that it is widespread in practice. Prior empirical studies have either failed to detect price cutting [Francis, 1984; Palmrose 1986a and Simunic, 1980] or cannot be generalised, due to very small sample sizes [Baber *et al*, 1987; and Francis and Simon, 1987].

Whilst more and more recent research indicates price cutting, it is possible that the extent of low balling can be obscured by a change in perceived risk. If an auditor resigns from a client because of some perceived cost or risk, the successor auditor may require a higher fee [Roberts *et al*, 1990, p.221]. This situation is more likely to occur if the variables capturing risk in the audit fee model do not sufficiently cater for the perceived changes in risk.

The major problem with examining the impact of changes in auditors on audit fees, is the size of the sample, especially amongst large corporations [Eichenseher, Hagigi, and Shields, p.30]. For example, Francis [1984] had 26 auditor changes in a sample of 136 companies, Francis and Simon [1987] had 12 initial engagements out of a total sample of 220. This could be explained by the fact that companies change auditors rather infrequently and after careful consideration[Eichenseher *et al*, 1989].

In this study, the number of observations involving auditor changes is 5 out of 208 total observations. Therefore, the size of observations in this sample is more severe than in other cross-sectional studies. This implies that a better examination of this variable could be a separate study investigating this variable as its prime focus.

**Hypothesis 12:** *Auditor changes have no influence on audit fees.*

**Hypothesis 12a:** *Audit fees are negatively related to auditor changes.*

### 5.3 Dependent variable

The audit fee is the dependent variable. For the purposes of this study, the audit fee is the amount paid to the auditor, excluding any prior year over or under provision. In principle the prior year over or under provision relates to the year in which the services were rendered. It is brought into account in the following year because it is more of an inaccurate estimate than a fundamental error [SAICA,1985]. This prior year over or under provision is in principle an amount that relates to the audit effort expended in the prior year. The prior year over or under provision was thus added back or deducted from the prior year's audit fee. Auditor expenses were also included as part of the audit fee as these form part of the auditor's efforts to carry out the audit. The *Companies Act of 1973* s283(2) as amended requires all payments made to the auditor for the audit, other specified services, the auditor's expenses and payments in respect of the audit, be disclosed separately in the income statement. Since audit fees and related auditor remuneration are required disclosure in South Africa, it was not necessary to obtain fee data by means of questionnaires, as has been necessary in similar studies in Canada and the US.

This gathering of audit fee data relies on the assumptions that both auditors and auditees have no biases about disclosing the audit fee. Simon [1985, p.74] observed that it is not clear whether auditors or clients would be more likely to disclose audit fees if they were higher or lower than expected, given the size of the auditee and their complexity. It is equally plausible that, *a priori*, a firm would like to disclose "low" audit fees to demonstrate that it is careful about spending or "high" fees to indicate that the audit is of high quality [Simon, 1985]. Similarly, auditors may have an interest in reporting only low fees to prevent audit clients seeking fee reductions, while to report high fees might cause other auditors to attempt to obtain the client by offering a lower fee.

It should also be noted that a study of this nature does not sufficiently recognise the impact of reliance on other auditors. The appearance of an auditor's opinion in the annual financial statements of a company, does not necessarily signify that one public auditing firm audited all the consolidated subsidiaries and equity accounted associates, as well as the parent [Zeff and Fosum, 1967, p.299]. As companies diversify and disperse their operations, the auditor of the parent company may need to rely on audits conducted by other firms. The statistical data tends to overstate the role of the principal auditor and understates the roles of other auditors. For this reason, complexity of an audit client may be masked by the use of consolidated (aggregated) financial statements. Great care has to be exercised in interpreting the exact implications of this thesis.

To correct for heteroscedasticity, researchers transform the dependent variable by deflating it with total assets [Simunic, 1980; Chung and Lindsay, 1988; Anderson and Zeghal, 1994], taking the natural logarithm [Palmrose, 1986a] and the logarithm to base 10 [Taffler and Ramalingam, 1981; Francis, 1984]. Firth [1985] did not make any adjustments. For the purposes of this research the log of base 10 will be used.

The variables discussed above are summarised in Table 8 below:

**Table 8: Description of variables**

Measure	Exp. sign	Description
<i>Dependent variable</i>		
AUDIT FEE	•	Total fees paid to auditors excluding prior year over or under provision including expenses.
<i>Independent variable</i>		
ASSETS	+	Sum of fixed assets, current assets, investments and loans advanced at year end.
SALES	+	Total sales excluding value added tax.
NIBT	+	Net profit before tax including earnings from associates.
INV+DEBTOR	+	All stock items including raw materials, finished goods, work in progress less provision for slow-moving and obsolete stock PLUS Trade debtors (less any bad debt provisions) and any other amounts owed by third parties payable within one year.
ENTITIES	+	Number of consolidated subsidiaries and equity accounted associates.
DELAY	+	Number of days between audit report signing and year end.
REPORTS	+	Number of financial reports in addition to basic financial statements.
OPINION	+	Qualification of audit opinion, designated 1 if qualified and 0 otherwise.
OWNERSHIP*	+	Percentage of equity held by directors (beneficial and non beneficial).
GEARING	+	Ratio of total liabilities to ordinary shareholders' interest.
PROFIT	-	Ratio of Net income to total assets.
LIQUIDITY	-	Ratio of current assets to current liabilities.
AUDITOR	?	International affiliation of audit firm, designated 1 if Big Six affiliate and 0 otherwise.
EXPERTISE	-	The number of audit clients in the auditee's JSE sector, designated 1 if auditor has more than one client in the sector., otherwise 0
LOCATION	+	City/Town at which audit report is signed, designated 1 for Johannesburg and 0 for any other city.
MAS	+	Fees paid to auditor for other services

McGregor's Who Owns Whom [1993] provides the following definitions used in the calculations of the debt to equity ratio, current ratio and return on assets :

*Ordinary shareholders interest* - The sum of ordinary share capital, share premium, non-distributable reserves and distributable reserves.

*Long term liabilities* - The sum of convertible debentures, directors/shareholders loans, non interest bearing and interest bearing liabilities.

*Current liabilities* - The sum of trade creditors, dividends payable, taxation payable, interest bearing and non interest bearing liabilities payable within 12 months .

*Total liabilities* - The sum of preference shares, outside shareholders interest, deferred tax, other, current liabilities and long-term liabilities

*Current assets* - The sum of inventory, debtors, cash and near cash, dividends, tax and other short term assets.

*The return on assets* ratio is computed thus

(Investment Income + Operating profit + Interest received + Income from Associated Companies)\* 100

Total assets

All the data relating to the above variables was gleaned from the annual reports with the exception of the auditee risk and auditor expertise measures obtained from *McGregor's Who Owns Whom* [1991, 1992, 1993].

#### **5.4 Omitted variables**

The above list of variables is not the comprehensive list of variables that will explain the variability of audit fees.

##### **5.4.1 Internal audit costs**

Previous research [Wallace, 1984b] has identified, amongst other factors, internal audit costs as having a relationship with audit fees. These studies were based on questionnaires where respondent companies provided the amount of expenditures on the internal audit function. This research has not adopted that approach but recognises that practically, there should be a relationship between external audit costs and internal audit costs.

As a matter of fact, Margheim [1986] found that external auditors reduced planned audit hours if the internal auditors had a high level of competence and work performance. The internal auditors had to perform documented work in a specific area, before the external auditors would reduce the amount of planned hours. A further point that should be made is that internal audit departments are more likely to exist in large corporations, which are more likely to be audited by large audit firms. The extent of the prevalence of internal audit departments amongst listed companies appears to be unknown. Therefore, for practical reasons, the internal audit variable was left out.

#### **5.4.2 Industry**

Industry variables are also expected to affect audit fees [Wallace, 1989]. It would be very difficult to assess the exact nature of the underlying business areas as it has become exceedingly difficult to draw lines between industries. Although the companies in similar industries fall under the same sector, the sectorial listings of some of the companies do not necessarily conform to the underlying business nature with some element of fluidity in the nature of industry categories [Rhode, Whitsell and Kelsey, 1974, p.773]. For instance, a company like South African Breweries is listed under beverages but has extensive interests in hotels and retailing. This problem was compounded by the lack of segmental information in annual reports. In the absence of an authoritative source, the industry effects on audit fees were not modelled into the regression analysis. An additional problem is the relatively small sizes for each industry and a small number of observations for some types of auditors (e.g. non-Big Six) within industries.

#### **5.4.3 Foreign subsidiaries**

A significant proportion of the companies included in the study did not distinguish between local and foreign subsidiaries. One of the possible reasons for that was to protect foreign interests of local companies during the economic sanctions era. The translation of foreign subsidiaries into local currency for consolidation purposes may be time consuming as it requires more detailed information, particularly if the entity is a foreign operation. The specific needs of the auditor of a South African multinational are more onerous. Specifically, the local auditor is required to [Richards, 1976, p.7 (adapted)]:

1. carefully study the world-wide operations of the client to determine the auditing needs to meet local and foreign legal requirements;

2. have a network of offices throughout the world to meet the client's needs;
3. ensure that the foreign offices are staffed with auditors who are familiar with South African accounting principles and auditing standards;
4. have the ability to keep overseas offices informed of new developments on a timely basis; and
5. be freely able to communicate with his overseas offices so that there is a clear understanding of exactly what is required and exactly when it is required.

All these omitted variables could conceivably account for the unexplained variance in the audit fee model. This is a limitation of the study.

#### 5.4.4 Busy period

The cluster of year ends around a particular time of the year, along with time pressure for the early issuance of audit reports, produces a flood of work at the same time of the year [AICPA, 1978, p.119]. The timing of audits around a particular time of the year is determined by the year end of the client. South African listed companies also tend to have common year ends. *McGregor's Who Own Whom* [1993] gives a breakdown of listed company year ends listed in the table below.

**Table 9: Listed companies classified by financial year end**

January	1	July	8
February	102	August	30
March	124	September	72
April	22	October	6
May	1	November	3
June	212	December	148

Year ends tend to cluster around the quarters with June, December, and March being the most popular. Gloeck *et al* [1993, pp.59-63] analysis of year ends of the Top 200 Listed Companies shows that some audit firms have a significant number of periods taking place at a particular time of the year. From their analysis, the busiest time of the Big Six affiliates is June and December. The most even appears to be Arthur Andersen.

Although auditing firms try to schedule as much work as possible at interim dates, the year-end rush still exists. Chan *et al* [1993] posit that firms may try to smooth out these peaks by charging premium prices for busy season clients. They further add that such a smoothing of work flows creates a need to shift audit emphasis to pre year end testing which might give rise to less efficient and therefore more costly auditing [p.785, Footnote 7]. The variable was insignificant in their audit fee pricing model. This finding confirmed Ramzy's [1988] survey of auditors which concluded that "the date of the company's year end (busy and less busy) ..... are believed to have no effect on the level of audit fees" [p.114].

Comments from Stuart Morris, a senior partner at KPMG Aiken and Peat, indicates that South African firms may not be charging a premium for audits at peak times but there is more of an emphasis on maintaining quality and service without putting staff under too much pressure [*Financial Mail KPMG Aiken and Peat Corporate Survey*, May 11, 1990]. Therefore, this study has not taken into account the effects of peak pricing.

#### 5.4.5 Auditor Tenure

Audit fees appear to be potentially susceptible to learning curve effects [Rubin, 1988]. Simunic [1980] suggests that over time auditors may increase their efficiency in auditing a particular client. He predicts that the cost savings from auditor learning will be passed on to the auditee in the form of a lower audit fee. His empirical results did not support the expected negative association of audit fees and audit tenure. Rubin [1987] also found that the auditor variable was insignificant.

Apart from the lack of significance of this variable in prior studies, it has been excluded because it would have been necessary to survey the firms for the length of period that they had been auditors of a particular client. Therefore, the relationship between auditor tenure and audit fees is ignored.

#### 5.4.6 Fee billing arrangements

Research done in the US shows that the audit fee is influenced by whether the audit arrangement is a fixed fee or hourly billing. In South Africa, the only way of distinguishing between the two types of arrangement is by carrying out a survey of auditors and management which is beyond the scope of this study. For this reason, this variable has not been included.

#### 5.5 Summary

This chapter sets out the hypothesis underpinning this study. It is expected that the audit fee will be a function of client and auditor factors. The size, complexity and risk of the client are expected to be positively related to audit fees. The relationship between auditor size and audit fees is not predicted as there are very strong competing hypothesis. The location of the auditor, MAS, and audit delay are expected to be positively related to audit fees whilst the level of expertise in a particular sector is expected to have a negative relationship.

A conceptual model underlying these ideas is given in the following equation:

$$\text{Audit Fee} = f[\text{client size, ownership structure, complexity \& risk, reporting structure, auditor size, location, MAS; audit delay}]$$

The model admittedly includes a large number of variables. However, the importance of these variables has been suggested by previous research. Simplified models could be developed as more research pinpoints the more important factors.

## 6. METHODOLOGY AND DATA

### 6.1 Data collection

The sample for this study consists of 104 companies. They were selected among listed companies by first classifying all listed companies on the JSE according to the size of the auditor based on information in *McGregor's Who Owns Whom* [1991,1992]. 100 firms audited by the large Big Six firms were selected against 100 firms audited by small and medium size firms, all on a random basis. The starting sample was selected from companies listed on 1 January 1991 excluding companies in the financial sector (banks and insurance companies), and companies jointly audited by a Big Six and a non-Big Six accounting firm. The starting sample of 200 companies was adjudged to:

- be sufficiently large to permit sensible analysis which has the potential of being generalisable for South African listed companies; and
- keep the cost of microfiche and the effort involved in extracting variables from them at manageable levels.

The exclusion of banks and insurance companies warrants further comment. Elliott and Korpi [1978] and Simunic [1980] observed that companies in this sector tend to be very unique resulting in their appearance as outliers with uniformly low values for the audit fee. Their inclusion may inadvertently bias the results of this study.

During the data gathering phase the original sample was reduced to the final 104 as follows:

**Table 10: Description of sample selection**

<b>Starting sample size</b>	<b>200</b>
Companies delisted	40
Involved in mergers	11
Turnover not disclosed	29
Audit fee not disclosed	1
Insufficient data	15
<b>TOTAL</b>	<b>104</b>

The sample period was defined as 1991-1992. This period was selected because it preceded the changes in the Companies Act regarding the disclosure of auditor remuneration. Prior to 1993, auditor remuneration was broken down between audit fees, expenses, fees for other services and prior year over or under payments. The amended Schedule 4 issued in 1993 did not require a breakdown although Section 289 still does. It was felt that this lack of clarity could hinder data collection. Also the sample period was before the relaxation of advertising rules for auditors in late 1993.

Table 11 provides the descriptive statistics of all the variables included.

**Table 11: Data descriptive statistics for total sample**

VARIABLE	MEAN	MAXIMUM	MINIMUM	STD DEV.
AUDIT FEE	R518055	R5,985 mil	R2169	R3,2 mil
MAS	R56977	R1,3 mil	0	R485295
SALES	R679 mil	R18188 mil	R473000	R768 mil
NIBT	R5,5 mil	R721 mil	(R35 mil)	R325000
ASSETS	R5,5 mil	R15105 mil	R704000	R1323 mil
ENTITIES	20	198	0	38
INVENTORY	R78 mil	R1216,7 mil	0	R527 mil
DEBTORS	R96 mil	R1213,5 mil	0	R55 mil
REPORTS	2,46	9	0	3.78
PROFIT	17,80%	183,73%	(26,75%)	23.0%
GEARING	43,55%	237,39%	0	23.4%
LIQUIDITY	1,73 times	14,77 times	-	1,34 times
DELAY	74 days	290 days	24 days	40 days

The variables captured by binary codes have the following characteristics:

**Table 12: Descriptive statistics of binary coded variables**

No. of companies with qualified audit reports	7
No. of companies controlled by directors	42
No of companies with Johannesburg auditors	80
No of companies which changed auditors	5

The audit fee averages R518 055 with a maximum of R5,9 million and a minimum of R2160, and the standard deviation is greater than the mean. Thus the distribution is positively skewed, with a long upper tail of high fees. This reflects a similar pattern in two auditee size variables SALES and ASSETS. The average size of these variables (ASSETS R5,5 million, SALES R679 million and NIBT R5,5 million) reflects a bias towards larger listed companies.

Inventories also exhibit positive skewness. However, the other measure of balance sheet complexity, debtors exhibits negative skewness which indicates that the levels of debtors and inventories do not follow the same trend in different companies. The scope complexity variable, ENTITIES, varies between 0 and 198 with an average of 20. Thus, although the variable is defined in discrete terms, it provides a fairly good approximation to a continuous measure of complexity.

The REPORTS variable shows that on average, listed companies add at least two reports to the additional requirements of the Companies Act. The standard deviation indicates a positive skewness showing that more companies actually disclose more than the mean. The DELAY variable shows negative skewness (average 74 days and standard deviation of 41 days). This is indicative of more companies having their audits concluded before the mean delay period.

Two of the audit risk indicators LIQUIDITY and GEARING have negative skewness showing a long lower tail of companies with low gearing and liquidity. In contrast, the PROFIT variable shows a long upper tail (positive skewness).

MAS shows a positive skewness indicating a greater tendency to purchase advisory services than the mean. Hence, the sample has a large number of companies who purchase MAS at amount greater than the mean. The average seems to indicate a preference of purchasing MAS from auditors. More than 75% of firms included in the sample purchased some MAS from their auditors.

Turning to the discrete variables, the average value for auditor change (not shown on the table) is 0.024 which indicates that, on average, the probability of any audit in any year being in the hands of a new auditor was only higher than over 2%, or, more vividly, that the auditor might expect to retain the audit for 40 years. The latter inference must, however, be tempered by the fact that we exclude that discontinuity of companies, which could probably a major cause of termination of auditors' tenure of office. The lower number of qualifications has essentially the same characteristics as the auditor change variable. The

LOCATION factor has a strong bias towards Johannesburg auditors. This is not surprising as most listed companies have head offices in Johannesburg. The number of companies controlled by directors shows that there is fair number of companies where directors have control.

The sectorial representation was fairly diverse with a significant proportion of the JSE sectors represented. The only sectors not represented (excluding banks, financial services and insurance companies which were not covered by the study) were sugar, tobacco and match, and the venture capital market. Although some of these sectors have large well known companies, their absence should not be of any significance to the outcome as there is a good spread amongst all other listed companies. The breakdown per sector is shown in Table 13. The "other" in the table refers to sectors which had only one representative in the sample. These sectors were investment trusts, fishing, chemicals and oils, printing and publishing, steel and allied and furniture and household.

**Table 13: Sectorial representation of sample companies**

SECTOR	NO. OF COs	% OF TOTAL
Beverages & Hotels	2	2
Building & Construction	3	3
Clothing & Textiles	6	6
Coal	2	2
Development Capital Market	6	6
Electronics	10	10
Engineering	3	2
Food	4	4
Gold	6	6
Industrial Holding	13	12
Metal	2	2
Motor	2	2
Paper & Packaging	3	3
Pharmaceutical & Medical	2	2
Property	10	9
Retailers	17	16
Transport	5	5
Other	5	4
<b>TOTAL</b>	<b>104</b>	<b>100</b>

The representation of the audit firms in the sample as depicted in tables 14 and 15 shows some bias in favour of Big Six firms . The large firms audit 60% of the sample against 40% audited by the small firms. This was not intended but was purely as a result of the elimination of companies at the sample selection phase. In any event there is an expectation of a greater proportion of listed companies to be audited by larger, well known firms. For the purposes of compiling this table, where a client changed audit firms or engaged two firms

(joint audits) in the sample period, the audit firms were each given a half to enable the allocation of client companies for each firm to reconcile to the total number of firms in the sample.

