
***THE IMPACT OF ACCOUNTING INFORMATION
(EARNINGS AND BOOK VALUES) ON SHARE
PRICES: AN EMERGING MARKET PERSPECTIVE –
THE CASE OF THE GHANAIAN CAPITAL MARKET.***

JOSEPH MBAWUNI

PhD

2008



The Impact of Accounting Information (Earnings and Book Values) On Share prices: An Emerging Market Perspective – The Case of the Ghanaian Capital Market.

***Theses Submitted to University of Central England Business School
In Partial Fulfillment of the Requirement for the Degree of***

Doctor in Philosophy (PhD)

***BY
JOSEPH MBAWUNI
AUGUST 2008***

CONTENTS

PAGE

<i>List of Tables</i>	<i>vi</i>
<i>List of Figures</i>	<i>ix</i>
<i>List of Definitions and Terminologies</i>	<i>x</i>
<i>List of Appendices</i>	<i>xi</i>
<i>Acknowledgement</i>	<i>xii</i>
<i>Abstract</i>	<i>xiii</i>
<i>Chapter 1 - Introduction</i>	<i>1</i>
<i>1.1 Background</i>	<i>2</i>
<i>1.2 Aims and Objectives</i>	<i>7</i>
<i>1.3 Contribution of the Study</i>	<i>9</i>
<i>1.4 Plan of the Study</i>	<i>11</i>
<i>Chapter 2 - A Review Of Ghana's Economic And Political Environment</i>	<i>15</i>
<i>2.1 Introduction</i>	<i>16</i>
<i>2.2 Ghana's Economic Review</i>	<i>17</i>
<i>2.3 The Economic Environment and the Stock Market</i>	<i>22</i>
<i>2.3.1 Inflation and Interest Rates</i>	<i>23</i>
<i>2.3.2 Financial Liberalisation</i>	<i>27</i>
<i>2.3.3 Privatisation</i>	<i>32</i>
<i>2.3.4 Other Economic Factors</i>	<i>35</i>
<i>2.4 Ghana Political Environment and the Stock Market</i>	<i>37</i>
<i>2.5 Conclusion</i>	<i>42</i>

Chapter 3 - Literature Review	45
Part A: Theoretical and Empirical Literature on Stock Markets	46
3.1 Introduction	46
3.2 Financial Indicators of Share price Performance	48
3.3 Role of Accounting Information	59
3.4 Accounting Information and Stock Markets	68
3.4.1 Accounting Data as A Summary Of Events	68
3.4.2 Market Reaction to Accounting Information	73
3.4.3 Incremental information content studies	86
3.5 Stock Market Growth and Development	92
3.6 Economic and Political Factors and Share prices	104
Part B: Theoretical and Empirical Literature on Emerging Markets	109
3.7 Introduction	110
3.8 Some Literature on Emerging Markets	111
3.9 Macroeconomic Variables in Emerging Markets	117
3.10 Information Efficiency in Emerging Markets	121
3.11 Thin Trading in Emerging Markets	128
3.12 Accounting Information in Emerging Stock markets	133
3.13 Summary and Hypothesis Formulation	139
Chapter 4 - An Overview of Emerging Stock Markets Performance	148
4.1 Introduction	149
4.2 Emerging Market Definition	150
4.3 Emerging Market Classification	155
4.4 Review of Emerging Stock Markets Performance	157
4.4.1 World Emerging Stock Markets	157
4.4.2 African Emerging Stock Markets	162
4.4.3 Sub-Saharan African Emerging Stock Markets	166
4.5 Summary and Conclusions	170

Chapter 5 - The Ghanaian Capital Market	173
5.1 Introduction	174
5.2 Brief History of Ghana and the Stock Exchange	175
5.3 Ownership and Structure of Ghana Stock Exchange	185
5.4 Trading and Settlement Systems	187
5.5 Recent Trading History	191
5.6 The Equity Market	196
5.7 The GSE Market Price Performance	200
5.8 The Bond Market	209
5.9 Summary and Conclusions	211
Chapter 6 - Methodology	215
6.1 Introduction	216
6.2 Relevant Period	217
6.3 The Sample	218
6.4 Data Collection and Sources	219
6.4.1 The Secondary Data	219
6.4.2 The Primary Data	221
6.4.2.1 Interviews and Casual Conversations	221
6.4.2.2 Observation	223
6.4.3 The Personal Bias	224
6.4.4 The Funding	224
6.5 Assumptions and Ethical Considerations	226
6.5.1 Assumptions	226
6.5.2 Ethical Considerations	228
6.6 Research Tools	229

6.7 Methodology	230
6.7.1 Rational for Triangulation	231
6.7.2 Constraints to Triangulation	236
6.8 Quantitative Approach and Model	237
6.8.1 The Price Behaviour Model	239
6.8.2 Drawbacks to The Price Behaviour Model	243
6.8.3 Valuation Models and Regression Analysis	246
6.8.3.1 The Brennan and Schwartz Model	250
6.8.3.2 The Ohlson Model	252
6.8.3.3 The Linear Information Dynamic Model	255
6.9 Qualitative Approach	259
6.10 Summary and Conclusion	262
 Chapter 7 - Data Analysis	 264
7.1 Introduction—Findings from Interviews, Questionnaires and Observations	265
7.2 PART A-Descriptive Statistics and analysis of the GSE All Share Index	270
7.2.1 Introduction	270
7.2.2 A Review of Share Price Movements	272
7.2.3 Analysis of the GSE All-Share Index	274
7.2.4 Other Descriptive Statistics	279
7.3 PART B - Analysis of announcement dates and prices using the Price Behaviour Model	282
7.3.1 Introduction	282
7.3.2 The Data	286
7.3.3 Empirical Analysis and Results	288
7.3.3.1 The Total Risk Analysis	290
7.3.3.2 The decomposition of the observed variance reduction	293
7.3.4 Conclusions	298