**Table 14 : Small audit firm representation in sample**

Audit firm	Companies	Observations
BDO Spencer Steward	2	4
Fisher Hoffman Stride	8	16
Glass Arenson	2	4
Goldberg Jaffe	2.5	5
Kessel Feinstein	11	22
Other	16	26
<b>TOTAL</b>	<b>41.5</b>	<b>83</b>

Other in the table of small firms refers to 16 firms which were associated with only one observation. The firms are Litvin Hack, Levitt Kirson, Henry Ginsberg, DuPlessis and Company, Charles Orbach, TP Connaughton, Murray and Co, Wiehan Meyernel, Louwfutter and Company, Auret van Wyk, Sandberg and Partners, Herbert and Partners, Meintjies and Company, Schneider Katz and Co, Venter Jager and Co, and Brenner Hatz and Kilson.

**Table 15: Large audit firm representation in the sample**

Audit firm	Companies	Observations
Arthur Andersen	7	14
Coopers and Lybrand	9	18
Deloitte and Touche	11	22
Ernst and Young	16.5	33
KPMG Aiken and Peat	13.5	27
Price Waterhouse Meyernel	5.5	11
<b>TOTAL</b>	<b>62.5</b>	<b>125</b>

## 6.2 Methodology

The determination of the pricing model is based on a multiple regression model. The model specifications are given by the equation :

$$\begin{aligned} \text{LogY} = & \beta_0 + \beta_1(\text{MAS}) + \text{Log } \beta_2(\text{SALES}) + \beta_3(\text{NIBT}) + \text{Log } \beta_4(\text{ASSETS}) \\ & + \beta_5(\text{ENTITIES})^{0.5} + \beta_6(\text{INV} + \text{DEBTOR}) + \beta_7(\text{REPORTS}) \\ & + \beta_8(\text{PROFIT}) + \beta_9(\text{GEARING}) + \beta_{10}(\text{LIQUIDITY}) \\ & + \beta_{11}(\text{DELAY}) + \beta_{12}(\text{OPINION}) + \beta_{13}(\text{CHANGE}) \end{aligned}$$

$$+ \beta_{14}(\text{LOCATION}) + \beta_{15}(\text{AUDITOR}) + \\ + \beta_{16}(\text{OWNERSHIP}) + \beta_{17}(\text{EXPERTISE}) + \epsilon$$

where :

Y = dependent variable (audit fee)

$\beta_0$  = constant

$\beta_i$  = independent variables (hypothesised determinants of audit fee)

$\epsilon$  = error term

The null hypothesis

$$H_0 : \beta_i = 0$$

is tested against the alternate hypothesis that

$$H_a : \beta_i \neq 0$$

using the *t*-test for each beta parameter.

Regression analysis presumes that changes in the dependent variable are caused by changes in the independent variables [Pindyck and Rubinfeld, 1991]. In effect, regression analysis provides an equation that will allow *y* to be predicted for particular values of  $\beta$ . To attach such causal relationship, a theory explaining the relations between the variables is required. Only once such a theory has been specified, would regression be the appropriate procedure to test whether the specified relationship holds statistically [Pindyck and Rubinfeld, 1991]. Such a theory has already been presented in the preceding chapter which would justify the use of regression analysis in the determination of a pricing model for audit fees.

The audit fee regression model developed in this study proxies for an unobservable audit production function by the use of publicly-available data pertaining to the firm and its auditor [Simon and Francis, 1988]. The majority of prior research used multiple regression but other methods used were factor analysis [Taylor and Baker, 1981], maximum likelihood regression [Abdelkhalik, 1990] and correlation analysis [Haskins and Williams, 1988]. These methods were used in conjunction with multiple regression analysis. For comparative purposes, stepwise regression has been used by Ward *et al* [1994] and Barkess and Simnet [1994]. Simultaneous regression equations have also been used by Copley *et al* [1994].

The assumptions of the multiple regression model are [Pindyck and Rubinfeld, 1991] :

1. There is no exact linear relationship among two or more of the independent variables;
2. The error term has a 0 expected value and constant variance for all observations;
3. Errors corresponding to different observations are uncorrelated; and
4. The error variable is normally distributed

There are instances when the above assumptions may be violated in which case the regression model may yield unreliable results. This may occur when there is multicollinearity, auto correlation, heteroscedasticity and nonnormality of the error term.

### 6.2.1 Multicollinearity

Multicollinearity arises when two or more independent variables are highly correlated with each other. The consequence of which is that it is difficult for ordinary least squares regression to disentangle the influence of each explanatory variable [Foster, 1986]. The result of this is that [Mendenhall and Sincich, 1993]:

1. the regression coefficients may be overstated;
2. the regression results may be confusing and misleading due to the overlaps of the extent of contributions to the explanatory powers of the regression by the correlated variables; and
3. the parameter estimates can have opposite signs to what is expected.

The following are indicators of multicollinearity [Mendehall and Sincich, 1993; Pindyck and Rubinfeld, 1991]:

1. Significant correlations between pairs of independent variables in the model. Inspection of the covariance matrix for relatively high covariance between estimated parameters is the most common method of detecting multicollinearity due to significant covariance of independent variables.
2. Opposite signs from what is expected in the estimated parameters.

3. High standard errors of the coefficients. It is recommended in such an instance that one or more of the variables be dropped. If this lowers the standard errors then multicollinearity will be the source of the problem.
4. Nonsignificance of individual regression coefficients when the model as a whole is significant.

The problem of multicollinearity can be solved in a number of ways. The most common and simple of these involves using a screening procedure such as stepwise regression to select which of the correlated variables may be included in the model [Mendehall and Sincich, 1993]. Generally, only one (or a small number) of a set of correlated variables will be included in the model since this procedure tests the parameter associated with each variable in the presence of all the variables already in the model. The variable with the largest Pearson product moment correlation with the dependent variable is entered into the model first, whilst calculating the significance of each beta value. This procedure will be repeated until no further independent variables can be found that yield significant  $t$ -values in the presence of the variables already in the model. The result of a stepwise regression procedure is a model containing only the main effects with  $t$ -values that are significant at the specified alpha (significant) level. For a model-building exercise like this thesis, stepwise regression provides a useful objective screening mechanism and comparative results to the multiple regression model.

An alternative to stepwise regression is ridge regression [Mendenhall and Sincich, 1993] which is more complex. It focuses on reducing the standard errors. The estimates of the regression coefficients are biased and have significantly smaller standard errors than the unbiased estimates yielded by the least squares method. Thus the regression coefficient estimates are more stable than the corresponding least squares estimates.

### 6.2.2 Serial correlation

This occurs when the residuals corresponding to different observations are correlated. On average it will not affect the coefficient estimates but the estimated error variance of the regression will be smaller than the true error variance. Hence, one would tend to reject the null hypothesis when in fact it should be accepted. In addition the variability of the dependent variable explained by the independent variable ( $R^2$ ) would be overstated [Pindyck and Rubinfeld, 1991].

The Durbin-Watson statistic is used to test for the presence of residual correlation. This statistic is subjected to the null hypothesis that no serial correlation is present in the sample.

### 6.2.3 Heteroscedasticity

Unequal variances for different settings of the independent variables result in heteroscedasticity. The ordinary least squares approach places more weight on observations with large variances than on those with small variances. A residual plot will frequently reveal the presence of heteroscedasticity. The other tests for heteroscedasticity for multiple regression analysis are fairly complex and in any case, some merely confirm what is depicted by a frequency plot [Mendenhall and Sincich, 1993].

To deal with heteroscedasticity, the dependent variable is transformed using either the square root or logarithm functions both of which have a constant variance [Mendenhall and Sincich, 1993]

### 6.2.4 Non-normality

From the assumptions of regression analysis, it should be noted that the basic assumption is that the random error is normally distributed with mean 0. Moderate departures from the normality assumption have little effect on error rates associated with the statistical tests and on the confidence coefficients associated with the confidence intervals [Mendenhall and Sincich, 1993]. However, in the absence of nonnormality, the standard  $F$ - and  $t$ -tests of significance cannot be performed. Nonnormality of the residuals can be detected graphically by plotting a frequency distribution of the residuals. A visual check for skewness may be sufficient proof for absence of nonnormality [Mendenhall and Sincich, 1993]. There may not be a need for testing for nonnormality as the tests for nonnormality are not powerful [Pindyck and Rubinfeld, 1991]. This is mainly due to the application of the central limit theorem particularly with large sample sizes. In any event, inferences derived from the regression analysis tend to remain valid even when the assumption about normal errors is violated [Mendenhall and Sincich, 1993].

### 6.2.5 Outliers

Generally, residuals are normally expected to lie within 3 standard deviations from the mean [Pyndick and Rubinfeld, 1991]. Residuals which are extremely large (more than three standard deviations from the mean) are referred to as outliers [Mendenhall and Sincich, 1993]. Outliers may be due to [Mendenhall and Sincich, 1993]:

1. Invalid measurements of data;
2. Nonnormality of the probability distribution of the random error;
3. Chance; and
4. Unassignable causes.

Normally two approaches are used in deciding whether outliers should be disregarded in a regression analysis or not. They can either be eliminated regardless of whether the cause can be identified or not. Alternatively, outliers which can be traced to specific causes are corrected and included in the analysis [Mendenhall and Sincich, 1993].

Elimination of outliers is not normally recommended as the outlier may be containing information indicating that the model may be suspect not the outlier [Pindyck and Rubinfeld, 1991]. The most common and simple way of detecting outliers is the careful study of residual plots. Another way is by running the regression excluding the outlier(s) to determine the effect of the outlier on the model.

### 6.3 Data transformation.

In certain instances it may be necessary to transform the dependent and independent variables. The dependent variable is transformed if the random error does not have a normal distribution with a mean value equal to 0, and the random errors are not independent [Mendenhall and Sincich, 1993]. The independent variables will be transformed to make the model achieve a better approximation of the dependent variable. This may be particularly relevant where the dependent and independent variables are related but not in a straight line. For instance, the audit fee is expected to be positively related to total assets, but the relationship may not be 100% linear as the increase in size may result in

an economies of scale to the auditor thus increasing the audit fee by a smaller amount compared to the increase in size.

## **6.4 Tests for assumptions**

### **6.4.1 Multicollinearity**

The covariance matrix was inspected for covariance parameters with a figure greater than 0,5 and significant at the 5% level. The covariance matrix is shown in table 16.

The variables for size and balance sheet complexity (inventory and debtors) show the highest and most significant levels of correlation. The number of reports also shows strong correlation with both size variables and the complexity variables (scope and balance sheet). There are also significant correlations between ownership and MAS, audit opinion and number of reports, and liquidity and profit.

The matrix indicates the possible existence of multicollinearity particularly between the MAS, size and complexity variables.

### **6.4.2 Heteroscedasticity**

The plot of the residuals show a roughly cone shape meaning that the size of the residuals increases as the estimated audit fee increases (see Figure 9).

A log transformation of the audit fee is thus more suitable to reduce heteroscedasticity [Mendenhall and Sincich, 1993]. When the audit fee variable is transformed the dispersion of the residuals changes as the cone shape disappears (figure 10); there is no tendency of the residual variance to increase as the mean audit fee increases. To examine whether the transformation of the dependent variable improves the predictive power of the model, two regressions were run, one using the untransformed dependent variable and the other using a transformed variable.

Table16: Pearson correlation matrix

	MAS	SALES	NIBT	ASSETS	ENTITIES	INVENTORY	DEBTORS	REPORTS	PROFIT	GEARING	LIQUIDITY	OPINION	OWNERSHIP	AUDITOR	EXPERTISE	DELAY	CHANGE	LOCATION
AUDIT FEE	<b>0.88</b>	0.11	<b>0.82</b>	<b>0.73</b>	0.41	<b>0.88</b>	<b>0.85</b>	<b>0.74</b>	0.03	0.05	0.01	-0.01	<b>0.72</b>	0.15	0.12	-0.05	0.01	0.07
MAS	1.00	0.08	<b>0.78</b>	<b>0.74</b>	0.45	<b>0.78</b>	<b>0.82</b>	<b>0.63</b>	0.05	0.08	0.05	0.02	<b>0.82</b>	0.13	-0.05	-0.02	0.04	0.06
SALES		1.00	<b>0.84</b>	<b>0.88</b>	0.03	0.26	<b>0.28</b>	0.14	0.00	-0.01	-0.03	-0.02	<b>0.15</b>	0.09	-0.08	-0.04	-0.02	-0.16
NIBT			1.00	<b>0.83</b>	0.17	<b>0.89</b>	<b>0.91</b>	<b>0.88</b>	0.07	0.05	0.03	-0.01	<b>0.14</b>	<b>0.25</b>	-0.02	-0.09	0.01	0.00
ASSETS				1.00	0.17	<b>0.89</b>	<b>0.77</b>	<b>0.43</b>	-0.01	-0.01	-0.02	-0.02	0.09	0.06	-0.05	-0.05	-0.01	0.04
ENTITIES					1.00	0.42	<b>0.41</b>	<b>0.41</b>	0.05	<b>0.18</b>	0.10	0.04	0.10	<b>0.11</b>	0.02	-0.01	0.04	0.11
INVENTORY						1.00	<b>0.84</b>	<b>0.79</b>	0.04	0.05	0.03	-0.01	<b>0.17</b>	<b>0.21</b>	-0.07	-0.06	0.01	0.07
DEBTORS							1.00	<b>0.77</b>	0.04	0.05	0.03	-0.01	<b>0.13</b>	<b>0.19</b>	-0.02	-0.07	0.01	0.07
REPORTS								1.00	0.03	0.01	0.01	<b>0.77</b>	0.06	<b>0.33</b>	-0.01	-0.17	0.05	0.08
PROFIT									1.00	0.22	<b>0.42</b>	<b>0.17</b>	-0.01	<b>0.18</b>	0.24	0.05	<b>0.16</b>	0.02
GEARING										1.00	0.25	<b>0.18</b>	0.14	0.07	<b>0.25</b>	-0.07	0.09	0.04
LIQUIDITY											1.00	0.10	-0.05	0.07	<b>0.32</b>	<b>0.29</b>	0.24	-0.07
OPINION												1.00	0.09	-0.05	-0.05	0.31	<b>0.12</b>	-0.13
OWNERSHIP													1.00	-0.21	-0.37	<b>0.18</b>	0.03	-0.01
AUDITOR														1.00	<b>0.36</b>	-0.33	0.01	-0.04
EXPERTISE															1.00	-0.07	0.09	0.04
DELAY																1.00	0.26	0.00
CHANGE																	1.00	<b>0.26</b>
LOCATION																		1.00

LEGEND

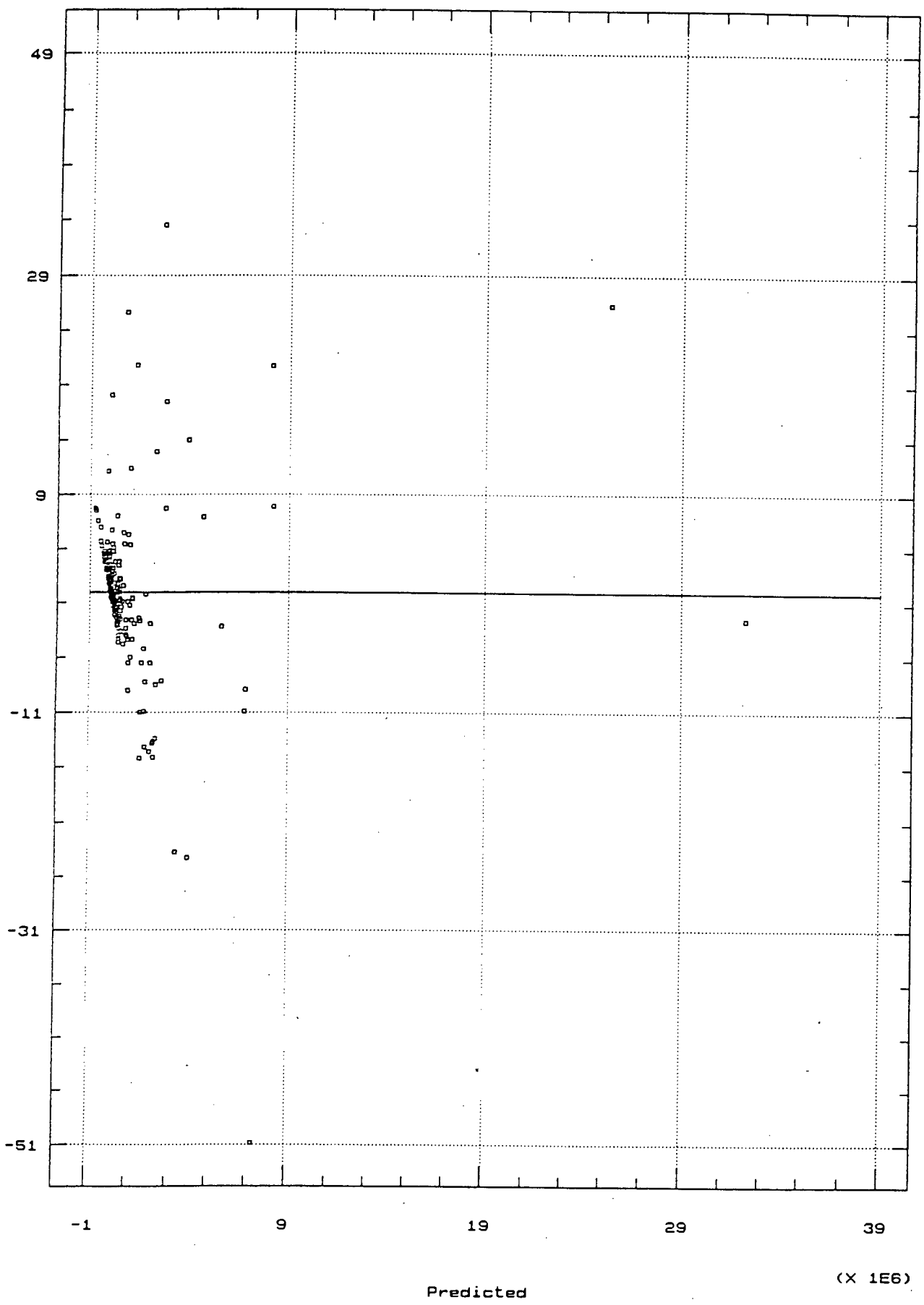
Bold = Significant at 5%

Italic = Significant at 10%

Bold & Shaded = Significant at 5% and high correlation (coefficient greater than 0.50)