7.4 PART C - Analysis of Earnings and Book Values Relation to Share prices Using the Ohlson Model	301
7.4.1 Introduction	301
7.4.2 The Relation between Earnings and Stock Returns	303
7.4.3 Linking Accounting Data and Share prices	308
7.4.4 Analysing the Relations between Earnings, Book Values and Prices	314
7.4.5 Cross-sectional Regression of Prices on Earnings and Book Values	316
7.4.6 The Decomposition of the Coefficients of Variation	322
7.4.7 Regression Results Based on Profit Classification (P&L Firms)	324
7.4.8 Regression Results Based on the Industry Classification	327
7.4.9 Summary and Conclusions	329
 Chapter 8 - Summary And Conclusions	 333
8.1 Introduction	334
8.2 Summary of Methodological Approach	336
8.3 Summary of Ghana Stock Markets Performance	338
8.4 Summary of Research Findings and Conclusions	341
8.4.1 The Trend of GSE All-Share Index (ASI)	341
8.4.2 The Announcement Effects	343
8.4.3 Linking GSE ASI to Earnings and Book Values	346
8.5 Recommendations	354
8.6 Limitations and Suggestions For Further Future Research	359
 DEFINITIONS	 362
 APPENDICES	 371
 BIBLIOGRAPHY	 384

<i>LIST OF TABLES</i>	<i>Page</i>
<i>Table 1 - Ghana's Domestic credit and investment rates from 1997-2002</i>	<i>19</i>
<i>Table 2 - Ghana's Fiscal Indicators</i>	<i>20</i>
<i>Table 3 - Ghana's Financial Indicators</i>	<i>20</i>
<i>Table 4 - GSE All-Share Index, Inflation Rate and Interest Rate</i>	<i>23</i>
<i>Table 5 - Income tax incentives - Corporate tax</i>	<i>36</i>
<i>Table 6 - Ghana Country Risk Summary</i>	<i>40</i>
<i>Table 7 - Emerging Market Classification</i>	<i>156</i>
<i>Table 8 - Performance indicators for emerging stock markets (ESMs) and developed stock markets (DSMs), 1980-1992</i>	<i>159</i>
<i>Table 9- Listed Companies In GSE As At December, 2006</i>	<i>180</i>
<i>Table 10a - History of Market Activities 1990 To 2003</i>	<i>182</i>
<i>Table 10b - History of Market Activities 1990 To 2003</i>	<i>183</i>
<i>Table 11 – Charges on Ordinary/Preference Shares</i>	<i>188</i>
<i>Table 12 – Charges on Government/Corporate Bonds</i>	<i>188</i>
<i>Table 13 – Trend of Market Capitalisation – 1990 to 2003</i>	<i>194</i>
<i>Table 14 - Primary Equity Issues</i>	<i>196</i>
<i>Table 15 - Capital Funds Raised From Primary Issues of Equities</i>	<i>197</i>
<i>Table 16 - Right Issues</i>	<i>199</i>
<i>Table 17 - Percentage Change in GSE All-Share Index 1990-2003</i>	<i>201</i>

<i>Table 18- Trend In Share Prices (Industry Classification) 1991-2003</i>	<i>204</i>
<i>Table 19 - Profile of Listed Companies, December, 2000</i>	<i>207</i>
<i>Table 20 - Listed Companies Ranked By Traded Volume, 2000</i>	<i>208</i>
<i>Table 21 - Primary Bonds Issues</i>	<i>209</i>
<i>Table 22 - Trend in Share Prices 1991-2003</i>	<i>271</i>
<i>Table 23 - GSE All Share Index Summary 1990 – 2003</i>	<i>275</i>
<i>Table 24 - GSE All-Share Index Growth 1991 -2003 (%)</i>	<i>276</i>
<i>Table 25 - Descriptive Statistics Of the GSE All Share Index</i>	<i>279</i>
<i>Table 26 - Announcement Dates 1991-2003</i>	<i>285</i>
<i>Table 27 - Listed Companies Included in the Analysis</i>	<i>287</i>
<i>Table 28 - Excess Return Variances Before and After Announcements</i>	<i>292</i>
<i>Table 29 - Components of Observed Excess Return Variances</i>	<i>295</i>
<i>Table 30 - Summary of Accounting and Market Data 1991 – 2003</i>	<i>309</i>
<i>Table 31 - Descriptive Statistics 1991 – 2003</i>	<i>312</i>
<i>Table 32 - Bivariate Correlations (Pearson) Matrix</i>	<i>313</i>
<i>Table 33 - Panel A: Descriptive Statistics for Firm-year Observation for Years 1991-2003</i>	<i>315</i>
<i>Table 33 - Panel B: Correlation among Dependent and Independent Variables</i>	<i>315</i>
<i>Table 34 - The Results of Cross-sectional Regression of Prices on Earnings and Book Values and the Decomposition of the Coefficients of Variation: Panel A: The Models</i>	<i>318</i>
<i>Panel B: The Decomposition of R^2</i>	<i>322</i>