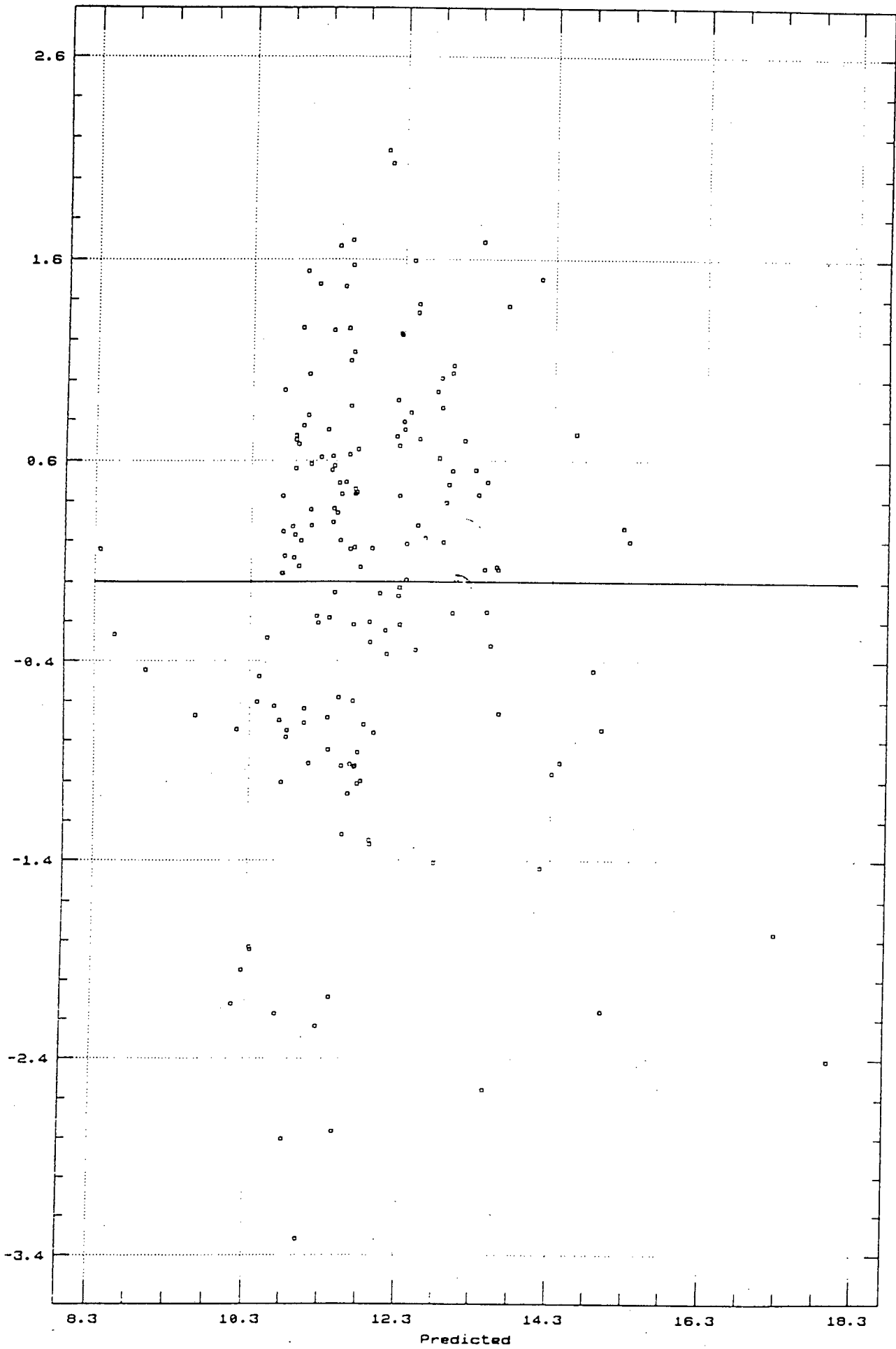
Figure 9: Residual plot for untransformed audit fee (Audit Fee)

100000)



(X 1E6)

Figure 10: Residual plot for transformed audit fee (Log Audit Fee)



**Table 17 : Regression results using untransformed audit fee variable**  
**(Dependent variable = AUDIT FEE)**

Independent Variable	Coefficient	Standard Error	T-value	Significant level
Constant	35100	2.188E5	0.1604	0.8728
MAS	3.2849	0.22742	14.4444	0.0000
Sales	-8.243E-6	1.083E-6	-7.6095	0.0000
NIBT	0.00471	0.000395	11.9275	0.0000
Assets	1.187E-7	6.577E-8	1.8053	0.0726
Entities	-1106.01	1658.34	-0.6669	0.5056
INV+DEBTOR	52152.94	1.1952E5	0.4363	0.6631
Reports	98925.05	2.3753E4	4.1647	0.0000
Profit	-799.375	2614.52	-0.3057	0.7601
Gearing	-691.769	2271.17	-0.3046	0.7610
Liquidity	-5.8215E4	4.4557E4	-1.3065	0.1929
Opinion	17419.80	3.1541E5	0.0552	0.9560
Change	-4.2446E5	3.5213E5	-1.2054	0.2295
Auditor	-3.1875E5	1.4201E5	-2.2445	0.0259
Location	-6288.024	1.3742E5	-0.0458	0.9636
Ownership	-8.2584E4	1.2776E5	-0.6464	0.5188
Expertise	2109.234	5865.68	0.3596	0.7196
Delay	1.33429	1505.09	0.8865	0.3765

Adjusted R<sup>2</sup> = 0.9381      F-Ratio = 186.476      P-value = 0.0000

Durbin Watson Statistic = 1.586

Standard Error of Estimate = 793977

n=208

**Table 18: Regression results using transformed audit fee variable**  
**(Dependent variable = Log (AUDIT FEE))**

Independent variable	Coefficient	Standard Error	T-value	Significant Level
Constant	10.515	0.3049	34.4892	0.0000
MAS	4.156E-8	3.168E-7	0.1312	0.8958
Sales	1.33E-12	1.50E-12	0.8868	0.3763
NIBT	7.21E-10	5.50E-10	1.3113	0.1913
Assets	-1.63E-13	9.16E-14	-1.7826	0.0762
Entities	0.01600	0.00231	6.9280	0.0000
INV+DEBTO	0.7211	0.16651	4.3310	0.0000
Reports	0.2286	0.03309	6.9103	0.0000
Profit	-0.0081	0.00364	-2.2261	0.0272
Gearing	0.0001	0.00316	0.0314	0.9750
Liquidity	-0.0686	0.06207	-1.1057	0.2702
Opinion	0.4112	0.43939	0.9360	0.3505
Change	-0.6190	0.49054	-1.2619	0.2085
Auditor	0.2235	0.1978	1.1298	0.2600
Location	0.1024	0.19145	0.5347	0.5925
Ownership	-0.2726	0.1778	-1.5317	0.1273
Expertise	0.0046	0.00817	0.5643	0.5732
Delay	0.00277	0.00209	1.3218	0.1878

Adjusted  $R^2 = 0.6259$       F-Ratio = 21.47      P-value = 0.0000  
 Durbin Watson Statistic = 1.291      Standard Error of Estimate = 1.106  
 n=208

Examination of key statistics depicted in tables 17 and 18 above show that the F-value decreases from 186.47 to 21.47. The  $R^2$  follows the same pattern falling from 93.81 to 62.59. These are fairly significant changes in the usefulness of the model following the transformation of the dependent variable. The untransformed model shows very large standard errors for the coefficients which render it unreliable. Also note that the standard error of estimate of the first order regression is R793 977 versus R1.106 for the second order. Whilst there is a reduction in heteroscedasticity, there is no indication that the second order model is a significant improvement over the straight line model.

### 6.4.3 Nonnormality

A plot of the normal probability plot of residuals is shown in Figure 11. It is apparent that the data follows a normal distribution fairly closely adding weight to the normality assumption of the data.

### 6.4.4 Serial correlation

For serial correlation the intention is to test the null hypothesis

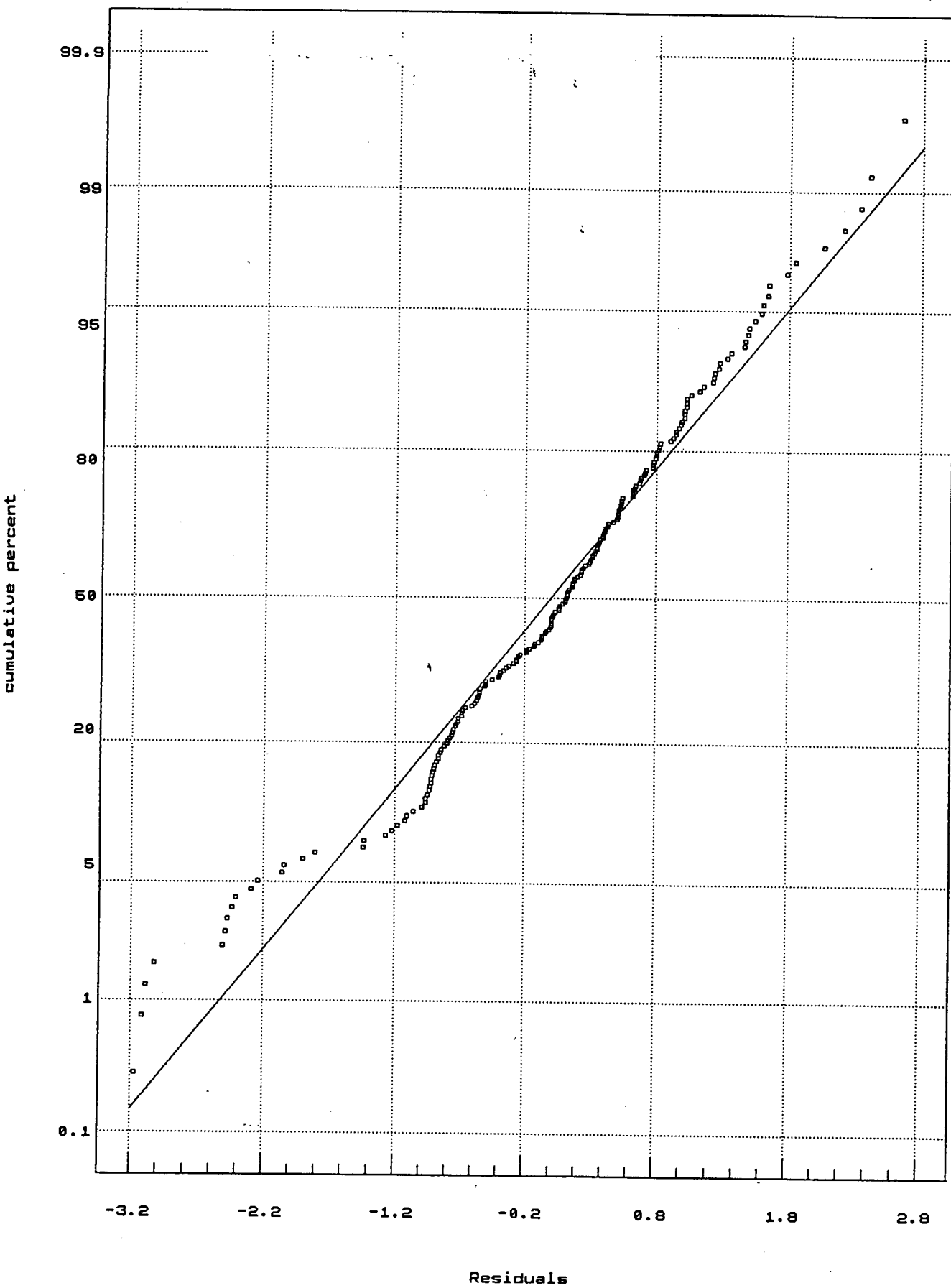
$H_0$ :      No residual correlation

against the alternative

$H_a$ :      Positive/Negative residual correlation

The Durbin-Watson statistic of the regression before transforming any of the variables is 1,291. Using an alpha value of 0,01, it is clear that the statistic lies between the upper and lower bounds. It should be noted that the standard tables for interpreting the Durbin-Watson statistic allow for 5 variables and 100 observations. The table gives 1,44 and 1,65 as the lower and upper boundaries for 5 variables and 100 observations. As the number of variables and observations increases, the band gets wider. Therefore, the 208 observations in this data with 17 variables would give a wider band within which observed statistic of 1,291 would lie comfortably. This would also apply to the 1.586 for the transformed variable. The conclusion reached is that there is no serial correlation in the data.

Figure 11: Normal probability plot of residuals



## 6.5 Concluding remarks

Based on these diagnostic procedures, the results of the regression assumptions are satisfied. The ordinary least squares regression coefficients and the standard error of the estimate are efficient, consistent, unbiased estimators of the true population values.

The computer applications package Statsgraphics (Version 5) was used to perform all calculations.

## 7. RESULTS

### 7.1 Introduction

This chapter sets out the results of all the regression models. The first step was to perform simple averages of audit fees based on the size of the auditor and the auditee. This was followed by correlation analysis. Results of the multivariate models are presented last and these will form more concrete evidence on the determinants of audit fees.

In order to provide a more detailed analysis of the results, the firms were divided into two categories based on size. The partitioning of the sample by size is fraught with measurement problems as there is no generally accepted definition of a small or large firm. The indicators of size commonly used in South Africa are the number of employees, sales volume, number of operating units, geographical dispersion, value of assets, organisational structure, limited electrical power usage and influence on the total market [Boshoff, du Plessis, Moolman and Radder, 1989].

Simunic [1980] and Palmrose [1986a] used the median asset value in their samples to split the sample into large and small companies. Francis and Stokes [1986], Francis and Simon [1987] and Anderson and Zeghal [1994] adopted 100 million in total assets (in the currency of the country under investigation) as the point that divides the small/large auditee market segments. However, none of the authors offer a statistically plausible reason that justifies the use of this number.

In an emerging market, like the JSE, such a number could include companies that are perceived to be large in local terms. A possible measure could be total assets of R75 million. The cutoff amount is based on the *1992 Financial Mail Top Companies Survey* where the top 200 listed companies have total assets greater than R75 million. When the R75 million benchmark is used instead of the R100 million, only two companies fell between R75 and R100 million. So whether R75 or R100 million is used, there is no major distortion. Therefore, the R100 million suggested by the Francis [1984] will be adopted as it also provides for better and consistent international comparison.

## 7.2 Preliminary results

The discussion of the results is introduced by first comparing average audit fees for large and small auditees. This is a weak test for differences in audit fees but gives a feel for the potential outcomes in the final analysis.

### 7.2.1 Comparisons of mean audit fees

The average audit fee per rand of turnover for large audit firms was 5,719c whilst the small firms charged 4,722 cents for the total sample. This ratio is a basic measure of audit fees whilst controlling for possible size effects. When the sample is partitioned by size, a similar trend persists as shown in table 19 below:

**Table 19: Average audit fees per rand of turnover**

Auditor	Company size	
	Small	Large
Small	R0.0778	R0.0247
Large	R0.0830	R0.0350

From the above table, the average fee per rand of turnover for large audit firms is higher compared to small audit firms regardless of client size. This trend continues even when the size effect is disregarded as shown by the actual average rand amounts shown below (table 20):

**Table 20: Actual average audit fees**

Auditor	Company size	
	small	large
small	R82183	R691397
large	R98700	R873757

Both tables seem to indicate that the large audit firms charge a higher fee regardless of client size. To analyse the price differences further, a difference of means test was performed. The null hypothesis tested using a two-tailed test was:

$H_0 : \mu_1 - \mu_2 = 0$  (no difference in mean audit fees per rand of turnover between large and small audit firms).

The alternate hypothesis was then stated as:

$H_1: \mu_1 - \mu_2 < 0$  ( mean audit fees per rand of turnover for larger audit firms were greater than mean audit fees for small audit firms).

The results gave a test statistic  $T = 3.37351$  which is significant at the 5% level. Therefore, the null hypothesis is rejected. This is interpreted as implying that audit fees charged by large firms are higher than those charged by small audit firms, after controlling for size only.

### 7.2.2 Pearson correlation coefficients

The partial correlation coefficients in the covariance matrix (see table 16 page 144) were also inspected for significant correlations between the dependent variable and some of the independent variables. The coefficients indicate that there are strong (correlation coefficient  $> 0.5$ ) positive individual relationships between the audit fee and the size variables (although SALES shows a weaker correlation), scope and balance sheet complexity, REPORTS and auditor size. The OWNERSHIP and EXPERTISE variables have weaker correlations with the audit fee. The remaining variables are not significant but warrant some comment. The audit risk variables, PROFIT and LIQUIDITY have opposite signs to those expected. The remaining risk variable, GEARING, has a positive sign as expected. The LOCATION sign is positive as expected in contrast to the OPINION variable which has a negative sign. A similar comment can be made for the CHANGE variable which has a positive sign against the negative relationship it is expected to have with the audit fee.

On the basis of Pearson product moment correlations, it appears that null hypotheses 1, 2, 5, 7, 8, 9 and 11 are likely to be rejected whilst hypotheses 3, 4, 6, 10, and 12 cannot be rejected. Therefore, there appears to be a bias towards client factors in the determination of audit fees. With the exception of the MAS and auditor size variable, the auditor factors appear to be relatively weak predictors of the audit fee.

Therefore, both simple averages test and Pearson correlations seem to suggest there is differential pricing between large and small audit firms, with large firms charging more than small ones. The Pearson correlation analysis adds client complexity and the number of reports as other variables affecting fees other than client size.

### 7.3 Multiple regression results

The means test captured only the difference in size, but not all the other factors. Similarly, the Pearson correlations coefficients only relate the total correlation between the audit fee and each potential determinant, unlike partial correlations which allow for the effects of other variables arising from multiple regression [Pong and Whittington, 1994]. This severely limits the extent of inferences which can be drawn from such analyses. In contrast, multiple regression takes into account many other factors and therefore provides more convincing proof of any difference in audit fees. To assess the influence of collinearity of independent variables, a step-wise regression analysis was performed for comparative purposes and validation of multiple regression results.

In analysing the results, the key indicators used are the coefficient of determination ( $R^2$ ), the F-statistic, the coefficients ( $\beta$ ) and their levels of significance. The  $R^2$  measures the association between the dependent and independent variables. It measures the proportion of the variation of the dependent variable about its mean, which is explained by the predictor (independent) variables [Pindyck and Rubinfeld, 1991]. The adjusted  $R^2$  is a more reliable measure of goodness of fit in the population than the  $R^2$  value [Ramzy, 1988]. The sample  $R^2$  value tends to be an optimistic estimate of how well the model fits the population. The model does not fit the population as well as it fits the sample from which it is derived. The adjusted  $R^2$  corrects for the bias thus giving a more reliable measure of the goodness of fit. Hence only the adjusted  $R^2$  is shown in the results below.

The coefficients of the variables are tested at the alpha level of 5% which is the conventional level of significance [Pindyck and Rubinfeld, 1991]. The F-statistic shows the overall usefulness of the model. The higher the F-value the better the usefulness of the regression equation.

The results for the regression analyses are presented below (tables 21 and 22). The results indicate that MAS, client size (SALES, NIBT and ASSETS), balance sheet complexity (INV + DEBTOR), the number of reports and audit delay are significant predictors of audit fees.