Table 35 - The Results of Regression of Price on Earnings and Book Values and the Incremental Explanatory Power of Earnings and Book Values for Positive and Negative Earnings:

<i>Panel A: Cross-sectional Regression of Prices on Earnings and Book Values Models</i>	<i>324</i>
<i>Panel B: The Incremental Explanatory Power of Earnings and Book Values</i>	<i>325</i>

Table 36 - The Results of Regression of Price on Earnings and Book Values and the Incremental Explanatory Power of Earnings and Book Values for Different Industrial Sectors

<i>Panel A: Cross-sectional Regression of Prices on Earnings and Book Values Models</i>	<i>327</i>
<i>Panel B: The Incremental Explanatory Power of Earnings and Book Values</i>	<i>328</i>

Table 37 - Summary of Hypothesis Testing

352

Table 38 - Summary of Research Objectives and Status

353

<i>LIST OF FIGURES</i>	<i>Page</i>
<i>Figure 1A – Trend of Inflation, Interest and Market Rates(Nominal Rates) 1992 – 2003.</i>	<i>25</i>
<i>Figure 1B –Trend of Interest and Market Rates(Real Rates) 1991–2003</i>	<i>26</i>
<i>Figure 2 - Market Weights in the S&P/IFCI Composite Index (2003)</i>	<i>160</i>
<i>Figure 3 -Stock Distribution by Region in S&P Composite Index-2003</i>	<i>160</i>
<i>Figure 4- GSE Trades Per Session 1991 to 2003</i>	<i>192</i>
<i>Figure 5 - GSE Volume Traded (millions) 1991 to 2003</i>	<i>192</i>
<i>Figure 6 – GSE Market Capitalisation 1991 To 2003</i>	<i>195</i>
<i>Figure 7 – Amounts Raised from Primary Equity Issues</i>	<i>199</i>
<i>Figure 8 – Movement In GSE All-Share Index</i>	<i>202</i>
<i>Figure 9 - Industry Share Index 1991 TO 2003</i>	<i>205</i>
<i>Figure 10 - Ranking Of Accounting Measures</i>	<i>266</i>
<i>Figure 11 - Monthly Movement In GSE ASI: 1991 to 2003</i>	<i>276</i>
<i>Figure 12 - GSE ASI Monthly Growth: 2003</i>	<i>277</i>
<i>Figure 13 - Ghana Stock Exchange - % Change in Share Prices 1990</i>	<i>278</i>
<i>Figure 14A – Linear Trend Model – GSE ASI 1991 - 2003</i>	<i>280</i>
<i>Figure 14B – Exponential Trend Model – GSE ASI 1991 - 2003</i>	<i>281</i>
<i>Figure 15 - The Three Links Relating Earnings to Sock Returns</i>	<i>304</i>
<i>Figure 16 - % Changes in EPS, ROE, and P/E RATIO Compared to Changes in ASI (1991-2003)</i>	<i>311</i>

LIST OF DEFINITIONS AND TERMINOLOGIES

<i>Term 1 - Book Values</i>	<i>363</i>
<i>Term 2 - Return on Equity (ROE)</i>	<i>363</i>
<i>Term 3- Earnings per share (EPS)</i>	<i>363</i>
<i>Term 4 - The P/E ratio</i>	<i>364</i>
<i>Term 5 – The Market P/E</i>	<i>364</i>
<i>Term 6 – Economic Value Added (EVA)</i>	<i>365</i>
<i>Term 7 – Martingale (probability theory)</i>	<i>365</i>
<i>Term 8 - Kurtosis</i>	<i>366</i>
<i>Term 9 - Heteroscedasticity</i>	<i>366</i>
<i>Term 10 - Autoregressive Conditional Heteroskedasticity</i>	<i>366</i>
<i>Term 11 - White test</i>	<i>366</i>
<i>Term 12 - EGARCH</i>	<i>367</i>
<i>Term 13 – Volatility Clustering</i>	<i>367</i>
<i>Term 14 - Autocorrelation</i>	<i>367</i>
<i>Term 15 - Cointegration</i>	<i>368</i>
<i>Term 16 - The linear model.</i>	<i>368</i>
<i>Term 17 – The Gauss-Wiener Process</i>	<i>368</i>
<i>Term 18 The Normal Distribution</i>	<i>369</i>
<i>Term 19 - The Wald Test</i>	<i>369</i>
<i>Term 20 - The Earnings Response Coefficient (ERC)</i>	<i>369</i>
<i>Term 21 - Vector Autoregression (VAR)</i>	<i>370</i>
<i>Term 22 – NASDAQ</i>	<i>370</i>

LIST OF APPENDICES

<i>Appendix 1 - Ghana Political timeline</i>	<i>372</i>
<i>Appendix 2 - Ghana's Economic Indicators (2004)</i>	<i>374</i>
<i>Appendix 3- Ghana's Major Imports/Exports</i>	<i>375</i>
<i>Appendix 4 - List Of Stockbrokers Dealing In Ghana Stock Exchange – 30 Sept 2004.</i>	<i>376</i>
<i>Appendix 5 – My Interview Guide</i>	<i>377</i>
<i>Appendix 6 – Note-Taking Form</i>	<i>379</i>
<i>Appendix 7 – Self Evaluation Of Interviews</i>	<i>380</i>
<i>Appendix 8 - Importance Ranking Of Accounting Measures</i>	<i>381</i>
<i>Appendix 9 - Ghana Stock Exchange, Listing Fees for Equities</i>	<i>382</i>
<i>Appendix 10 - Ghana Stock Exchange, Listing Fees for Corporate Bonds</i>	<i>383</i>

ACKNOWLEDGEMENT

I am grateful for the environment of the University of Central England in Birmingham and especially the UCE Business School which supported the rewarding task of this unique and original research as a part fulfilment of the requirements for the degree of Doctor in Philosophy (PhD).