**Table 21: Results of multivariate regression (Dependent variable = Log Audit Fee)**

Independent Variable	Coefficient	Standard Error	T-value	Significant Level
Constant	-0.16802	0.84095	-0.1998	0.8419
MAS	5.051E-7	1.863E-7	2.7106	0.0073
Log Sales	0.406357	0.050723	8.0113	0.0000
NIBT	-1.221E-9	3.02E-10	-4.0442	0.0001
Log Assets	0.219092	0.06928	3.1624	0.0018
Entities <sup>0.5</sup>	7.51E-13	8.97E-13	0.8376	0.4033
INV+DEBTOR	0.629593	0.13488	4.6675	0.0000
Reports	0.095248	0.02490	3.8241	0.0042
Profit	-0.001316	0.002819	-0.4670	0.6410
Gearing	0.000277	0.002311	0.1199	0.9047
Liquidity	-0.051223	0.045122	-1.1352	0.2517
Opinion	0.201784	0.318712	0.6334	0.5272
Change	-0.145727	0.357687	-0.4074	0.6842
Auditor	-0.107857	0.145515	-0.7412	0.4595
Location	-0.037869	0.136692	-0.2770	0.7821
Ownership	-0.040426	0.132902	-0.3042	0.7613
Expertise	0.001294	0.005883	0.2200	0.8261
Delay	0.003289	0.001521	2.1631	0.0318

Adjusted R<sup>2</sup> = 0.8061

F-Ratio = 51.86

P-value = 0.0000

Durbin Watson Statistic = 1.242

Standard Error of Estimate = 0.7963

n=208

**Table 22: Results of stepwise regression model**

Independent Variable	Coefficient	Standard Error	T-Value	Significant Level
Constant	-0.559039	0.707799	-0.7898	0.4306
MAS	5.348E-7	1.770E-7	3.0208	0.0028
Log Sales	0.411645	0.04674	8.8070	0.0000
NIBT	-1.2825E9	2.88E-10	-4.4460	0.0000
Log Assets	0.226085	0.058516	3.8637	0.0002
INV+DEBTOR	0.643460	0.128596	5.0037	0.0000
Reports	0.085115	0.023578	3.6099	0.0000
Delay	0.003111	0.001215	2.5615	0.0112

Adjusted R<sup>2</sup> = 0.8106

F-Ratio = 91.06

P-value = 0.0000

Durbin Watson Statistic = 1.226

Standard Error of Estimate = 0.78707

n=208

Notice that when step wise regression is used, there is only a slight improvement in the predictive power of the model (improves from 80.61 to 81.06), and the

standard error of estimate (decreases from 0.796 to 0.787). However, the usefulness of the model as a whole improves dramatically as shown by the increase in the F-ratio from 51.06 to 91.06. There is no difference in the significance of the variables. These results have not taken into account the possible influence of outliers.

### 7.3.1 Outliers and other influence factors

The statistical applications package used in the analysis has the ability to pick out any unusual observations based on the distribution of residuals. These unusual observations were identified and investigated for any errors in data capturing. The observations were traced back to the companies and the entire data relating to the particular company scrutinised for any possible errors. The unusual observations were as follows:

- 7 were property companies.
- 2 had audit fees less than R5000.
- 2 changed auditors.
- 2 had qualified audit opinions.
- 2 had fairly high losses.

For the purposes of this study, the outliers will not be excluded. Instead their influence will be tested by running one regression including them, and another one excluding them. Because the property companies were prevalent amongst the outliers, all of them were treated as outliers to determine if they had a marked effect on the results. If there are significant differences, then the results will have been influenced by them. The results for the regressions, excluding the 28 unusual observations are shown in table 23.

Basically, the multiple regression results do not change, meaning that the outliers do not have cause a meaningful distortion of the results. The only variable affected is the audit delay variable which is only significant at 10% when the outliers are excluded. However, the level of significance of all the other variables previously identified as significant improves. It is also worth noting that both the  $R^2$  improves marginally whilst the F-ratio is unaffected. Therefore there is a marginal improvement in the goodness of fit of the model without the outliers. However, the significance of the independent variables remains unchanged.

**Table 23: Regression statistics excluding outliers**

Independent Variable	Coefficient	Standard Error	T-Value	Significant Level
Constant	-0.395145	0.817918	-0.4831	0.6297
MAS	4.709E-7	1.719E-7	2.7386	0.0008
Log Sales	0.365281	0.053927	6.7736	0.0000
NIBT	-1.205E-9	2.74E-10	-4.3970	0.0000
Log Assets	0.272288	0.06758	4.0291	0.0001
Entities <sup>0.5</sup>	7.51E-13	8.08E-13	0.9295	0.3540
INV+DEBTOR	0.55978	0.122791	4.5588	0.0000
Reports	0.078364	0.022672	3.4564	0.0007
Profit	0.003039	0.003241	0.9378	0.3497
Gearing	0.002164	0.009804	0.2207	0.8256
Liquidity	-0.048696	0.042849	-1.1365	0.2574
Opinion	0.072504	0.292265	0.2481	0.8094
Change	-0.206845	0.325494	-0.6355	0.5260
Auditor	-0.041025	0.13607	-0.3015	0.7634
Location	0.050429	0.1275	0.3955	0.6930
Ownership	-0.091818	0.128423	-0.7150	0.4756
Expertise	0.00085	0.005468	0.1554	0.8767
Delay	0.003221	0.001868	1.7247	0.0864

Adjusted R<sup>2</sup> = 0.8243

F-Ratio = 51.78

P-value = 0.0000

Durbin Watson Statistic = 1.208

Standard Error of Estimate = 0.7114

n=180

The results of the stepwise regression model (table 24) include the profitability variable as an additional significant variable replacing the audit delay variable. The F-ratio also shows some improvement. The R<sup>2</sup> does not improve but the standard error of estimate improves marginally from 0.711 to 0.656 showing marginal improvement in the predictive power of the model.

**Table 24: Stepwise regression statistics excluding outliers**

Independent Variable	Coefficient	Standard Error	T-Value	Significant Level
Constant	2.255906	0.691452	3.2626	0.0014
MAS	2.1521E-6	4.452E-7	4.8343	0.0000
Log Sales	0.293689	0.051712	5.6794	0.0000
Log Assets	0.205669	0.059944	3.4310	0.0008
INV+DEBTOR	0.765129	0.14781	5.1764	0.0000
Reports	0.085117	0.031143	2.7331	0.0071
Profit	-0.00631	0.00215	-2.9307	0.0039

Adjusted R<sup>2</sup> = 82.27

F-Ratio = 117.04

P-value = 0.0000

Durbin Watson Statistic = 1.382

Standard Error of Estimate = 0.6555

n=184

In both sets of results there is reasonable consistency. It is therefore safe to surmise that the outliers do not influence the results in such a way as to render them unreliable.

Directly linked to the identification of outliers is the isolation of influential observations which may not be outliers but which may be having a dominant effect on the results. The statistical package used did not detect any such observations. This means that the results in this study are not driven by individual observations.

The results therefore indicate that of the 16 variables hypothesised to influence audit fees only 7 are significant. Below is a summary of the comparison of the expected relationship between the variables and the audit fee and actual as revealed by the regression model (table 21).

**Table 25: Comparison of expected and actual relationships between audit fee and auditor and client factors**

Factors	Expected Sign	Actual sign	Significant
Sales	+	+	Yes
Assets	+	+	Yes
NIBT	+	-	Yes
INV+DEBTOR	+	+	Yes
Entities	+	+	No
Reports	+	+	Yes
Opinion	+	+	No
Profit	+	-	No
Gearing	+	-	No
Liquidity	+	-	No
Ownership	+	+	No
Audit Delay	-	+	Yes
Auditor	+/-	-	No
Location	+	-	No
Expertise	+/-	+	No
MAS	+	+	Yes

### 7.3.2 Discussion and analysis

Since this study draws extensively from international research, it is important that the results and statistical data presented above be compared to some of the developing and developed countries who used the the same methodology. Table 26 provides comparative statistical data for a selection of international studies reviewed in Chapter 4.

**Table 26: Comparative statistical data of international studies**

Country	Study	Period	Sample Size	R <sup>2</sup>
Australia	Francis [1984]	1974-1978	136	71%
	H&W [1988] <sup>1</sup>	1979-1981	67	67%
Canada	C&L [1988] <sup>2</sup>	1980	228	61%
Hong Kong	Simon <i>et al</i> [1992]	1987-1988	99	61%
India	Simon [1986]	n/a	117	83%
Ireland	H&W [1988]	1979-81	32	72%
Malaysia	Simon <i>et al</i> [1992]	1987-88	132	54%
New Zealand	Firth [1985]	1981	96	70%
	Firth [1985]	1983	96	72%
	H&W [1988]	1979-81	33	57%
Singapore	Low <i>et al</i> [1990]	1986	291	3%
	Simon <i>et al</i> [1992]	1987-88	126	74%
UK	Taylor & Baker [1981]	1976-77	126	79%
	T & R [1982] <sup>3</sup>	1976	192	87%
	H&W [1988]	1979-81	170	69%
	Chan <i>et al</i> [1993]	1987	280	87%
US	Elliott & Korpi [1978]	1976	196	94%
	Simunic [1980]	1977	373	42%
	Wallace [1984a]	1981	71	63%
	Wallace [1984b]	1981	32	93%
	Simon [1985]	1978-83	173	54%
	Palmrose [1986a]	1980-81	361	89%
	F&S[1987] <sup>4</sup>	1984-85	208	61%
	Rubin [1987]	1982	189	58%
	H&W [1988]	1979-81	108	84%
SA	Msibi [1995]	1991-92	208	80%

Notes:

1. H&W = Haskins and Williams
2. C&L = Chung and Lindsay
3. T&R = Taffler and Ramalinggam
4. F&S = Francis and Simon

In terms of the size of the sample, this study is comparable as most of the studies carried out elsewhere have a sample size between 32 and 373 observations. The sample size of 208 observations appears to be amongst studies with a larger sample size and well above the average sample size. Furthermore, the data used is amongst the latest as it covers the first two years of the 1990s. Based on the data comparison, it is fair to assume that in terms of the data used and the sample size, there is adequate justification for comparison with studies from elsewhere.

To provide a better understanding of the influence of auditee size on the results, two regression were run; one for large auditees and another for small auditees. The results are shown below (tables 27 and 28). Comparative statistics for stepwise regression are provided in the Appendix 3(a) and 3(b).

**Table 27: Regression statistics for large auditees**

Independent Variable	Coefficient	Standard Error	T-Value	Significant Level
Constant	1.0658	1.7784	0.5993	0.5503
<b>MAS</b>	<b>5.644E-7</b>	<b>2.221E-7</b>	<b>2.5407</b>	<b>0.0126</b>
<b>Log Sales</b>	<b>0.461706</b>	<b>0.08569</b>	<b>5.3876</b>	<b>0.0000</b>
<b>NIBT</b>	<b>-1.055E-9</b>	<b>4.09E-10</b>	<b>-2.5761</b>	<b>0.0114</b>
Log Assets	0.095923	0.125766	0.7627	0.4474
Entities <sup>0.5</sup>	-1.91E-13	9.54E-13	-0.2007	0.8414
<b>INV+DEBTOR Reports</b>	<b>1.2773</b>	<b>0.479988</b>	<b>2.6612</b>	<b>0.0090</b>
<b>Profit</b>	<b>0.08368</b>	<b>0.031782</b>	<b>2.6329</b>	<b>0.0098</b>
Profit	-0.003848	0.011466	-0.3356	0.7379
Gearing	-0.003251	0.002992	-1.0867	0.2797
Liquidity	-0.251957	0.157017	-1.6046	0.1116
Opinion	0.463516	0.532938	0.8697	0.3865
Change	-1.047258	0.774178	-1.3527	0.1791
Auditor	-0.01849	0.249817	-0.0740	0.9411
Location	0.00305	0.195918	0.0156	0.9876
Ownership	0.164007	0.236222	0.6943	0.4891
Expertise	0.010628	0.009075	1.1711	0.2443
Delay	0.003246	0.002265	1.4330	0.1549

Adjusted R<sup>2</sup> = 0.7545

F-Ratio = 22.69

P-value = 0.0000

Durbin Watson Statistic = 1.927

Standard Error of Estimate = 0.8345

n=120

**Table 28: Regression statistics for small auditees**

Independent Variable	Coefficient	Standard Error	T-Value	Significant Level
Constant	1.434166	1.72672	0.8306	0.4089
MAS	8.629E-6	4.599E-6	1.8763	0.0645
Log Sales	0.193512	0.069605	2.7802	0.0069
NIBT	1.584E-8	2.215E-8	0.7155	0.4765
Log Assets	0.323721	0.115377	2.8058	0.0064
Entities <sup>0.5</sup>	-1.472E-9	6.268E-9	-2.3499	0.0214
INV+DEBTOR	0.82602	0.208838	3.9553	0.0002
Reports	0.064414	0.063734	1.0107	0.3154
Profit	-0.003059	0.003361	-0.9102	0.3656
Gearing	0.01088	0.058173	0.1870	0.8521
Liquidity	-0.041349	0.042336	-0.9767	0.3319
Opinion	0.107049	0.357313	0.2996	0.7653
Change	-0.2352	0.380682	-0.6178	0.5386
Auditor	-0.274802	0.192434	-1.4280	0.1574
Location	0.173498	0.183441	0.9458	0.3473
Ownership	-0.026538	0.161581	-0.1642	0.8700
Expertise	0.004852	0.007899	0.6143	0.5409
Delay	0.003317	0.002245	1.4775	0.1437

Adjusted R<sup>2</sup> = 0.6755

F-Ratio = 12.27

P-value = 0.0000

Durbin Watson Statistic = 1.522

Standard Error of Estimate = 0.6797

n=88

### 7.3.2.1 Client factors

#### Size

In the whole sample, all three variables are significant. ASSETS and SALES have a positive sign as expected. However, the NIBT is the only exception with a negative sign which implies that it is negatively related to the audit fee. The SALES variable is significant across all company sizes whilst ASSETS is not significant for large auditees. NIBT seems to be sensitive to size as it is significant and has a negative coefficient in the large auditee sample whilst it is insignificant and positive in the small auditee segment. The multiple regression results do not differ with the step-wise regression analysis which strengthens and validates the multivariate results.

A possible reason for the significance of SALES across all auditee sizes could lie in the fact that the calculation of materiality requires a stable indicator. It is therefore more likely that auditors would assess the significance of amounts stated in the financial statements in terms of turnover, rather than the absolute rand value of net income. A secondary reason could be the fact that in most

companies turnover exceeds total assets, which would mean that materiality would be gauged against the amount of sales.

A second possibility could be that audit firms use different approaches in clients of different sizes. This is influenced by the volume of transactions in each client. For large clients, sales may be the best indicator of transaction flow and the possible complexity of systems than in small companies. In small companies, revenues are generally less compared to balance sheet items and therefore less work may be necessary in studying the systems of transaction flows. In such a case, the emphasis is likely to be on both the verification work of balance sheet items which comprises mainly of different types of assets and revenues.

The NIBT variable seems to be a less powerful and reliable predictor of size. It is implausible for a company's audit fee to be negatively related to size. This variable may be hinting at the "ability to pay" theory, which implies that auditors may be more willing to sacrifice audit fees for large companies making losses than for small clients [Chan *et al* , 1993]. When the sample is studied carefully, the largest losses were recorded by large companies with one reaching R35 million. In contrast the smaller companies tended to be more profitable. This would explain the positive coefficient in the small auditee segment but weakens the argument for the ability to pay theory, as the coefficient is insignificant.

Auditee size has been found to be the most consistent predictor of audit fees across different countries. Simunic [1980] Palmrose [1986a], Taylor and Baker [1981], Francis [1984], Low *et al* [1990], Chan *et al* [1993], all found that auditee size whether proxied by turnover or total assets had a dominant effect on the level of audit fees. The findings here further strengthen their findings.

### ***Complexity***

Only one of the two complexity measures is significant. From the results it would appear that balance sheet complexity as measured by the level of assets in debtors and inventory (INV + DEBTOR) requires more audit effort than the diversity of the auditee as measured by the number of consolidated subsidiaries and associate companies. It appears that auditors do spend a large portion of their time verifying the completeness, existence, ownership, valuation and disclosure of inventories and receivables. This is regardless of the size of the auditee. From an audit point of view, it is therefore likely that inventories and receivables will be problem areas, as expected.

To find out which of the two balances is more important, a separate regression was run using the proportion of assets in inventories and the proportion of assets in receivables as additional variables. Both variables were significant at 5% but the level of significance for inventories was 1% versus 4,5% for receivables. It would appear that there may be a difference in the level of effort and expertise involved in the audit of the two types of current assets.

This could be explained by the differences in complexities of internal control systems affecting receivables and inventories. Many companies have very complex costing systems, which require a detailed knowledge of the workings and require a high degree of technical knowledge. This would mean the use of senior staff at higher charge out rates. In contrast, the major concern in debtors is their recovery and any possible write offs. Although debtors may consist of numerous small amounts, these tend to have less audit risk attached to them, thus requiring less audit effort. The focus invariably is on trade debtors which tend to be the single largest component of receivables.

The insignificance of the scope complexity measure is quite puzzling, as prior studies have consistently identified it as a significant predictor of audit fees. Even more puzzling is the fact that the coefficient of the variable is negative and significant in the small auditee class, meaning that scope complexity in small companies may be negatively related to the audit fee. This result is validated by the stepwise regression model. Informal discussions with some practitioners in Cape Town did not give any meaningful reasons for the negative coefficient.

The lack of significance of the ENTITIES variable may be explained but the lack of decentralisation of groups and homogeneity of accounting systems. In effect, where there is fairly strong central control of group operations, the auditor can spend more time evaluating the controls around head office and then perform less time-consuming confirmation tests.

It is also possible that the measurement of the scope variable was affected by the lack of distinction between operating and dormant subsidiaries. The presence of dormant and non-operating subsidiaries, gives the impression that the scope of the client is wide, whereas from an audit point of view it is fairly routine. A typical example is Pick 'n Pay which has quite a number of subsidiaries which are actually individual stores located in different parts of the country. Since most of the accounting work is centralised within the group, the audit effort is more likely to be centred around head office controls. So the use of subsidiaries may not adequately capture the full extent of scope complexity.

Another reason may be the use of “accounting packs”, commonly used by auditors of subsidiary companies to report to the group auditors. The pack consists mainly of proforma financial statements designed to facilitate the consolidation process by requiring information on inter company balances, movements in reserves, purchase/sales of inter company stocks and depreciable assets and any profit or loss thereon. The design and layout of the pack makes the consolidation process more efficient and cost effective.

To check the accuracy of the number of subsidiaries used in the model, the numbers were compared to those available from the Bureau of Financial Analysis database. There were no significant differences. Therefore, the data used was accurate. To examine if the scope complexity measure was influenced by the type of measure used, the number of consolidated subsidiaries and equity accounted associates was substituted with the number of chief operating subsidiaries published in the *JSE Bulletin* [JSE, 1992;1993]. This variable was positive but still insignificant. Due to the insignificance of the scope variable, future studies may have to devise a reasonable measure of diversification to capture scope complexity. Possible measures could be the number of industries in which the auditee operates, the number of operating divisions and number of different locations.

Equity accounted associate companies may not involve significant audit effort as the lead auditor may only rely on the competence of the associate’s auditors. This would normally be in the form of a questionnaire without necessarily a review of working papers. This reduces the amount of audit work necessary for equity accounting for the associates.

Balance sheet complexity when measured either by debtors or inventories emerges as a stable predictor of audit fees across different countries. Whilst some studies support both balances others show one of the two. In this study, inventories and debtors are both significant thus adding weight to findings from overseas countries which found that both balances are key determinants of audit fees.

Most of the studies reviewed under the literature survey have found the number of subsidiaries to be a significant determinant. This study is not unique in finding the number of subsidiaries to be insignificant in the determination of audit fees. Wallace [1984a] (US) and Firth [1985] (New Zealand) also found this variable insignificant. However, these two studies appear to be exception to

the norm. In fact, the finding goes against current practice as provided through interviews with practitioners by Chanet *al* [1993].

A possible reason may be due to the uniqueness of the South African group structures which tend to have a very strong head office control. Furthermore, the influence of head office may mean that audit fees are determined up front on a group basis which may not take into account the number of subsidiaries. Instead, the size of each subsidiary, complexity and risk characteristics of the operating unit may be considered more important. There may also be a “discount” for group audits due to the amount of billable hours which can be achieved in a large group.