Special thanks go to Dr Javed Hussain, my supervisor and the Director of the Research Programs. His comments and direction gave me the will power to complete this task. I also wish to acknowledge his support in motivating and encouraging me anytime I felt like giving up. I am also grateful to Mr Bob Curry of UCE Business School and Prof Andrew Mullineux of Birmingham University who provided careful and critical support and supervision during the research. This work could not have been accomplished without the guidance, advice, and assistance of these able men. I would like to record my thanks to the Public Relations Department of the Ghana Stock Exchange, the staff of Gold Coast Securities Ltd who selflessly assisted me to collate the required data for the study.

The successful completion of this research is a proud accomplishment of a great family. I wish to acknowledge with love and gratitude the unflinching support given me by my wife Mercy and my flowers, Shema, Rhema and Thelma over the years.

ABSTRACT

The relation between capital markets and accounting information (specifically accounting earnings and book values) is the subject of this study. The review of the relevance literature shows that capital markets-based accounting research has revealed that accounting information plays a significant role for both investors and analysts. The study investigates the impact of accounting information on share prices using the data of listed companies in the Ghana Stock Exchange (GSE) collected from various sources covering a period of thirteen years from 1991 to 2003.

In this study there are four areas of research that are searched successively: 1) The study integrates an analytical framework with a synthesis of secondary financial and statistical data in examining the institutional development and performance of the Ghanaian Stock Market; 2) Secondly, it uses the Price Behaviour Model to analyze the impact of announcement of accounting information on share prices in emerging markets using the Ghana Stock Market as a case study. 3) In the third section, the Ohlson (1995) Valuation Model is applied to establish the information content of accounting earnings and book values for share prices.

Conclusions drawn from this research are summarised as follows: 1) The empirical results supports the hypothesis that the publication/announcement of accounting information has an effect on share prices in the Ghana stock market; 2) earnings and

book values jointly and individually are positively and significantly related to share prices; 3) the incremental information content of earnings is greater than that of book values; 4) earnings for profit firms add more to the overall explanatory of the valuation model than book values. These conclusions could be generalised to other emerging capital markets.

Evidence from the analysis clearly reports a significant decrease in share price volatility in the post-announcement period relative to pre-announcement period. This research has also confirmed that reported accounting information in the Ghanaian capital market are relevant in equity valuation and are generally consistent with the results obtained from other advanced capital markets.



CHAPTER ONE
INTRODUCTION

	<i>Page</i>
<i>1.1 Background</i>	<i>2</i>
<i>1.2 Aims and Objectives of the Research</i>	<i>7</i>
<i>1.3 Contributions of the Research</i>	<i>9</i>
<i>1.4 Plan of the Study</i>	<i>11</i>

1.1 Background

Ghana is a small West African country which operates in a free market environment under a civilian government headed by an elected President. With the collapse of communism and the emergence of capitalism, countries began to appreciate the role of capital markets in the development of an economy. The political agenda and economic policies of the Thatcher and Reagan regimes of the United Kingdom and the United States of America respectively in the 1980s paved the way for privatisation, which inspired developing countries like Ghana to follow suite. For an effective privatisation policy, the establishment of Stock Exchange Markets became imperative.

Ghana was the first Sub Saharan African country to gain political independence from the British colonial rule in March 1957, and the richest country among the Sub Saharan African countries outside South Africa. Its per capita income compared favourably with that of South Korea. Yet Ghana experienced the sharpest economic decline, which also destabilized its financial sector. Ghana after independence failed to consider stock exchanges due to the socialist political ideologies of the first president Dr Kwame Nkrumah. In the 1970s and 1980s, Ghana became the first Sub Saharan African country to formulate a comprehensive financial sector reform to deregulate the financial markets from decades of government intervention. But several military takeovers and undemocratic changes of

governments interrupted the progress in the Ghanaian economy, which eventually came to its knees in the early 1980s. Critics argue that the earlier reforms had little impact on the capital markets development and any results were negated by the frequent change in governments, Afedzie et al (2001). Others were of the opinion that the reform led to a macroeconomic imbalance of high inflationary pressures, high nominal interest rates, and continuous devaluation of the local currency, Ziorklui (2001). On the other hand, some African developing countries like Nigeria established Stock Exchange Markets in the 1960s. Appendix 1 outlines Ghana's political timeline starting from 1952 when Dr Nkrumah became the first African Prime Minister and government leader.

The political instability scared off foreign investors, thus accounting for the large proportion of the debt in the capital structure of Ghanaian companies. On the other hand most Ghanaian companies preferred debt capital, for fear of losing control over their business. They eventually run into financial distress and were saddled with high levels of debt that increased the likelihood of bankruptcy and threatened the level of private control, Chandra and McConaughy (1999).

The examples of the Thatcher and Reagan privatisation policies and the influence of international financial institutions like the International Monetary Fund (IMF) inspired the Ghanaian government to reduce trade

restrictions and institute the trade liberalisation measures in 1988. Globalisation and the trade liberalisation policy coupled with other financial reforms in the west served as a stimulus for some developing countries like Ghana and Nigeria in Africa. These factors culminated in the establishment of the Ghana Stock Exchange Market in July 1989.

The Ghana Stock Exchange (GSE) was incorporated in July 1989 as a private company limited by guarantee under Ghana's Companies Code, 1963 (Act 179). Though an Act of Parliament was passed in 1971, the Stock Exchange Act of 1971 (Act 384), with an attempt by the Busia regime in 1972 to promote the establishment of the GSE, the frequent undemocratic changes in governments (coup d'etats) inhibited its formation until 1989. The company was given recognition as an authorised Stock Exchange under the Stock Exchange Act of 1971 (Act 384) in October 1990, and trading on the floor of the Exchange commenced in November 1990. The GSE changed its structure in April 1994 to a public company limited by guarantee. The GSE is a self-supporting institution, private sector initiative and receives no funding from the government of Ghana. There were twenty-five listed companies – all equities as at Dec 2003, of which nine are wholly owned Ghanaian companies and the rest are foreign companies with a small proportion of shares held by Ghanaian residents.

The main equity market in Ghana, the Ghana Stock Exchange (GSE), offers an interesting set of circumstances that qualifies it as a good case study. Specifically, these are: 1) Lifting of restriction on the foreign portfolio investment and complementary measures to liberalise the exchange rate regulations and foreign trade were taken at the same time. 2) Ghana opened up its stock market to the international investors relatively much earlier than other emerging markets. 3) The listing of the Ashanti Goldfields Corporation in the New York Stock Exchange drew the attention of investors to Ghana. 4) The country Ghana itself has remained more or less a free market economy.

The GSE is one of the premier stock exchanges in Africa with a market capitalisation of approximately ₵3,245 billion in 1998, (approximately US\$1.23 billion) and ₵12,616 billion by December 2003. Equities and bonds traded on the GSE have demonstrated sound performance since trading commenced in 1990 and it has contributed significantly to the development of capital markets in Ghana.

In terms of index performance; the GSE was the sixth best performing emerging stock market with capital appreciation conservatively put at 116% for 1993. The GSE in 1994 was assessed to be the best index performing stock market among all the emerging markets, with about 124% gain in its index level. In 1995, however, the index increased by a

mere 6.3% due mainly to high levels of inflation rates prevailing in the country during the period.

The effect of accounting information on share prices plays a central role in accounting and finance research. This aspect of investigation throws light on the use of accounting information in the valuation of securities. Several branches of this investigation have evolved, the most popular being the so-called Ball-Brown effect, Ball and Brown (1968), which examines the association between the information releases of firm j and the share price of firm j .

1.2 Aims and Objectives Of The Research

The stock market in Ghana is a largely liberalised market. Stock market liberalisation is expected to improve the market efficiency, thus responding effectively to outside information. The prime objective of most accounting research of capital markets is to estimate whether the companies' published accounting data, be it annually or interim, provides valuable corporate information for investors, which is equally relevant with all the other available sources of public information. The purpose of this study is to extend the existing research on the dynamic relationship between share prices and accounting information in the emerging Ghanaian capital market.

The first objective is to examine the characteristics of the Ghana Stock Exchange, using descriptive and interpretive statistics to tell a story and paint a picture for a clear and unambiguous understanding of the Ghana Stock Exchange. To achieve this, more specific research objectives have been formulated to include: a review of the ownership and structure of Ghana Stock Exchange, an examination of the trading and settlement systems, an analysis of the market's trading history and share price performance.

The second objective is to test using the empirical data, that the publication and/or announcement of accounting information have an effect on share

prices in the Ghana stock market. To this end, an analysis of the information dissemination process around the announcement of accounting information would be undertaken and the differential impact of accounting information announcements across companies on share prices is tested. The objective is aimed at producing substantive evidence that the reaction occurs quickly, which is one of the characteristics of market efficiency.

The third aim is to undertake an empirical analysis of Accounting Earnings and Book Values Relation to Share prices. The purpose is to establish the relation between accounting earnings and book values, and share prices on both the market as a whole and also on industry bases. It is also aimed at confirming or otherwise, the value relevance of accounting earnings and book values in the Ghana stock market.

1.3 Contributions of the Research

Most accounting and finance research who centre on the impact of accounting information on capital markets including Ball & Brown (1968), Brown (1970), Firth (1981), Forsgardh and Herten (1975), and Knight (1983), have primarily focused on well organised and developed security markets in Australia, United States and the United Kingdom. They have established that accounting variables convey information to the stock markets in the aforementioned countries. However, very few studies have assessed the impact of accounting information on share prices in the developing markets which have different characteristics. This research makes valuable contribution to the behaviour of share prices in emerging markets, using the Ghanaian Stock capital market as a case study. This revelation should be of great interest and would be useful to various parties including local and foreign investors. The results of this research could also be generalised to capital markets in other developing countries.