### ***Reports***

The number of reports in the annual financial statements is a significant factor in the determination of audit fees. Whilst this factor is significant in the whole sample and the large auditee segment, it is not significant in the small auditee segment. The reasons behind this disparity is unclear. It would appear that in general there is an attendant audit cost in producing additional financial information in the annual report. This cost is generally observable amongst listed companies in general but more so in large ones.

A possible explanation may lie in the differences in the annual reports produced by listed companies. The large companies tend to have very elaborate financial analysis in their report. Some produce supplementary inflation-adjusted financial statements whilst others give full current cost income statement and balance sheet. A cursory review of companies noted for quality reporting in South Africa tend to be the large diversified groups. Because most of this information relates to the audited financial statements, it is subject to review for consistency by the auditor. This means additional costs for the company. This observation may add weight to the argument presented by certain companies against producing inflation accounting financial statements on the basis of cost.

This research does indicate that there are additional audit costs incurred by companies that produce such additional information.

All studies that included the number of reports (Firth [1985], Palmrose [1986a] and Rubin [1987]) found it to be a significant explanatory variable of audit fees. Evidence presented by Firth [1985], suggests that the nature of the additional reports is important. The more technical they are, the more they will have an impact on audit fees.

### *Audit opinion*

The results show that audit opinion is an insignificant factor in the determination of audit fees across all auditee sizes. This is in spite of the difference in the nature and reason of the qualification given by the auditor. Amongst the large auditees, the qualifications were related to disagreements over accounting policies whilst in the small auditee segment most were more related to a disagreement over going concern difficulties.

A going concern difficulty would require additional audit work like contacting bankers, evaluating solvency, scrutiny of management plans and assessment of recoverability of fixed assets. It appears that the nature of the qualification has no impact on the audit fee. A disagreement over application of GAAP may have very minimal effect on users [Firth, 1985]. As a result, there may be competing explanations which may negate each other rendering the variable insignificant. In addition, the insignificance of this variable may be explained by the small number of observations. If a greater number of observations is used, a more clear picture of the effect of the audit opinion on the audit fee may emerge.

Globally, conclusions on the effect of the audit opinion are mixed. Gist [1992] argues that the opinion variable is in fact a form of safeguard for the auditor if the client gets into financial trouble. Therefore, it may be more of an indicator of audit risk. In the absence of a meaningful relationship between audit fees and auditee risk (discussed below), this comment suggests that risk whether measured by financial variables or the audit opinion does not influence the audit fee.

### *Ownership structure*

The effective control of a client by management and directors is not a major factor in the determination of audit fees. This variable is negative in the whole sample and the small auditee segment, but positive for large auditees. This confirms agency theory which posits that large companies would incur high costs of monitoring. A possible reason for the positive coefficient could be the interaction between the percentage of shares owned by management and the size of the auditor.

Most of the companies controlled by directors are relatively small and are also audited by small auditors who are expected to charge less than larger, well known ones. Therefore the ownership effects may be offset by the auditor choice decision. By the same token, larger companies tend to employ large auditors which would translate to a higher audit fee and hence, a positive

coefficient would be expected. Larger companies also have to use extensive systems of monitoring to shareholders who are not involved in the day to day running of the business. The auditor has to assess the effectiveness of these systems.

Palmrose [1986a] and Chan *et al* [1993] found the ownership structure to be influential in the determinants of audit fees. The difference between the two studies and South Africa may be indicative of different legal systems. Palmrose used a public/private ownership dichotomy which cannot be used in this study as by definition, all companies listed on the JSE are public companies. Chan *et al* would therefore provide a more acceptable comparison. Essentially, the differences between the findings here may have been influenced by the measurement of directors' shareholdings. The disclosure of directors' shareholdings in the UK tends to be open whilst in South Africa, the use of nominee companies may understate the extent of the directors' control.

#### ***Auditee risk***

None of the factors that are hypothesised to link audit fees to auditee risk are significant. The GEARING variable is positive in the whole sample and the small company segment. However, it is negative in the large auditee segment. On the whole, the positive sign for the whole population gives weak evidence of increased audit testing for companies with high proportions of debt. The difference in the sign between large and small companies may be indicative of a difference in perception of gearing as an audit risk variable. Auditors could use the level of debt as a more important criterion for audit risk in large companies than in small companies. This may have its roots in the fear of the effect highly publicised failures of large South African companies due to high debt on auditor reputation. In addition, large companies have more borrowings from external bankers than small companies. For small companies, debt may not be a major problem due to personal guarantees by directors who tend to be owners. Furthermore, loans may be guaranteed by holding companies for those controlled by conglomerates.

The PROFIT variable is negative across all auditee sizes. It would therefore appear that as the client's profitability declines, the auditors spend more time, thus charging a higher fee. This provides weak evidence of lower risk associated with profitable companies. It is worth linking this variable with NIBT, although the latter was used to measure size. If the "ability to pay" theory was valid, then

the PROFIT variable would bear resemblance to NIBT. This lack of association further weakens this theory.

The LIQUIDITY variable is negative in the whole sample and across auditees of different sizes. This means that as the liquidity problems of the client worsen, auditors spend more time on the audit, which may be indicative of the expectation that greater solvency problems warrant greater audit testing. Therefore, this result goes against Wallace's [1989] observation that companies with liquidity problems pay a lower audit fee.

On the whole, this study provides weak evidence that audit fees are affected by client's going concern difficulties. It is worth mentioning that the measures of going concern difficulties used here were only measurable ones. It could be that auditors focus more on the qualitative factors which cannot be captured by a numerically based model. However, due to the lack of significance of the coefficients, it would appear that auditee risk as measured by going concern difficulties is not a significant determinant of audit fees.

Across different countries, various authors have used measures such as operating losses, debt to equity (gearing), ratio, unsystematic risk, return on equity and liquidity ratios to estimate audit risk. Evidence on these is mixed and far from conclusive. Chan *et al* [1993] used the profitability of the client, whilst Francis and Stokes [1986] used gearing and both found their measures to be significantly correlated to the audit fee. This study seems to indicate that client profitability, gearing and liquidity may not be adequate proxies of audit risk. So internationally, no single adequate measure of audit risk has yet been identified. This may point towards non financial measures of auditee risk.

In contrast to private sector studies, public sector studies in the US (Rubin [1987], Baber *et al* [1987] and Ward *et al* [1994]) have consistently found that financial risk as measured by the level of debt of a public authority is a good proxy for audit risk. The difference may be indicative of the different environments between the private sector audit market and public sector.

#### ***Audit delay***

Audit delay is positively related to the audit fee for the whole sample, but is not significant in either small or large auditees. The positive coefficient suggests that audit fees will be higher if the audit is completed later rather than earlier. The time between the financial year end and the signing of the audit report may be indicative of increased audit testing. Therefore, it appears that tight deadlines do

not impose additional audit costs. It may also mean that a longer time lag may indicate some uncertainties which require more audit work to be resolved before the audit report is signed. It is worth noting that DELAY and OPINION are positively related and their Pearson correlation is significant at 5%. Therefore, the delay may be indicative of increased audit testing related to the type of opinion to be issued.

This result is contrary to that reported by Firth [1985] who did not find the variable insignificant. Whilst, Chan *et al* [1993] found this variable to be significant, their study found that audit fees were negatively related to audit delay. Hence, further corroborative evidence is needed.

### 7.3.2.2 Auditor factors

#### *Management advisory services*

The acquisition of other services is a significant determinant of audit fees. As observed by Simon [1985], Simunic [1984], Palmrose [1986b], Turpen [1990], Barkess and Simnet [1994], the correlation coefficient is positive for the total sample and across all client sizes, although it is only significant at 10% for small auditees. This is strong evidence of the existence of beneficial knowledge spillovers which are not being passed on to clients in the form of a lower audit fee.

To further analyse the influence of MAS on audit fees, difference of means tests between purchasers and non purchasers of MAS were performed for all the variables. The MAS purchasers tended to be large, complex organisations with a very diverse ownership structure. There is no difference in terms of going concern risk (profitability, liquidity and gearing) between purchasers and non-purchasers of MAS. The audit fees are significantly different between the groups. In addition, the biggest purchasers of MAS were clients of Big Six audit firms, which is consistent with research from Australia [Barkess and Simnet, 1994]. These results are consistent with the correlation matrix which shows significant positive correlations between MAS, size complexity and the auditor size variable. Whilst the reasons for these observations are unclear, it could explain the lower level of significance of the MAS variable in the small auditee sector.

An intriguing possibility noted by a local practitioner is that there may not be a direct relationship between the audit function and MAS. The reason for this could be that the staff and partners involved in the performance of the audit are often different from staff responsible for MAS. Thus, the extent of beneficial spillovers which often occur would not necessarily be passed over to the audit function. There would thus be minimal impact on the audit costs. In effect, the audit fee may be discounted if there are MAS offered over and above the audit.

The nature of the advisory services may have a direct audit impact, particularly if it relates to design implementation of computer systems. Such consulting work can create changes in the client's organisation that have non-trivial implications. The audit firm is still faced with the task of studying and monitoring the performance of the system which involves significant man hours. The new systems result in added audit work in reviewing its performance. In effect, if the nature of the MAS was known, the effect of the MAS on the audit fee could be studied over a period of time. There may be "teething" problems which disappear gradually resulting in efficiencies in later years. The above analysis shows the importance of the disclosure of the nature of advisory services.

A secondary issue that has not been addressed in past studies is the possibility of confounding factors arising from the interaction between the auditor size, company size and complexity. Looking at the correlation matrix, there is a very strong, positive and significant correlation between two size factors (NIBT and ASSETS) and balance sheet complexity (INVENTORIES and DEBTORS). The t-tests referred above bring into the picture the auditor size factor. The two size factors (ASSETS and NIBT) and balance sheet complexity (INV+DEBTOR) have been identified as significant factors in the determination of audit fees. These factors may be driving the MAS factor making it more important than what in fact it should be.

### *Auditor size*

The results show that the AUDITOR is insignificant in the sample as a whole and across all auditee sizes. The coefficient is negative across all client sizes. Reasons for this should be discussed on the basis of economies of scale and reputational effects. The apparent lack of significant economies of scale may be the result of the benefits of economies of scale and scope of Big Six firms not filtering down completely to their offices in South Africa. That is, the South African affiliates of Big Six firms face local competition which does not have to bear the overhead

costs of international firms for training and other facilities without receiving the full benefits of being a member firm. This would be especially true in audits of client with limited overseas investments who would have little use for a world-wide presence by the auditor [Park, 1990, p.80].

The lack of a Big Six auditor premium may also indicate that clients do not see the audit function as substantially differentiated to warrant a premium. A catch-all explanation would acknowledge the probable existence of economies of scale and premia for reputation. Note that these are competing explanations with opposite effects on the auditor variable. Thus, the two effects may offset each other resulting in the AUDITOR variable being insignificant.

Some additional tests were conducted to confirm that the lack of significance of the auditor variable was not due to model misspecification or other data problems. To ensure that a subset of Big Six firms was not responsible for the significance of the AUDITOR variable, the regression was run with a separate dummy variable for each Big Six firm. The results of this regression are shown in table 29, with the stepwise regression results shown in Appendix 4.

From this regression, the significance of the auditor variable changes significantly. The signs of the coefficients are no longer uniform across all big six firms. The predictive power of the model remains unchanged at 80%, although there is a marked decrease in the F-ratio. Thus, the model using big six dummy variable is not an improvement over one using the Big Six-non-Big Six dichotomy.

The Price Waterhouse (PW) variable is significant and negative. Coopers and Lybrand (CL) also shows a negative coefficient which is only significant at 10%. The remaining four firms have insignificant coefficients with negative ones for Arthur Andersen (AA), Ernst and Young (EY), KPMG Aiken and Peat (KPMG), whilst Deloitte and Touche's (DT) is positive.

**Table 29: Regression results using each Big Six firm as a dummy variable**

Independent Variable	Coefficient	Standard Error	T-Value	Significant Level
Constant	0.572453	0.955281	0.5993	0.5406
MAS	3.678E-7	1.886E-7	1.9504	0.0526
Log Sales	0.406789	0.051928	7.8338	0.0000
NIBT	-9.64E-10	3.12E-10	-3.0885	0.0023
Log Assets	0.181231	0.072689	2.4932	0.0135
Entities <sup>0.5</sup>	9.50E-13	9.23E-13	1.0291	0.3048
INV+DEBTOR Reports	0.59443	0.136978	4.3396	0.0000
Profit	0.000067	0.003037	0.0221	0.9824
Gearing	0.001648	0.002648	0.6222	0.5346
Liquidity	-0.056394	0.047258	-1.1933	0.2343
Opinion Change	0.238212	0.329181	0.7237	0.4703
Location	-0.33936	0.374915	-0.9052	0.3666
Ownership	-0.050832	0.146507	-0.3470	0.7290
Expertise	-0.117277	0.140453	-0.8350	0.4043
Delay	-0.003619	0.006604	-0.5479	0.5488
Non-BIG 6	0.003446	0.00162	2.1264	0.0348
AA	0.06829	0.2591	0.2636	0.7925
KPMG	-0.093921	0.269686	-0.3483	0.7280
PW	-0.003316	0.202361	-0.0164	0.9869
CL	-0.775363	0.269588	-2.8761	0.0045
DT	-0.396427	0.238573	-1.6617	0.0983
EY	0.218809	0.228868	0.9561	0.3403
EY	-0.054565	0.204594	-0.2667	0.7900

Adjusted R<sup>2</sup> = 0.8028

F-Ratio = 39.12

P-value = 0.0000

Durbin Watson Statistic = 1.412

Standard Error of Estimate = 0.7844

n=208

It appears that PW, and to a lesser extent CL, enjoy economies of scale in their audit methodologies. The other firms may also have economies of scale with the exception of DT which may be offering a differentiated product. It is interesting to note that the NON-BIG 6 variable is positive. The implication for this is that the prices of some Big Six firms are lower than those charged by non-Big Six firms. Overall, the results do not seem to indicate that they are driven by one particular firm, but show different pricing characteristics amongst the Big Six firms. The question that has to be addressed in future research is, what types of audit methodologies are used by the firms that result in economies of scale.

Another possible problem is the fact that client size could be a confounding factor since Big Six clients are likely to be larger than other auditees. In this sample average size in terms of assets for Big Six clients was R835,8 million versus R159,9 million for clients of non-Big Six firms. This difference was significant at the 1% level. So, to be certain that client size was not driving the

results, the regression was run on a sample which eliminated any size differences between Big Six and non-Big Six clients. Firms having a Big Six auditor were matched with firms of comparable size with non-Big Six auditors, with a size match of within 10% of total assets. This procedure resulted in a subsample of 41 matches (82 observations) which were virtually indistinguishable in terms of size as measured by assets. Mean assets (standard deviations) were R263,1 million (R569,5 million) for firms audited by Big Six auditors and R264,1 million (R617,7 million) for firms with non-Big Six auditors. The standard deviations show positive skewness which indicates a dominance of large companies in both subgroups. The regression results for this sample were consistent with those reported earlier, and the auditor variable remained insignificant at the 5% level. Thus it does not appear that model misspecification is responsible for the lack of significance of the variable representing Big Six firms.

An attempt was made to run two separate regressions, one for clients of Big Six firms and another clients of non-Big Six firms. No results could be obtained for the Big Six clients as the auditor size variable was linearly related to assets and turnover. However, for non-Big Six clients the auditor size variable was insignificant.

To assess the possibility of existence of monopoly pricing, economies of scale and product differentiation, the results were analysed using the nine scenarios used by Simunic [1980] as discussed in Chapter 6. In this study, the Big Six coefficient is negative, i.e.  $B_8 < b_8$  in the small auditee segment. Similarly, in the large auditee market. This relationship falls into Scenario 9 (table 7 page 111) per the model. This is interpreted as meaning that the audit services market is competitive with economies of scale to the Big Six. So, in terms of Simunic's model, economies of scale favouring large producers exist in South Africa. This would explain why there is no premium observed in the regression as any possible product differentiation is swamped by the economies of scale.

In this study the auditor size variable is insignificant. This would confirm the findings of Firth [1985] in New Zealand and Haskins and Williams [1988] for Malaysia. In the US early studies using data from the 1970s found the auditor size factor to be negative and significant whilst the later studies back the existence of a premium. The existence of a premium in the US has been observed even in public sector studies. The premium is observable in Canada, India, Singapore, the UK, Ireland and Australia. So it appears that across different countries the Big Six are offering a differentiated product. New

Zealand, South Africa and Malaysia appear to be notable exceptions. The three countries do not appear to have a common socio-economic and legal link which may explain the lack of a Big Six premium.

During the time period covered by this study, there were economic sanctions against South Africa which meant that South African firms could not overtly invest in overseas countries. Therefore, they may have not needed audit firms with well known international reputations as auditors. This would mean that a premium for a differentiated product may not have been prevalent in this era. Secondly, the sample period covered a period when there were restrictions against advertising by audit firms. If the reputation of the audit firm is built through service which is communicated through advertising, lack of awareness may curtail the brand premium. In auditing, that may have been the reason for the lack of an audit fee premium for larger and generally well known firms.

### *Expertise*

The coefficient of the auditor expertise factor is positive in all client sizes, but insignificant. It appears that there may be a premium charged by auditors when there is more than one client in a particular sector of the JSE.

To examine the effects of different measurement schemes, the expertise variable was replaced by the number of clients audited by the incumbent audit firm in the auditee's JSE Sector. The coefficient changed from a positive to a negative in the total sample and the small auditee segment. However, it remained positive in the large auditee segment. There was still no improvement in its significance. It would seem that the expertise variable is sensitive to measurement.

Specifically, for the sample as a whole, the binary variable captures the reputational effects whilst the market share metric captures the possible existence of the economies of scale to auditors with expertise in a particular sector. The lack of consistency when the variable is analysed by auditee size suggests that reputational effects of expertise are more dominant amongst large clients. In contrast, economies of scale of expertise are likely to exist amongst small firms. However, this is counterintuitive as economies of scale should be more prevalent amongst large auditees.

There might be some interaction between the audit firm size variable and the expertise factor. The correlation matrix shows a significant positive correlation between auditor size and expertise. In more than 96% of the sectors covered by this study, the small audit firms had only one client whilst the large audit firms

had a greater share of the companies in each sector. A meaningful presence of the small audit firms was only observed in the electronics and the development capital market sectors.

When the auditor size variable is replaced by individual Big Six dummy variables, the expertise variable remained insignificant but became negative in the whole sample and the large auditee sample. It remained positive in the small auditee segment. This result did not change even when the measurement of the expertise variable was either a binary code or a continuous metric. This observation suggests that for large firms there may be economies of scale with regard to expertise in the large auditee segment whilst there is a premium for small audit clients. For large clients, there is greater scope for involvement of all major key aspects of specialisation whilst for small clients only certain aspects are involved which may necessitate a higher charge for small firms.

The significant relationship between auditor size and expertise complicates the analysis of EXPERTISE. Regardless of what company size is being audited, the discussion of AUDITOR above concluded that there were economies of scale for large auditors. Therefore, the premium for expertise may be there, but it is also negated by the economies of scale.

Internationally, the latest evidence from Gist [1994a, 1994b] supports the existence of a premium for auditor expertise. Similarly, in the public sector, Deis and Giroux [1992] and Ward *et al* [1994] found the existence of a premium. In contrast, Palmrose [1986a], using data from 1980-81, found that auditor market share was insignificant. This data was drawn from a period when there were restrictions on advertising from audit firms. Bernstein [1988] noted that the emphasis of industry expertise became a major marketing point in late 1980s. So it is possible that the effect of industry expertise may have been muted. Since then, industry expertise has grown in emphasis which may account for the consistency of results in the late 1980s and early 1990s. As the importance of this variable may be influenced by marketing efforts, the restrictions on advertising until recently may be influencing its lack of significance.