With the remarkable expansion of national equity markets, the increasing interdependence among these markets and the general awareness of benefits to be derived from internationally diversified investment portfolio, a research into the behaviour of emerging stock markets is a great contribution in this era of globalisation.

In the case of equity investors, a possible benchmark might be how published financial statements provide information about future cash flows. Because share prices are theoretically an estimate of the present value of the future cash flows of a firm, examining the correlation between these prices and accounting information can demonstrate the degree to which accounting information provides information about future cash flows. This research should aid in understanding the issue of information provision on the relationship between accounting information such as earnings and book values and share prices or returns. Previous research has documented that the relationship between earnings and stock returns varies across countries, Alford et al. (1993). However, little research has investigated this relationship in emerging African markets, least to mention Ghana. This study will not only extend the prior research but will provide evidence on the value relevance of accounting earnings and book values in the Ghanaian capital market.

This study also sets out to help the accounting bodies in Ghana identify the variables that correlate with share prices and as such promote their disclosure to the investing public.

The work in this study differs from previous researches in various aspects. First, the focus of this study is exclusively on share prices in the Ghanaian market. Second, few academic studies have examined the Ghanaian stock

market. The dynamics of the stock market growth and the peculiar characteristic of the Ghanaian stock market have not been comprehensively examined. Third, the empirical examination is made on the interaction between share prices and accounting information.

1.4 Plan of the Study

The plan of this study follows largely along the objectives of the project. The objectives and structure of the research allow the body and methodology to be presented in eight chapters and a brief introduction to each chapter is relevant in its understanding.

Chapter one provides background introductions to Ghana as a nation and the Ghana Stock Exchange (GSE) market. The main aims and objectives of the research are clearly outlined in this chapter, together with the contributions of the research.

Chapter two provides a brief review of the Ghanaian economic and political environment and their impact on share prices. The chapter presents a general overview of the Ghanaian economy and examines economic factors like inflation, interest rates, privatisation, financial

liberalisation and others, and how they impact share prices in the GSE. The chapter also explains in brief, the impact of the Ghanaian politics on the performance of the stock market.

Chapter Three comprises of the past and recent studies and literature work on share prices by scholars and experts in the stock markets. This chapter provides a review of literature regarding the relationship between accounting information and the share prices. The chapter is important because it provides the theoretical underpinning for the research. The chapter summaries the relevant literature and empirical work on accounting information and share prices, both in stock markets in general and more specifically, in emerging stock markets. The results from these reviews are then used to formulate the hypotheses to be tested in subsequent chapters.

Chapter four reviews and describes the growth and performance of stock markets in emerging countries in Asia, Latin America and Europe with much attention on Africa and Sub-Saharan Africa. Considering Ghana as one of the emerging markets, this chapter gives the definition and general classification of emerging markets. This chapter lays the bases for a better analysis of the performance of the Ghanaian emerging markets.

Chapter five contains a description of the Ghanaian capital market with concentration on the share prices and market indices. The historical and institutional framework of the Ghanaian capital market is discussed also. The distinguishing features of the Ghana Stock Exchange are discovered in this chapter. An analysis of the trading activities, mechanism, history, ownership and structure and listing are also examined. The performance of the exchange is examined and the trend analysis of share prices is undertaken.

Chapter six explains the methodological approach used for the analysis. The relevant period and sample for the research are stated and the mode of data collections and sources are also explained. The models adopted for analysis are discussed and the reasons for triangulation are also explained in this chapter.

Chapter seven presents empirical analysis and results of the study. Various investigations to test the respective hypotheses are undertaken. For the purpose of clarity, the chapter is divided into three parts as follows: Part A deals with descriptive statistics and analysis of the GSE Share prices and the All Share Index (ASI); Part B analyses announcement dates and prices using the Price Behaviour Model; and Part C undertakes an analysis of Accounting Earnings and Book Values Relation to Share prices using the Ohlson Model.

Chapter eight discusses all the empirical results and findings. Summary, conclusions and recommendations of the research project are given with an unbiased view of the impact of accounting information on share prices in the Ghanaian capital market. The research limitations are stated and directions for further studies are also suggested.

CHAPTER TWO

A REVIEW OF GHANA'S ECONOMIC AND POLITICAL ENVIRONMENT

	Page
<i>2.1 Introduction</i>	<i>16</i>
<i>2.2 Ghana's Economic Review</i>	<i>17</i>
<i>2.3 The Economic Environment and the Stock Market</i>	<i>22</i>
<i>2.3.1 Inflation and Interest Rates</i>	<i>23</i>
<i>2.3.2 Financial Liberalisation</i>	<i>27</i>
<i>2.3.3 Privatisation</i>	<i>32</i>
<i>2.3.4 Other Economic Factors</i>	<i>35</i>
<i>2.4 Ghana's Political Environment and the Stock Market</i>	<i>37</i>
<i>2.5 Conclusion</i>	<i>42</i>

2.1 Introduction

Globalization and reforms in the Ghanaian the financial sector brought about great and significant change in the country's financial architecture and economy. In the modern-day situation, it is of great relevance to consider the connection between financial market activities and those of the real sector. With the introduction of basic reforms in Ghana's financial sector in the late 1990's, which included several institutional and structural changes affecting various sectors of the financial market, introduced spectacular changes in the performance of this sector of Ghana's economy. On the whole, the entire scope of institutional restructuring concomitant to globalization programme, the change in procedures, the introduction of new instruments, and the widening of network of participants call for a review of the relationship between the stock market and economic and political factors in Ghana. In developing countries, unusual outcomes which were previously unknown and unexpected are emerging with the young markets revealing new relationships. Stock markets analysis has taken pre-eminence in most financial studies because of how sensitive these markets are in the economy. It is through this segment of the economy that the country's exposure to the outer world is most readily felt. This section of the study is an endeavour to briefly review the economic and political variables (environment) as they relate to the performance of the Ghana Stock Exchange over the 13 years under review. This review should facilitate analysis of the GSE performance in latter chapters.