### *Location*

Auditor location is not a significant factor influencing audit fees. In both the large and small auditee segments the coefficient is positive whilst in the whole sample it is negative. This suggests that the Johannesburg auditors of small companies charge more whilst Johannesburg-based auditors of large companies charge less. It is possible that Johannesburg auditors of small companies have a higher cost structure than their counterparts elsewhere. For large companies, their Johannesburg auditors have a lower cost structure. This could be explained by possible economies of scale of large auditors, most of which have large operations in Johannesburg. The lack of significance in the whole sample may be due to the inability to establish the extent of involvement of other offices in the audit. For example, a diversified group like Tiger Oats is based in Johannesburg, but it has significant interests in Cape Town and Durban. These divisions are audited by auditors based in these cities, which may mask the influence of the group auditors based in Johannesburg. To examine this factor more accurately, an assessment of which offices actually performed the audit, and in what proportions, has to be made.

Only one study examined auditor location as a determinant of the audit fee. Chan *et al* [1993] found that the location of the auditor may be a proxy for their cost structure. In South Africa, auditor location has an insignificant effect on audit fees. This observations may have been influenced by the spread of audited locations whose effect on the audit fee cannot be isolated.

### *Auditor change*

The auditor change variable is insignificant, but negative as expected. This provides weak evidence of the existence of fee cutting on initial engagements. The results in this case are likely to have been influenced by the small number of observations.

Further tests were performed to evaluate the consistency of this finding. The audit fee on the first year of the engagement was compared to the prior years after adjusting for inflation. Secondly, differences between actual and predicted initial audit fees were ranked by sign using the Rank sign test. A positive sign denotes actual fees exceeded predicted, and a negative sign indicates that actual fees are lower than predicted (price cutting). The rank sign test shows a tendency of negative signs : four of the five observations had negative signs. However,

there was no statistically significant difference between the number of positive and negative signs.

Of the five observations, two involved a change from one Big Six firm to another, two were changes from one non-Big Six firm to another, and one was a change from a non-Big Six firm to a Big Six firm. Below is a summary of the key statistics relating to the five observations. In order to evaluate if the companies changing auditors were significantly different from those which did not, differences of means were tested for all financial variables. The test results showed that the firms were not significantly different, with the exception of MAS, where firms that changed auditors had high bills for MAS.

**Table 30: Key statistics of firms changing auditors**

	Audit fee		Nominal Change (%)	Real Change
	Prior Year	Initial Year (%)		
Company 1	22000	12000	-45	-52
Company 2	30000	30000	0	-13
Company 3	188000	260000	38	20
Company 4	161000	117000	-27	-36
Company 5	85000	127000	49	29

There is a definite trend of undercutting on new engagements. Company 3 was involved in significant acquisitions during in the year in which auditors were changed. Company 5 engaged a Big Six firm (which succeeded a non-Big Six firm) after it was listed. The increase, instead of an expected decrease may, be due to reputational effects.

When the predicted audit fee on the initial year of the engagement is compared to the actual, Companies 1 to 4 had a higher predicted audit fee whilst company 5 had a lower predicted fee. However, the smallness of the sample size means that these results indicate weak evidence of lowballing. The positive sign for Company 5 suggests the possible existence of a Big Six premium.

Internationally, studies which have focused entirely on auditor changes such as Ettredge and Greenberg [1990], Turpen [1990] observed fee cuts on initial engagements equal averaging around 20%. In contrast, studies which have included this variable as part of many others, e.g. Francis [1984] tended to have low representation of clients changing auditors. The same applies to this study. The effect of auditor changes will best be examined by increasing the sample size and studying the auditor change variable as key point of focus.

### 7.3 The intercept term

In a regression equation the intercept term,  $\beta_0$ , represents the fixed cost element of the audit. In all three multiple and stepwise regression equations this variable is insignificant. In the sample as a whole it is negative whilst it is positive for both the large and small auditee segments. The positive signs indicate that there is a fixed cost attached to the audit. However, the lack of significance of the term implies that the fixed cost element of the audit is small or negligible.

### 7.4 Summary

The results presented here are, to a certain extent, consistent with those reported elsewhere. They indicate that:

1. The size variables total assets and turnover are significant determinants of audit fees. Total assets is not a consistent predictor across all auditee sizes.
2. The number of subsidiaries and associate companies is not a significant determinant. Secondly, the coefficient is also negative, indicating that there could in fact be, a negative relationship between scope complexity and audit fees. Balance sheet complexity, as represented by the proportion of assets in inventory and receivables is significant. However, it appears that the percentage of assets in inventories is a more important factor than receivables.
3. The number of reports depicting financial information in the annual reports is also a significant determinant, implying that additional disclosures incur additional audit costs in annual reports.
4. Tight audit deadlines do not impose significant audit costs as audit delay is negatively related to the audit fee.
5. The only important determinant factor under the auditors' production function is MAS. This may be driven by the fact that:
  - purchasers of MAS tend to be large complex companies who are clients of Big Six audit firms;
  - Some consulting work has significant audit implications necessitating intensive audit effort; and

- Audit firms may be earning economic rents on MAS which are not being passed on to clients in the form of a lower audit fee.
6. Auditor size and industry expertise does not affect significantly affect audit fees.

On the whole audit fees appear to be driven by client characteristics.

Clearly, the above contains several important implications for management and auditors and also points to several areas where further research is warranted or needed to draw firmer conclusions or to clarify and extend some of the above results. These implications are considered in Chapter 8.

## 8. CONCLUSION

### 8.1 Introduction

In summing up the results of the study, it is important to bear in mind the purpose and the limitations within which the study was conducted.

The research is based on a sample of listed companies excluding the financial services sector and is largely exploratory in nature. The conclusions drawn can only hold for listed companies. Nonetheless, it is felt that the results and conclusions can be of use to both management and audit practitioners. In addition, they set some groundwork for the future research agenda into audit fees.

### 8.2 Summary of results

The introductory chapter of this thesis set out four objectives for this study, and before proceeding on to areas of future research and conclusions arising from the results, it is necessary to consider what extent the results presented in Chapter 7 met these objectives.

#### 8.2.1 Company specific variables

In line with findings from other countries, auditee size and complexity are two key determinants of audit fees. The number of reports also affects the audit fee particularly amongst larger listed companies. Audited risk as proxied by profitability, liquidity and gearing is not significantly related to audit fees. Other variables included were ownership structure, the number of subsidiaries and associated companies and audit report opinion all of which were insignificant.

#### 8.2.2 Type of audit firm

On the whole, there are significant differences between audit fees charged by the Big Six and the other smaller audit firms. In companies with assets less than R100 million, the fees charged by the Big Six are less than those charged by other firms. This means that there are economies of scale in auditing that are exploited by large audit firms in their audit methodology. The exact nature and source of these economies of scale cannot be adequately determined by the methodology used in this study. There is also evidence of competition in the audit services market which would support evidence from local practitioners that

there is competition amongst the Big Six in spite of their dominance in the audits of listed companies.

### **8.2.3 Management advisory services**

In general companies that buy MAS from their auditors pay higher fees than those that do not. This, by and large, is an international trend. This study found that firms that purchase MAS from their auditors tend to be large complex entities which are clients of the Big Six. It is suggested that the correlation may be influenced by the resultant audit implications from MAS provided by incumbent auditors.

### **8.2.4 Change in auditors**

Evidence from the five companies included in the study indicate there may be “lowballing” with new auditors setting the audit fee at levels below that of the previous auditor. However, the evidence is tentative as the sample size was too small to draw firm conclusions.

### **8.2.5 Summary**

Overall the selected independent variables are highly significant and permit a reasonably good fit considering the multitude of elements which can affect the audit fee. The model successfully identify the most critical factors but there is almost 20% of the audit fee which they do not explain. The significance of the regression equation indicates that the model is not a statistical artefact but represents an actual relationship between audit fees and the selected variables.

The results indicate that audit fees are largely determined by client factors. This may have been influenced by the fact that most client characteristics are easily observable whilst audit firm factors can only be estimated. This study has not identified all the major determinants of audit fees. Non-quantitative factors cannot be satisfactorily factored into a quantitative model. This limits the assessment of personal judgement in the setting of audit fees.

## **8.3 Applications of this study**

One of the key objectives of the study is to develop a model that can be used to judge the reasonableness of audit fees. It means that in preparing for the annual audit, management has to ensure that debtors and stock are either low in relation to total assets or have to prepare all the necessary schedules required by the auditor to minimise audit hours spent by the external auditors. The role of the

internal audit function becomes more important as their work in verifying debtors and stock has to be of high quality and must be adequately documented. This may minimise the number of hours spent by the external auditors in this area.

Furthermore, when management is assessing the reasonableness of the audit fee, it is the finding of this research that any significant changes in debtors and inventories has a direct audit impact.

Due to increasing competition a growing number of companies are inviting auditors to tender for audits. This requires audit firms to estimate what their audit fee will be in advance. A model similar to the one developed above shows the areas that generally influence audit fees across different companies. Nevertheless, fee proposals still require a comprehensive review of the particular characteristics of a potential client

Having identified factors that affect audit fees across different companies, audit firms can use such a model to justify their annual audit fee. Both management and auditors would use a similar base to justify whatever fee they deem to be reasonable. This reduces areas of subjectivity.

#### **8.4 Areas of future research**

In identifying areas of future areas of research, the starting point should be an attempt to include variables which have not been included in this study as new variables. In addition, the limitations of this study have to be addressed.

This thesis has shown the general lack of research in the area of audit practice in South Africa. Emanating from this the unresolved issues appear to be in:

- Identifying proxy variables for audit risk. The financial variables used in the study were not significantly related to the audit fee. Therefore, consideration must be given to identifying other variables which may not be financial.
- Identifying proxy variables for scope complexity variables. The use of the number of subsidiaries and associate companies gave counterintuitive results. Measures that should be considered are extent of diversification as measured by number of divisions, number of locations and the number of industries in which the client operates, among others.
- Isolating the influence of brand name/reputational effects from economies of scale influences. This presents a possibility of surveying users of financial statements and management for their opinions on the determinants of audit quality.

- Change in auditors. In the sample used there were very few companies that changed auditors. As a result, the findings presented here are tentative at the least. Future research in this area, should increase the sample size and use the key factors identified in this thesis as control variables.
- MAS. The influence of MAS on audit fees can be explored further through ascertaining the nature of advisory service and testing the relationships with the audit fee. With the change in legislation, it will now be possible to identify the exact nature of such services. This presents a good opportunity for research in this area.

A critical factor in the practice of auditing and setting of fees is judgement. The influence of judgement means that it will never be possible to predict the audit fee with 100% accuracy. In order to better understand the influence of judgement on audit fees, subjective factors should be taken into account and further research be made on how they may be quantified and thus built into an audit fee model.

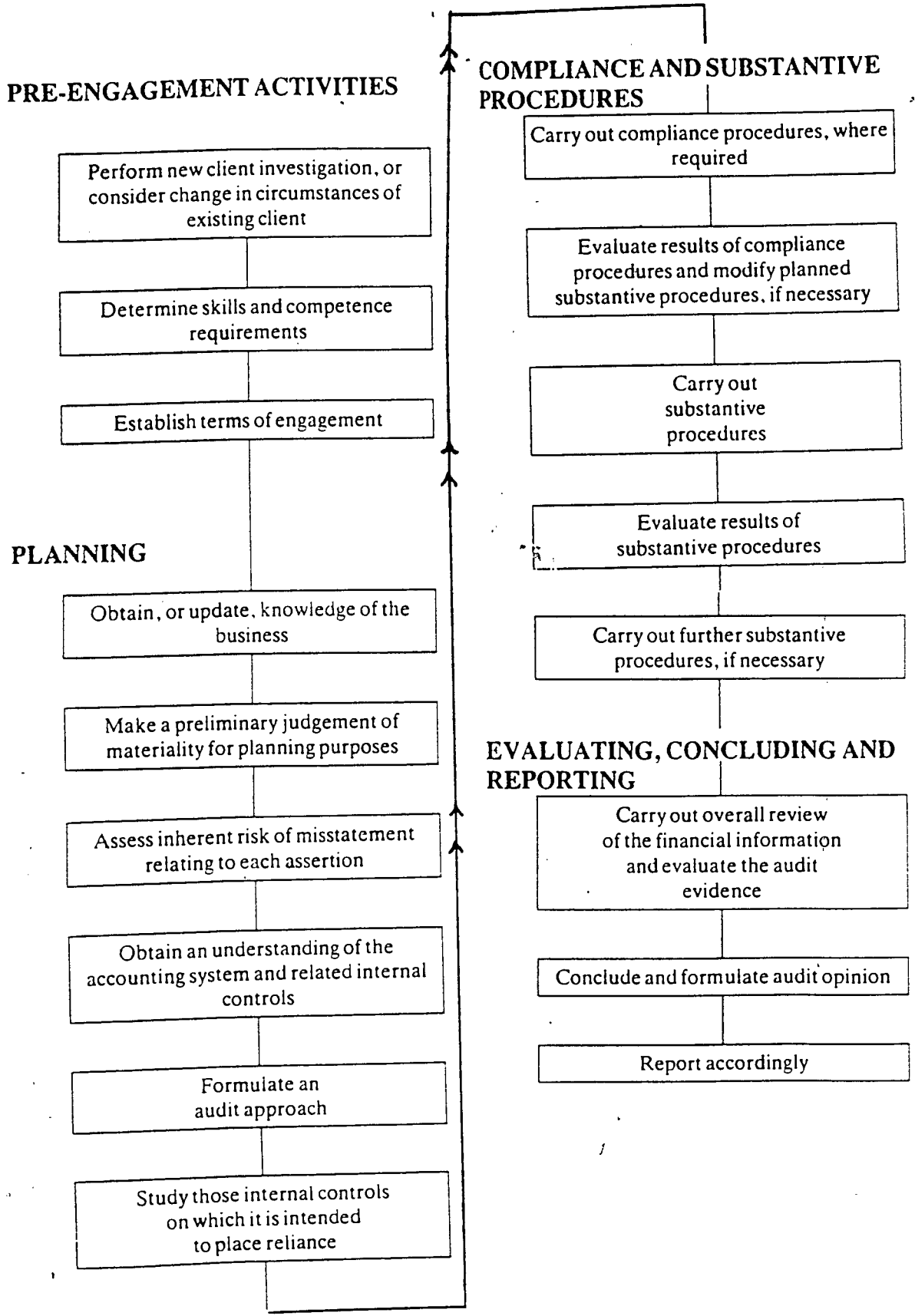
The research has been severely limited by the lack of output data for audit firms. Hence, the function has been estimated from audit fees which may not be an accurate indicator of the production function. This can only be done with the co-operation of audit firms due to the necessity of audit hours as measures of audit effort.

## **8.5 Concluding remarks**

The auditing profession in South Africa is bound by its code of ethics to base their fees on costs incurred. Although there is no monitoring of these fees, it is possible that the actual basis of fee setting may be dependent on factors other than, or in addition to, the costs of the audit. However, given that client size, client riskiness, audit complexity are effective proxies for costs, it is suggested that fees are being broadly based upon costs incurred. By and large there is a considerable similarity in the economics of auditing across several different countries. This similarity may increase in due course as the internationalisation of auditing gathers momentum as the new millennium approaches. Although there is high level of concentration within the market for audit of listed companies, this does not appear to lead to monopoly pricing.

9 APPENDICES

Appendix 1 : The Audit Process



**Appendix 2: List of companies included in the study**

<b>NAME</b>	<b>SECTOR</b>
1. ACREM	RETAIL
2. ADVANCED TECHNICAL	ELECTRONICS
3. AFCOM PACKAGING	PAPER
4. AFRIKANDER LEASE	GOLD
5. AIDA HOLDINGS	PROPERTY
6. ANBEECO INVESTMENT HOLDINGS	ELECTRONICS
7. ANGLO TRANSVAAL COLLIERIES	COAL
8. AFRICAN CABLES	ELECTRONICS
9. ANGLO-AMERICAN COAL	COAL
10. APEX PROPERTY FUND	PROPERTY
11. ASSOCIATED MANGANESE FUND	METALS
12. AUDIODEK HOLDINGS	ELECTRONICS
13. AUTOQUIP GROUP	RETAIL
14. BARLOW RAND LIMITED	INDHOLDINGS
15. BARLOW RAND PROPERTIES	PROPERTY
16. BERGERS GROUP	RETAIL
17. BIDVEST	INDHOLDINGS
18. BLOCH LTD	DCM
19. BOLTON FOOTWEAR	CLOTHING
20. BOUMAT	BUILDING
21. BOYMANS	RETAIL
22. BRISTOL INDUSTRIAL	PROPERTY
23. BTR DUNLOP	INDHOLDINGS
24. CADBURY SCHWEPPEs	BEVERAGES
25. CARGO CARRIERS	TRANSPORT
26. CASHBUILD	RETAIL
27. CENMAG HOLDINGS	DCM
28. CENTERCITY PROPERTY FUND	PROPERTY
29. CITY INVESTMENT HOLDINGS	DCM
30. CLICKS STORES	RETAIL
31. CNA GALLO	RETAIL
32. CONSHU HOLDINGS	CLOTHING
33. CONSOL	PAPER
34. CULLINAN HOLDINGS	INDHOLDINGS
35. DELTA ELECTRICAL	ELECTRONICS
36. DORBYL	ENGINEERING
37. EDGARS STORES	RETAIL
38. EGOLI CONSOLIDATED MINES	GOLD
39. ENVIRONMENT RESOURCES	DCM
40. FENIX INDUSTRIES	CLOTHING
41. FORIM HOLDINGS	PROPERTY
42. GENERAL OPTICAL	PHARMACEUTICALS
43. GENTYRE INDUSTRIES	MOTOR
44. GLODINA HOLDINGS	CLOTHING
45. GRINDROD UNICORN	INDHOLDINGS
46. GRINTEK	ELECTRONICS
47. GROWTH POINT PROPERTIES	PROPERTY
48. HIGHSTONE PROPERTY FUND	PROPERTY
49. HUDACO INDUSTRIES	ENGINEERING
50. IMPALA PLATINUM	PLATINUM
51. INDUSTRIAL SELECTIONS	INV-TRUSTS
52. ISCOR LIMITED	STEEL