2.2 Ghana's Economic overview

In comparison with other African states, Ghana has a relatively diverse and advanced industrial base, even though it is considered a low-income state, having a per capita income of only \$320 in 2003. The country was ranked 129th out of 175 countries in the 2003 United Nations Human Development Index. According to the United Nations Development Programme (UNDP), about 31.4% of the population were living below the poverty line of \$1 per day between 1983 and 2000. The informal sector dominates economic activity in Ghana. The majority of Ghanaians are employed in the agricultural sector, mainly as subsistence farmers working on small plots. Only 15% of the total work force was employed in the formal sector during 1998-1999. The majority of those with jobs worked in the public sector and in state-owned enterprises. In addition, only 27% of the work force was self-employed in non-agricultural activities, such as small scale trading.

Ghana remains highly dependent on technical assistance and aid for its economic development. Despite achieving 4.8% growth in 2003, (after a consistent decline in growth from 1998–2001), Ghana's government is aware that a full economic recovery remains far from being assured. Poverty continues to be widespread, especially in rural areas, despite government poverty alleviation initiatives that date back over a decade to the time of the Rawlings administration. As has already been noted, about a third of Ghanaians live below the poverty line, the

majority of them in the rural parts of the country. The poorest areas are the mid-coast strip, the Volta Basin and the northern savannah, the main food-producing region. Although rural poverty has decreased noticeably over the past 13 years, urban deprivation has grown under the structural adjustment policies Ghana adopted. Most of the political elite live in southern Ghana, while the bulk of Ghana's natural resources, industry and commerce are found in the Western, Central, Ashanti and Accra regions.

Nevertheless, Ghana has double the per capita income and GDP of its poorer West African neighbours. In 2004, GDP stood at US\$8.3 billion in contrast to US\$7.9 billion in 2000. Other economic indicators as at 2004 (see Appendix 2) support Ghana's economic growth since the beginning of the second millennium. By West African standards, the country boasts a rich and diverse resource base. Minerals such as gold, bauxite, diamonds and manganese ore are extracted and exported to earn foreign currency. Ghana also has well-established import substitution industries. These include the assembly of cars, buses, and trucks; oil refining; the manufactures of tyres and textiles; tobacco; and flour and steel milling. Consumer goods such as beverages and cigarettes are also produced. Remittances from abroad sent by Ghanaian expatriates working in the US and Europe are also an important source of income in the national economy. Tourism has become Ghana's third-largest earner of revenue, bringing US\$600 million

into the government's coffers each year. Tourism has also been a major stimulant to infrastructure development in Ghana since the mid-1990s.

Ghana's economic growth in recent years, especially since 2001, is a result of steps taken by the government to improve monetary and fiscal discipline. Its reformist policies have led to a drop in the interest and inflation rates and the stabilisation of the national currency, the cedi (Table 1 refers). The adoption of a new macro-economic strategy by government contributed to the economic recovery. Increase in the price of Ghana's main cash crop export, cocoa, and a surge in gold prices have also supported improved economic performance. GDP growth increased to 4.7% in 2003 compared with 3.7% in 2000. Tables 2 and 3 below summarise the fiscal and financial indicators of Ghana from 1999 – 2004.

Table1:Ghana's Domestic credit and investment rates from 1997-2002

Domestic credit and investment rates	1997	1998	1999	2000	2001	2002
Private Sector Domestic Credit (US\$ millions)	685.25	805.91	697.56	986.26	984.44	n/a
Private Sector Domestic Credit as a proportion of GDP (%)	9.17	10.45	14.01	18.58	16.15	n/a
Bank Lending Rates (Interest rates spread %)	35-51	30-48	28-47	39-55	39-55	n/a
Inflation	27.9	n/a	12.4	25.2	32.9	14.8
Treasury Bill 91 day (Interest rate %)	42.5	26.8	31.4	38.0	27.0	25.0
Net Interest spread (%)	10.5	11.0	15.2	10.5	14.4	10.1
Interest Rates	45%	37%	34%	42%	33%	38.50%
Cedi/\$ Depreciation		4%	33%	100%	4.30%	12%