53.	JASCO ELECTRONICS	ELECTRONICS
54.	JD GROUP	FURNITURE
55.	KAROS HOTELS	HOTELS
56.	KNIGHTS GOLD MINING	GOLD
57.	LEBOWA BAKERIES	FOOD
58.	LESLIE GOLD MINING	GOLD
59.	LTA	BUILDING
60.	MACPHAIL HOLDINGS	INDHOLDINGS
61.	MARSHALS CONTROLLING INVESTMENTS	PROPERTY
62.	MARTIN JONKER	MOTOR
63.	MASONITE	BUILDING
64.	MAXMECH MECHANICAL SEALS	DCM
65.	MICOR INDUSTRIAL CORP	INDHOLDINGS
66.	MIDAS	RETAIL
67.	MILSTAN HOLDINGS	RETAIL
68.	NAMIBIAN FISHING INDUSTRIES	FISHING
69.	NUWORLD HOLDINGS	ELECTRONICS
70.	OHIO GROUP	ELECTRONICS
71.	OK BAZAARS	RETAIL
72.	ORYX GOLD MINING	GOLD
73.	OZZ LTD	INDHOLDINGS
74.	PEP LIMITED	RETAIL
75.	PENROSE HOLDINGS	PRINTING
76.	PLATE & GLASS SHATTERPRUFE	INDHOLDINGS
77.	PRESTO TRANSPORT HOLDINGS	TRANSPORT
78.	PRETORIA PORTLAND CEMENT	BUILDING
79.	PROGRESS INDUSTRIES	CLOTHING
80.	RACY GROUP HOLDINGS	TRANSPORT
81.	RAND LEASES GOLD MINING	GOLD
82.	RENTMEESTER BELEGGINGS	INDHOLDINGS
83.	ROMANO FURNITURE	FURNITURE
84.	SABLE HOLDINGS	PROPERTY
85.	SAPPI	PAPER
86.	SASOL	CHEMICALS
87.	SEARDEL INVESTMENT	CLOTHING
88.	SHOCRAFT	DCM
89.	SILTEK	ELECTRONICS
90.	SOLCHEM	PHARMACEUTICALS
91.	SONDOR INDUSTRIES	ENGINEERING
92.	SOUTH AFRICAN BREWERIES	BEVERAGES
93.	SOUTH AFRICAN FREIGHT SERVICES	INDHOLDINGS
94.	SPECIALITY STORES	RETAIL
95.	TIGER OATS	FOOD
96.	TOCO HOLDINGS	INDHOLDINGS
97.	TRADEGRO	RETAIL
98.	TRANSPACO	PAPER
99.	TRENCOR	TRANSPORT
100.	UNITRANS	TRANSPORT
101.	W & A INVESTMENT CORPORATION	INDHOLDING
102.	WALTONS	RETAIL
103.	WB HOLDINGS	FOOD
104.	WOOLTRU	RETAIL

**Appendix 3(a): Stepwise regression statistics for large auditees**

Independent Variable	Coefficient	Standard Error	T-Value	Significant Level
Constant	1.516592	0.969430	1.5646	0.1204
MAS	6.508E-7	1.674E-7	3.8858	0.0002
Log Sales	0.539227	0.052702	10.2316	0.0000
NIBT	-1.216E-9	3.79E-10	-3.2093	0.0017
INV+DEBTOR	0.779234	0.324964	2.3979	0.0181
Reports	0.088125	0.027026	3.2607	0.0015

Adjusted R<sup>2</sup> = 0.7568

F-Ratio = 55.59

P-value = 0.0000

Durbin Watson Statistic = 1.968

Standard Error of Estimate = 0.8306

n=120

**Appendix 3(b): Stepwise regression statistics for small auditees**

Independent Variable	Coefficient	Standard Error	T-Value	Significant Level
Constant	-0.002566	1.14235	-0.0022	0.9982
MAS	0.000011	3.51E-6	3.0209	0.0033
Log Sales	0.243749	0.06038	4.0369	0.0001
Log Assets	0.387097	0.08551	4.5266	0.0000
INV+DEBTOR	0.796118	0.16016	4.9566	0.0000
Entities	-1.338E-8	5.30E-8	-2.5216	0.0135
Auditor	-0.358962	0.15305	-2.3453	0.0213

Adjusted R<sup>2</sup> = 0.6858

F-Ratio = 33.61

P-value = 0.0000

Durbin Watson Statistic = 1.493

Standard Error of Estimate = 0.6688

n=88

**Appendix 4: Stepwise regression statistics using each Big Six firm as a dummy variable**

<b>Independent Variable</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Value</b>	<b>Significant Level</b>
Constant	0.944465	0.783388	1.2056	0.2297
MAS	0.245833	0.072672	3.3828	0.0012
Log Sales	0.34986	0.05511	6.3488	0.0000
Log Assets	0.196238	0.064315	3.0512	0.0027
INV+DEBTO	0.651237	0.13386	4.8650	0.0000
Reports	0.090285	0.03507	2.5745	0.0109
Delay	0.04495	0.01473	3.0518	0.0037

Adjusted R<sup>2</sup> = 77.68

F-Ratio = 28.09

P-value = 0.0000

Durbin Watson Statistic = 1.412

Standard Error of Estimate = 0.7870

n=208

## 10. BIBLIOGRAPHY

ABDEL-KHALIK A.R. (1990), 'The jointness of audit fees and demand for MAS: A self selection analysis', **Contemporary Accounting Research**, Vol.6, No.2 (Fall 1990), pp.295-322.

ADDAMS H.L. and DAVIS, B. (1994) 'Privately held companies report reasons for selecting and switching auditors', **CPA Journal**, August 1994, pp.38-41.

AMERICAN INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS (1978). **Commission on Auditors' Responsibilities: Report, Conclusions and Recommendations**. New York: AICPA, 1978.

ANDERSON, T. and ZEGHAL, D (1994), 'The pricing of audit services: Further evidence from the Canadian market', **Accounting and Business Research**, Vol.24, No.95 (Summer 1994), pp.195-207.

ARMSTRONG, M.B. and VINCENT, J.I. (1988), 'Public accounting : A profession at a crossroads', **Accounting Horizons**, Vol.2, No.1 (March 1988), pp.94-98.

ARNETT, H.E. and DANOS, P. (1979) **CPA Firm Viability**, Ann Arbor: University of Michigan, 1979.

BABER, W.R. (1983), 'Toward understanding the role of auditing in the public sector', **Journal of Accounting and Economics**, Vol.5, No.3 (December 1983), pp.213-227.

\_\_\_\_\_, BROOKS, E.H. and RICKS, W.E. (1987), 'An empirical investigation of the market for audit services in the public sector', **Journal of Accounting Research**, Vol.25, No.2 (Autumn 1987), pp.293-305.

BALACHANDRAN, B.V. and RAMAKRISHNAN, R.T.S (1987), 'A theory of audit partnerships: Audit firm size and fees', **Journal of Accounting Research**, Vol.25, No.1 (Spring 1987), pp.111-126.

BARLEV, B. (1977), 'The initial selection of independent public accountants', **The International Journal of Accounting**, Vol.12, No.2 (Spring 1977), pp.37-51.

BECK, P., FRECKA, T.J. and SOLOMON, I. (1988), 'A model of the market for MAS and audit services: Knowledge spillovers and auditor-auditee bonding', **Journal of Accounting Literature**, Vol.7, No.1 (January 1988), pp.50-64.

- BERLE, A. and MEANS, G. (1952), **The Modern Corporation and Private Property**, New York: Macmillan. 1952.
- BERNSTEIN, P., 'Competition comes to auditing', **Fortune**, July 1978, pp.89-96.
- BOSHOFF, C., du PLESSIS, A.D., MOOLMAN, P.L. and RADDER, G. (1989), 'A survey of definitions of small business in the Southern African context,' **South African Journal of Business Management**, Volume 20, No.2 (June 1989), pp.52-56.
- BRADY, N. (1992a), 'Beholding the sunset for the grey men in grey suits', **The Accountant**, January 1992, pp.14-15.
- \_\_\_\_\_ (1992b), 'More middle-tier mergers predicted', **The Accountant**, September 1992, pp.8-9.
- BRILOFF, A.J. (1994), 'Our profession's "Jurassic Park"', **The CPA Journal**, August 1994, pp.26-31.
- BRISTON, R.J and PECKS, R. (1977), 'The external auditor - his role and cost to society', **Accountancy**, November 1977, pp.48-52.
- BRUMFIELD, C.A., ELLIOTT, R.K. and JACOBSON, P.D. (1983), 'Business risk and the audit process', **Journal of Accountancy**, April 1983, pp.60-68.
- BUCKLEY, J.W. and O'SULLIVAN, P. (1980), 'Regulation and the accounting profession: What are the issues?' in BUCKLEY, J.W. and WESTON, J.F.(1980)(eds.), **Regulation and the Accounting Profession**, Belmont: Lifetime Learning Publications. 1980.
- \_\_\_\_\_ (1981), 'International economics and multinational accounting firms', in BUCKLEY, J.W. (1981)(Ed.), **The International World of Accounting : Challenges and Opportunities (1980 Proceedings of the Arthur Young Professors' Roundtable)**, Virginia : The Council of Arthur Young Professors. 1981.
- CADBURY, A. (1992), 'Keeping the state from the corporate door,' **Accountancy** (June 1992), pp 11-13.
- CHAN, P., EZZAMEL, M. and GWILLIAM, D. (1993), 'Determinants of audit fees for quoted UK companies', **Journal of Business Finance and Accounting**, Vol.20, No.6 (November 1993), pp.765-786.

- CHOW, C.W. (1982), 'The demand for external auditing: Size, Debt and ownership influences'. **The Accounting Review**, Vol.57, No.2 (April 1982), pp.272-291.
- \_\_\_\_\_ and WONG-BOREN, A. (1986), 'Audit firm size and audit quality: Some evidence from Mexico', **The International Journal of Accounting**, Vol.21, No.2 (Spring 1986), pp.1-22.
- CHUNG, D and LINDSAY, W. (1988), 'The pricing of audit services: The Canadian perspective,' **Contemporary Accounting Research**, Vol 5, No.1 (Fall 1988), pp.19-46.
- CHRISTIANSEN, M. and LOFT, A. (1992), 'Big players and small players - A study of increasing concentration in the Danish market for audit services', **European Accounting Review**, Vol.1, No. 2 (December 1992), pp.277-301.
- CORREIA, C., FLYNN, D., ULIANA, E. and WORMALD, M. (1993), **Financial Management**, 3rd Edition, Cape Town : Juta and Co., 1993.
- CYPERT, S.A. (1991), **Following the money - The Inside Story of Accounting's First Mega-Merger**, Amacom, New York, 1991.
- DANOS, P. and EICHENSEHER, J.W (1982), 'Audit industry dynamics: Factors affecting changes in client-industry market shares', **Journal of Accounting Research**, Vol.20, No.2 (Autumn 1982), pp.604-616.
- \_\_\_\_\_ (1986), 'Long-term trends towards seller concentration in the U.S. audit market', **The Accounting Review**, Vol.61, No.4 (October 1986), pp. 633-650.
- DARNILL, A. (1992), 'The auditor's dilemma (costs remain high while fees are driven down)', **Accountancy**, June 1992, pp.110-111.
- DAVIS, L.R., RICCHIUTE, D.N. and TROMPETER, G. (1993) 'Audit effort, audit fees and the provision of non-audit services to audit clients', **The Accounting Review**, Vol. 68, No.1 (January 1993), pp.135-150.
- DeANGELO, L.A. (1981a), 'Auditor independence, 'low balling', and disclosure regulation', **Journal of Accounting and Economics**, Vol.3, No.2 (August 1981), pp.113-127
- \_\_\_\_\_ (1981b), 'Auditor size and audit quality', **Journal of Accounting and Economics**, Vol.3, No.3 (December 1981), pp.183-199.

- DEIS, D.R. and GIROUX G.A. (1992), 'Determinants of audit quality in the public sector', **The Accounting Review**, Vol.67, No.3 (July 1992), pp.462-479.
- DEMSETZ, H. (1983), 'The structure of ownership and the theory of the firm', **Journal of Law and Economics**, Vol.24, No.3 (October 1983), pp. 375-393.
- DIJKMAN, J. (1994), 'Minimising the risk of a fee dispute', **Accountancy SA**, November/December 1994, pp.26-28.
- DOPUCH, N. and SIMUNIC, D. (1980), 'The nature of competition in the auditing profession: A descriptive and normative view,' in BUCKLEY, J.W. and WESTON, J.F.(1980)(eds.), **Regulation and the Accounting Profession**, Belmont : Lifetime Learning Publications. 1980.
- EICHENSEHER, J.W. and DANOS, P. (1981), 'The analysis of industry-specific auditor concentration: Towards an explanatory model,' **The Accounting Review**, Vol.56, No.3 (July 1981), pp.479-492.
- \_\_\_\_\_, HAGIGI, M. and SHIELDS, D. (1989), 'Market reaction to auditor changes by OTC companies', **Auditing: A Journal of Practice and Theory**, Vol.9, No.1 (Fall 1989) pp.29-39.
- ELLIOTT, R.K. and KORPI, A.R. (1978), 'Factors affecting audit fees', in Shakun, M.F., **Cost-Benefit Analysis of Auditing, Commission on Auditors' Responsibilities**, Research Study No.3, 1978.
- \_\_\_\_\_ (1994), 'The future of audits', **Journal of Accountancy**, September 1994, pp.74-82.
- ETTREDGE, M., SHANE, P.B. and SMITH, D.B. (1988), 'Audit firm size and the association between reported earnings and security returns', **Auditing: A Journal of Practice and Theory**, Vol.7, No.2 (Spring 1988), pp.29-40.
- \_\_\_\_\_ and GREENBERG, R. (1990), 'Determinants of fee cutting on initial audit engagements', **Journal of Accounting Research**, Vol.28, No.1 (Spring 1990), pp.198-210.
- FAMA, E.F. and JENSEN, M.C. (1983a), 'Separation of ownership and control', **Journal of Law and Economics**, Vol.26, No.2 (June 1983), pp.301-325.
- \_\_\_\_\_ (1983b), 'Agency problems and residual claims', **Journal of Law and Economics**, Vol.26, No.2 (June 1983), pp.327-349.

FANNING, D. (1978), 'How slow are auditors in Britain', **Accountancy**, August 1978, pp.44-48.

FINANCIAL MAIL TOP COMPANIES SURVEY (1992 -1994)

FINANCE WEEK 200 (1993-1995)

FIRTH, M. (1985), 'An analysis of audit fees and their determinants in New Zealand', **Auditing: A Journal of Practice and Theory**, Vol.4, No. 2 (Spring 1985), pp.23-37.

FOSTER, G. (1986) **Financial Statement Analysis** 2nd Edition, New Jersey, Prentice Hall International, 1986.

FRANCIS, J.R. (1984), 'The effect of audit firm size on audit fees : A study of the Australian Market', **Journal of Accounting and Economics**, Vol.6, No.2 (August 1984), pp.145-157.

\_\_\_\_\_ and STOKES, D.J. (1986), 'Audit prices, product differentiation, and scale economies : Further evidence from Australia', **Journal of Accounting Research**, Vol.24, No.2 (Autumn 1986), pp.383-393.

\_\_\_\_\_ and SIMON, D.T. (1987), 'A test for audit pricing in the small-client segment of the US audit market', **The Accounting Review**, Vol.62, No.1 (January 1987), pp.145-157.

\_\_\_\_\_ and WILSON, E.R. (1988), 'Auditor changes: A joint test of theories relating to agency costs and auditor differentiation', **The Accounting Review**, Vol.63, No.4 (October 1988), pp.663-682.

GARCIA-BENAU, M.A. and HUMPHREY, C. (1992), 'Beyond the audit expectations gap - Learning from the experiences of Britain and Spain', **European Accounting Review**, Vol.1, No.2 (December 1992), pp.303-331.

GIST, W.E. (1992), 'Explaining the variability in external audit fees', **Accounting and Business Research**, Vol.23, No.89 (Winter 1992), pp.79-84.

\_\_\_\_\_ (1994a), 'A research note on the relationship between regulation and audit firm size on audit fees', **Journal of Accounting, Auditing and Finance**, Vol.9 (Spring 1994), pp.381-396.

- \_\_\_\_\_ (1994b), 'Empirical evidence on the effect of audit structure on audit pricing', **Auditing: A Journal of Practice and Theory**, Vol.13, No.2 (Fall 1994), pp.25-40.
- GLOECK, J.D. and de JAGER, H.(1993), **The Audit Expectation Gap in the Republic of South Africa**, Research Report 93(1). University of Pretoria. 1993.
- \_\_\_\_\_ and VENTER, J.M.P. (1993), **Facts on Audit Firms in South Africa**, Research Report 93(3), University of Pretoria. 1993.
- GOLDWASSER, D.L. (1992), 'Loss prevention: It can no longer be ignored', **The CPA Journal**, June 1992, pp.28-37.
- GUL, F.A. (1991), 'Size of audit fees and perceptions of auditors ability to resist management pressure in audit conflict situations', **Abacus**, Vol.27, No.2, (March), pp.162-172.
- GWILLIAM, D. (1987), **A Survey of Auditing Research**, Institute of Chartered Accountants for England and Wales, 1987.
- HASKINS, M.E. and WILLIAMS, D.D. (1988a), 'The association between client factors and audit fees: A comparison by country and by firm', **Accounting and Business Research**, Vol. 18, No.70 (Spring 1988), pp.183-190.
- \_\_\_\_\_ (1988b), 'Corporate mergers and auditors client portfolios', **Accounting Horizons**, Vol.2, No. 1 (March 1988), pp.77-87.
- HILLISON W. and KENNELLEY, M. (1988), 'The economics of non-audit services', **Accounting Horizons**, Vol.2, No.3 (September 1988), pp.32-40.
- HOLMES, W. (1977) 'The 13th century audit case', **The Accounting Historians Journal**, Vol.4, No.2 (Fall 1977), p.107-111.
- HUNT, B.C. (1935) 'Auditor independence', **Journal of Accountancy**, April 1935, pp.453-459
- HUYSAMEN, G.K. (1993), **Methodology for the Social and Behavioural Sciences**, Pretoria: Southern Books. 1993.
- IFAC (1985) **Handbook**, Section 12 Ethics, "Professional Fees" New York, 1985.
- ICAEW (1985) **Members Handbook**, Professional Fees, London, 1985.

JACOB, R. (1991), 'Can you trust that audit', **Fortune Magazine**, November 18, 1991, pp.101-104.

JENSEN, M.C. and MECKLING, W.H. (1976), 'Theory of the firm: Managerial behaviour, agency costs and ownership structure', **Journal of Financial Economics**, Vol.3 (October 1976), pp. 305-360.

JSE (1992) **The JSE Handbook December 1992.**

\_\_\_ (1993) **The JSE Handbook August 1993.**

\_\_\_ (1994) **The JSE Handbook August 1994.**

JOHNSON, W.B. and LYS, T. (1990), 'The market for audit services - Evidence from voluntary auditor changes,' **Journal of Accounting and Economics**, Vol.12, No.3 (January 1990), pp.281-308.

#### **The King Commission on Corporate Governance [1994]**

KNAPP, M.C. (1991), 'Factors that audit committee members use as surrogates for audit quality', **Auditing: A Journal of Practice and Theory**, Vol.10, No.1 (Spring 1991), pp.35-52.

KPMG AIKEN AND PEAT (1994) 'KPMG: Our international identity,' **KPMG Fighting Fraud**, Issue No.2, 1994.

LEE, T. (1991), 'Professional foundations and theories of professional behaviour- A Review Essay', **The Accounting Historians Journal**, Vol.18, No.2 (December 1991), pp.193-203.

LOFT, A. and SJOFORS, A. (1993), 'Audit concentration in Sweden and Denmark,' in Artsberg, A., Loft, A, and Yard, S., **Accounting Research in Lund**, Lund Studies in Economics and Management, Research Report 20, Lund University. 1993.

LOW, L.C., TAN, P. and KOH, H.C., 'The determination of audit fees: An analysis in the Singaporean Context', **Journal of Business Finance and Accounting**, Vol.17, No.2 (Spring 1990), pp.285-295.

LYNN, S.A. (1987), 'Segmenting the CPA services market', **Advances in Accounting**, Vol. 4 (1987), pp.239-265.

MAHER, M.W., TIESEN, P., COLSON, R. and BROMAN, A.J.(1987), 'Competition and audit fees', **The Accounting Review**, Vol.67, No.1 (January 1992), pp.199-211.

- MAIJOOR, S.J. (1994), 'Economic effects of accounting regulation for public accountants', **Accounting and Business Research**, Vol.24, No.95 (Summer 1994), pp.267-276.
- MARGHEIM, L.L. (1986), 'Further reliance on external auditors' reliance on internal auditors', **Journal of Accounting Research**, Vol.24, No.1 (Spring 1986), pp.194-205.
- \_\_\_\_\_ and KELLEY, T. (1992), 'The perceived effects of fixed fee audit billing arrangements (Perceptions of accounting firm partners)', **Accounting Horizons**, Vol.6, No.4 (December 1992), pp.62-72.
- MARTIN, L.R.(1983), 'How we lowered our audit fees', **Management Accounting** Vol. 64, No.4 (April 1983), pp.30-32.
- MASON, E. (1994), 'Public accounting - no longer a profession', **The CPA Journal**, August 1994, pp.34-37.
- MAUTZ, P and SHARAF (1962), **The Philosophy of Auditing**, American Accounting Association, Florida
- McCONNELL, D.K. (1983), 'Are the Big 8 increasing their share of the NYSE, AMEX, and OTC audit markets', **Journal of Accounting, Auditing and Finance**, Vol.7 (1983), pp.178-181.
- McGREGOR R. (1991), **McGregor's Who Owns Whom - The Investors Handbook**, 11th Edition Cape Town: Juta. 1991
- \_\_\_\_\_ (1992), **McGregor's Who Owns Whom - The Investors Handbook**, 12th Edition Cape Town: Juta. 1992
- \_\_\_\_\_ (1993), **McGregor's Who Owns Whom - The Investors Handbook**, 13th Edition Cape Town: Juta. 1993.
- \_\_\_\_\_ (1994), **McGregor's Who Owns Whom - The Investors Handbook**, 14th Edition Cape Town: Juta. 1994.
- MENDENHALL, W. and SINCICH, T. (1993) **A Second Course in Business Statistics: Regression Analysis**, 4th Edition, New York: Macmillan Publishing Co., 1993.
- MERINO, B.D., MAYPER, A.G. and SPIRAM, R.S. (1994), 'Voluntary audits in New York in 1927: A case study' **Journal of Business Finance and Accounting**, Vol.21, No.5 (July 1994), pp.619-642.

- MINYARD D.H. and TABOR, R.H. (1991), 'The effect of Big Eight mergers on auditor concentration', **Accounting Horizons**, Vol.5, No.4 (December 1991), pp.79-89.
- MOCKLER, K.G. (1994), 'The CA(SA) designation', **Accountancy SA**, June 1994, p.3.
- MOIZER, P. and TURLEY, S. (1987), 'Surrogates for audit fees in concentration studies', **Auditing: A Journal of Practice and Theory**, Vol. 7, No.1 (Fall 1987), pp.118-123.
- \_\_\_\_\_ (1992), 'State of the art in audit market research,' **European Accounting Review**, Vol.1, No. 2 (December 1992), pp.333-348.
- MSIBI, D.T.V. and PILLAY, A.C. (1992), **Environmental Factors in the Auditing Profession with a Particular Emphasis on Litigation Against Auditors**, An Unpublished Business Science Technical Report, University of Cape Town. 1992.
- NG, P.P.H. and TAI, B.Y.K.(1994), 'The determinants of audit delay in Hong Kong', **British Accounting Review**, Vol.26, No.1 (March 1994), pp.43-59.
- NICHOLS, D.R. and SMITH, D.B. (1983), 'Auditor credibility and auditor changes', **Journal of Accounting Research**, Vol.21, No.2 (Autumn 1983), pp.534-544.
- O'KEEFE, T.B., KING, R. and GAVER, K.M. (1994), 'Audit fees, industry specialisation, and compliance with GAAS reporting requirements', **Auditing: A Journal of Practice and Theory**, Vol.13, No.2 (Fall 1994), pp.41-55.
- PAAB (1991) Manual of Information**
- \_\_\_\_\_ (1994) **FAESA Project : Report on the Future of Accounting Education in South Africa**. Johannesburg: PAAB. 1994
- PALMROSE, Z. (1986a), 'Audit fees and auditor size : Further evidence', **Journal of Accounting Research**, Vol.24, No.4 (Spring 1986), pp.97-110.
- \_\_\_\_\_ (1986b), 'The effect of non-audit services on the pricing of audit services: Further evidence', **Journal of Accounting Research**, Vol.24, No.2 (Autumn 1986), pp.405-411.
- \_\_\_\_\_ (1988), 'Public accounting firms and the acquisition of non-audit services by public and closely-held companies', **Auditing: A Journal of Practice and Theory**, Vol.8, No.1 (Fall 1988), pp.63-71.

- \_\_\_\_\_ (1989), 'The relation of audit contract type to audit fees and hours', **The Accounting Review**, Vol.64, No.3 (July 1989), pp.488-499.
- PANY, K. and RECKERS, P.M.J. (1988), 'Auditor performance of MAS: A study of its effects on decisions and perceptions', **Accounting Horizons**, Vol.2, No.2 (June 1988), pp.31-38.
- PARK, S.H. (1990), 'Competition, independence and audit quality: The Korean experience', **The International Journal of Accounting**, Vol.25, No.2 (Fall 1990), pp.71-86.
- PAUL, J.W. and RAYMOND BAINBRIDGE, D. (1991), 'Auditing the owner/manager dominated entity', **Accounting Horizons**, Vol.5, No.4 (December 1991), pp.91-98.
- PEARSON, T and TROMPETER, G. (1994), 'Competition in the market for audit services: The effect of supplier concentration on audit fees', **Contemporary Accounting Research**, Vol.11, No.1 (Summer 1994), pp.115-135
- PEAT MARWICK, MITCHELL & CO, **Research Opportunities in Auditing**, New York, 1976.
- PINDYCK, R.S. and RUBENFELD, D.L. (1991), **Econometric Models and Economic Forecasts**, 3rd Edition, New York : McGraw-Hill. 1991.
- PONG, C.M. and WHITTINGTON, G. (1994), 'The determinants of audit fees: Some empirical models', **Journal of Business Finance and Accounting**, Vol. 21, No.8 (December 1994), pp.1071-1095.
- POUND, G.D. and FRANCIS, J.R.(1981), 'The accounting services market : Theory and evidence', **Journal of Business Finance and Accounting**, Vol.8, No.3 (Autumn 1981), pp.353 -371.
- RAMZY, W.A.M. (1988), **The Determinants of Audit Fees - An Analytical Study**, Unpublished Doctor of Philosophy Thesis, Heriot Watt University. 1988.
- READ, W.J. and TOMCZYK, S. (1988), 'An argument for complete financial disclosure by public accounting firms', **Accounting Horizons**, Vol.2, No.2 (June 1988), pp.39-46.

- RHODE, J.G., WHITSELL, G.M. and KELSEY, R.L. (1974), 'An analysis of client-industry concentration for large public accounting firms', **The Accounting Review**, Vol.49, No.3 (October 1974), pp.772-787.
- REINECKE, M. (1994), 'The future of small company audits', **Accountancy SA**, September 1994, p.3.
- RICHARDS, W.R. (1976), 'Auditing U.S companies with operations abroad', **The International Journal of Accounting**, Vol.12, No.1 (Fall 1976), pp.1-11.
- ROBERTS, R.W., GLEZZEN, G.W. and JONES, T.W. (1990), 'Determinants of auditor change in the public sector', **Journal of Accounting Research**, Vol.28, No.1 (Spring 1990), pp. 220-228.
- RUBIN, M.A. (1988), 'Municipal audit fees determinants', **The Accounting Review** Vol.63, No.2 (April 1988), pp.219-236
- SAICA (1983a) **AC108 : Valuation and Presentation of Stocks in the Historical Cost System.**
- \_\_\_\_\_ (1985) **AC103 : Extraordinary Items and Prior Year Adjustments.**
- \_\_\_\_\_ (1984a) **DP6 : Audit Risk and Materiality**
- \_\_\_\_\_ (1984b) **AU322 : Other Information in Documents Containing Audited Financial Statements**
- \_\_\_\_\_ (1986a) **AU294 : Going Concern**
- \_\_\_\_\_ (1986b) **AU202 : Audit Risk**
- \_\_\_\_\_ (1987) **The audit process**
- \_\_\_\_\_ (1990) **AU225 : Reliance on other auditors**
- \_\_\_\_\_ (1991) **Audit Committees**
- \_\_\_\_\_ (1992a) **AC110 : Accounting for Investments in Associates and Non consolidated Subsidiaries.**
- \_\_\_\_\_ (1992b) **ET O20: Fundamental Principles**
- \_\_\_\_\_ (1992c) **ET 030: Amplification of Fundamental Principles**

\_\_\_\_\_ (1992d) **ET 070: Fees**

\_\_\_\_\_ (1993a) **Circular 1/93 - Professional Fees**

\_\_\_\_\_ (1993b) **Accounting for interests in joint ventures**

\_\_\_\_\_ (1994a) **Discussion Paper 12 : Meeting the Financial Reporting Needs of Financial Statements Users in South Africa**

\_\_\_\_\_ (1994b) **Discussion Paper 13 : Compulsory Continuing Professional Education.**

SANDERS, G., ALLEN, A., and KORTE, L. (1995), 'Municipal audit fees: Has increased competition made a difference?', **Auditing: A Journal of Practice and Theory**, Vol.14, No.1 (Spring 1995), pp.105-114.

SCHEINER, J.H. and KIGER, J.E. (1982), 'An empirical investigation of auditor involvement in non-audit services', **Journal of Accounting Research**, Vol.20, No.2 (Autumn 1982), pp.482-496.

SCHIFF, A. and FRIED, H. (1976), 'Large companies and the Big Eight: An overview', **Abacus**, Vol.12, No.2 (December 1976), pp.116-124.

SHOCKLEY, R.A. (1981), 'Perceptions of auditors' independence: An empirical analysis', **The Accounting Review**, Vol.56, No.4 (January 1981), pp.344-369.

\_\_\_\_\_ and HOLT, R.N. (1983), 'A behavioural investigation of supplier differentiation in the market for audit services', **Journal of Accounting Research**, Vol. 21, No.2 (Autumn 1983), pp.545-563.

SIKKA P. (1992), 'Audit policy making in the UK: The case of "the auditor's consideration in respect of going concern"', **European Accounting Review**, Vol.1, No.2 (December 1992), pp.349-392.

SIMON, D.T. (1985), 'The audit services market : additional empirical evidence', **Auditing: A Journal Practice and Theory**, Vol.5, No.1 (Fall 1985), pp.71-78.

\_\_\_\_\_ and FRANCIS, J.R. (1988), 'The effect of auditor change on audit fees: tests of price cutting and price recovery', **The Accounting Review** Vol.63, No.2 (April 1988), pp.255-269.

SIMUNIC, D.A. (1980), 'The pricing of audit services: Theory and evidence', **Journal of Accounting Research**, Vol.18, No.1 (Spring 1980), pp.161- 190.

- \_\_\_\_\_ (1984), 'Auditing, consulting, and auditor independence', **Journal of Accounting Research**, Vol.22, No.2 (Autumn 1984), pp.679-702.
- \_\_\_\_\_ (1989), 'Discussion of "Specialised knowledge and its communication in auditing"', **Contemporary Accounting Research**, Vol.6, No.1 (Fall 1989) pp.119-124.
- SMITH, L.M. (1986), 'Factors affecting fees for CPA firms', **The CPA Journal**, September 1986, pp.111-114.
- SOLOMON, I. (1990), 'Discussion of "The jointness of audit fees and demand for MAS: A self selection analysis"', **Contemporary Accounting Research**, Vol.6, No.2 (Fall 1990), pp.323-328.
- SWEMMER, N. (1987a), 'Auditing through the ages- Part I AD 1200 to 1400', **Accountancy SA**, January 1987, p.3 & 28.
- \_\_\_\_\_ (1987b), 'Auditing through the ages- Part II AD 1400 to 1800', **Accountancy SA**, February 1987, p.32-33.
- \_\_\_\_\_ (1987c), 'Auditing through the ages- Part III AD 1800 to the present', **Accountancy SA**, March 1987, p.65-66.
- TAYLOR, M.E. and BAKER, R.L., 'An analysis of the external audit fee', **Accounting and Business Research**, Vol.12, No.45 (Winter 1981), pp.87-102.
- TAYLOR, I, KRITZINGER, L, PUTTICK, G. (1992) **The Practice and Principles of Auditing**, Revised 6th Edition, Cape Town : Jutas, 1992.
- TOMCZYK, S and READ, W.J. (1989), 'Direct measurement of supplier concentration in the market for audit services', **Auditing: A Journal of Practice and Theory**, Vol.9, No.1 (Fall 1989), pp.98-106.
- TURPEN, R.A. (1990), 'Differential pricing on auditors' initial engagement: Further evidence', **Auditing: A Journal of Practice and Theory**, Vol.9, No.2 (Spring 1990), pp.60-76.
- \_\_\_\_\_ (1995), 'Audit fees - What research tells us', **The CPA Journal**, January 1995, pp.54-56.
- VAN RHIJN, T.A.R. and STRYDOM, E.M.L. (Eds.) **Company Legislation Handbook**, 1992 Fifth Edition.

- WALLACE, W.A.(1984a), 'External audit fees: How reasonable are they?', **Financial Executive**, January 1984, pp.34-39.
- \_\_\_\_\_ (1984b), 'Internal auditors can cut outside CPA costs', **Harvard Business Review**, March - April 1984, pp.16-20.
- \_\_\_\_\_ (1989), 'Audit fees: Are they sufficiently risk adjusted', *Advances in Accounting*, 1989 Supplement 1. pp.3-38.
- WALLIN, D.E. (1991), 'Legal recourse and the demand for auditing,' **The Accounting Review**, Vol.67, No.1 (January 1992), pp.121-147.
- WARD, D.D., ELDER, R.J. and KATELLUS S.C. (1994), 'Further evidence on the determinants of municipal audit fees', **The Accounting Review**, Vol.69, No.2 (April 1994), pp.399-411.
- WATTS, R.L. and ZIMMERMAN, J.L. (1983), 'Agency problems auditing, and the theory of the firm: Some evidence', **Journal of Law and Economics**, Vol.26, No.3 (October 1983), pp.613-633.
- \_\_\_\_\_ (1986), **Positive Accounting Theory**, New Jersey: Prentice Hall Inc. 1986.
- WHITTRED, G.P. (1980), 'Audit qualification and the timeliness of corporate annual reports', **Accounting Review**, Vol.55, No.4 (October 1980), pp.563-577.
- WILLIAMS, D.D. (1988), 'The potential determinants of auditor change', **Journal of Business Finance and Accounting**, Vol.15, No.2 (Summer 1988), pp.243-261.
- WILLIAMS, D.J. and TURPIE, K.D. (1983), 'The accounting services market : Theory and evidence : A comment', **Journal of Business Finance and Accounting**, Vol.10, No.2 (Summer 1983), pp.317-321.
- WILSON, T.E. and GRIMLUND, R.A. (1990), 'An examination of the importance of an auditor's reputation', **Auditing: A Journal of Practice and Theory**, Vol.9, No.2 (Spring 1990) pp.43-59.
- WOOLF, E. (1979), **Auditing Today**, London : Prentice Hall
- WOOTON, C.W. and WOLK, C.M. (1992), 'The development of "The Big Eight" accounting firms in the United States, 1900 to 1990', **The Accounting Historians Journal**, Vol.19, No.1 (June 1992), pp.1-27.

- WU, F.H. and HACKETT, D.W. (1977), 'The internationalisation of U.S. public accounting firms : An empirical study', **The International Journal of Accounting**, Vol.12, No.2 (Spring 1977), pp.81-91.
- WYER, J.C., WHITE, G.T. and JANSON, E.C. (1988), 'Audits of public companies by smaller CPA firms: clients, reports, and quality', **Auditing: A Journal of Practice and Theory**, Vol.7, No.2 (Spring 1988), pp.164-173.
- ZEFF, S.A. and FOSSUM, R.L. (1967), 'An analysis of large audit clients', **The Accounting Review**, Vol.39, No.2 (April 1967), pp.298-320.
- ZIND R.G. and ZEGHAL, D. (1989), 'Some characteristics of the Canadian audit industry', **Contemporary Accounting Research**, Vol.6, No.2 (Fall 1989), pp.26-47.
- 'Bouquets and brickbats for accountant consultancies', **The Accountant**, March 3, 1986, p.10-11.
- 'All eyes on accountants', **Time Magazine**, April 21, 1986, pp.62-65.
- 'Accountants on the march', **Finance Week**, August 13, 1987, p.369.
- 'Accountancy : Paying more for tickbirds', **Finance Week**, May 4, 1989, p.3.
- 'Accountancy : Big is beautiful for Ernst and Young', **Finance Week**, May 25, 1989, p.10
- 'Accountancy : Mega merger', **Financial Mail**, May 26, 1989, p.36.
- 'Accountancy : Auditors Vs the rest', **Financial Mail**, June 16, 1989, p.41.
- 'Accounting analysis', **Financial Mail**, June 23, 1989, p.36.
- 'Accounting : Heavyweights formed through mergers', **Finance Week**, July 13, 1989, p.6.
- 'Chartered Accountancy : Opening new doors', **Finance Week (Supplement)**, October 5, 1989.
- 'From merging to diverging', **Financial Mail**, October 13, 1989, p.46.
- 'Taking account', **Finance Week**, February 1, 1990.
- KPMG Aiken and Peat Corporate Report, **Financial Mail**, May 11, 1990.

- Arthur Andersen and Co. Corporate Report, **Financial Mail**, July 20, 1990.
- 'Accountants - Back to the beans', **The Economist**, November 24th, 1990, p.86-88.
- 'Accounting and auditing - adapt or die', **Financial Mail**, March 29, 1991, p.18-20.
- 'Marketing strategy for the 1990s?', **The Chartered Accountant in Australia**, April 1991, p.42.
- 'Big Six take the lion's share', **The Accountant**, January 1992, pp.17-19.
- 'Major study confirms downward pressures on audit fees', **The Accountant**, January 1992, p.9.
- 'The professions - Attacking cosy cartels', **Financial Mail**, August 7, 1992, p.73.
- 'Professional liability - called to account', **Financial Mail**, August 21, 1992, p.36.
- 'Accountancy - all change', **The Economist**, October 17th, 1992, pp.25-28.
- 'Big Six legal costs exceed \$1bn in 1993', **International Accounting Bulletin**, June 27, 1995, p.2.
- 'When partnerships unravel', **The Economist**, July 9th, 1994, pp.13-14.
- 'Partners in pain', **The Economist**, July 9th, 1994, pp.63-64.
- 'The business of public accounting', **The CPA Journal**, August 1994, pp.18-23.
- 'Rules survey angers auditors', **Cape Argus Business Times**, September 9th, 1994, p.3.
- 'Auditors must admit liability', **Cape Argus Business Times**, September 9th, 1994, p.3.
- 'CAs from SA count among Britain's best', **The Sunday Times Business Times**, October 10, 1994, p.6.
- 'Ask probing questions if audit fees differ from average, investors urged', **Weekend Argus Sunday Money**, October 15/16, 1994, p.12.
- 'Robert Elliott: Leading the profession', **The CPA Journal**, October 1994, pp.18-24.
- 'Do CAs charge clients too much?', **Accountancy SA**, November/December 1994, p.43.
- 'South African Survey - Picking up the pieces', **International Accounting Bulletin**, February 22, 1995, pp.8-10.