Source: Bank of Ghana Reports 2003

Table 2:Ghana's Fiscal Indicators

	1999	2000	2001	2002	2003	2004
GDP Per Capita (\$)	417.0	263.0	274.0	311.0	374.0	405.0
Real GDP (%Change)	4.4	3.7	4.2	4.6	4.7	5.0
Real GDP Per Capita (% of GDP)	1.9	1.3	1.8	2.1	2.3	2.5
General Government Balance (% of GDP)	7.5	7.0	6.4	4.0	2.6	1.8
General Government Debt (% of GDP)	125.0	167.9	130.9	124.7	96.7	84.6
Net General Government Debt (% of GDP)	54.0	85.1	125.8	63.3	89.0	77.5
General Government Interest Expenditure/Revenue	27.6	34.2	28.7	26.6	26.1	15.9
Domestic Credit to Private Sector and NFPEs (% of GDP)	14.6	18.6	16.6	14.6	15.4	19.1
CPI Inflation (average% change)	12.4	25.2	32.9	14.8	26.9	10.0
Gross External financing requirement/foreign reserves (%)	370.1	447.9	274.0	106.0	78.6	71.3
Net General Government external Debt/CARs (%)	163.1	162.6	148.4	141.2	118.6	110.1
Net Banking sector external Debt/CARs (%)	1.7	1.7	3.8	4.0	3.7	3.4
Net non-bank private sector external debt/CARs (%)	18.6	12.6	9.0	0.3	0.1	1.4

Source: Standards & Poor's Sovereign ratings, Ghana, September 2005.

Table 3:Ghana's Financial Indicators

	1999	2000	2001	2002	2003	2004
Nominal GDP (\$)	7.7	5.0	5.3	6.2	7.6	8.4
Real GDP Per Capita (\$)	417.0	263.0	274.0	311.0	374.0	405.0
Real GDP (% change)	4.4	3.7	4.2	4.6	4.7	5.0
Real Per Capita (% change)	1.9	1.3	1.8	2.1	2.3	2.5
Real Domestic Demand (% change)	8.7	4.5	5.1	1.7	5.1	3.9
Real Investment (% change)	1.6	13.8	20.5	4.3	22.2	8.2
Real Domestic Investment (% of GDP)	21.5	24.0	26.6	19.7	23.0	23.7
Gross Domestic Investment (% of GDP)	9.4	16.4	23.1	19.2	21.4	22.4
Gross Domestic Savings (% of GDP)	12.6	0.8	-	1.5	10.0	5.0
Real Exports (% change)	12.4	25.2	32.9	14.8	26.9	10.0
CPI Inflation (% changes)	56.9	67.4	25.4	12.6	41.1	43.5
Domestic credit to private sector (% change)	14.6	18.6	16.6	14.6	15.4	19.1

Source: OECD/AFDB: African Economics Outlook 2005

The Ghanaian government has been proactive in implementing much-needed economic and financial reforms, which have led to an improvement in the

country's macro-economic profile. The Kufuor administration since taking over in Dec 2000 has kept its promise to address many of the country's economic ills through structural reforms. It has achieved macro-economic stability, built infrastructure, and reduced Ghanaian foreign debt through the IMF Heavily Indebted Poor Countries (HIPC) initiative. These moves have proved largely successful, and have made Ghana one of the economic success stories of West Africa. This has resonated well with foreign and local investors alike. As a result, Ghana has maintained and attracted more FDI than its neighbours in recent years. Foreign investors view Ghana as an attractive and viable destination, and are optimistic about the future prospects of the country and their businesses in Ghana.

Secondly, Ghana's peaceful and stable political environment is a contributory factor. Ghana's growth into a stable, proactive democracy has helped to make Ghana a promising target for FDI and improved its links with its trading partners. It's successful and peaceful transition from military to civilian rule and its subsequent peaceful elections have helped to strengthen multiparty democracy and the rule of law. The country's political stability has attracted foreign investors avoiding the risks associated with the political and economic instability that is rife in other countries in West Africa. In addition, Ghana has benefited from trade redirected to its ports from Côte d'Ivoire. The country has now become a transit point for goods travelling between countries in West Africa.

2.3 The Economic Environment and the Stock Market

Economic policies have a great effect on the desirability of a security in an individual's portfolio of assets and the willingness of a firm to issue shares. Monetary policies and exchange rate policies are considered as crucial in this regard; that is, rational monetary policies ensure greater confidence in the stability of the economy. In addition, if a government is serious about attracting foreign funds, reasonable exchange rate policies must exist. The last two decades have witnessed a great wave of economic reform policies in many developing countries, all of which have positively affected emerging stock markets. The following lines provide discussions on how the performance of Ghana stock market over the thirteen years' period has been affected by these policies. Sections 2.3.1-4 following, examine in brief the impact of inflation, interest rates, financial liberalisation policies, privatisation and other economic factors on the development and performance of the Ghana stock market.

2.3.1 Inflation and Interest Rates

An attempt is being made in this section, to relate some economic factors such as Inflation and Interest rates to the performance of GSE All Share Index (ASI).

Table 4: GSE ASI, Inflation and Interest Rates

Year	GSE ASI % Change	Inflation Rate (over 12 months)	(91 day T-bill) % p a Interest Equivalent	Real Interest Rate	Real Market Return
1992	-4%	10%	19%	8%	-12%
1993	114%	25%	30%	4%	71%
1994	124%	25%	35%	8%	80%
1995	6%	60%	32%	-17%	-33%
1996	14%	44%	45%	0%	-21%
1997	42%	25%	43%	14%	14%
1998	70%	19%	27%	6%	42%
1999	-15%	12%	31%	17%	-25%
2000	17%	25%	38%	10%	-7%
2001	11%	33%	27%	-4%	-16%
2002	46%	15%	25%	9%	27%
2003	155%	27%	25%	-2%	101%

Source: Standard & Poor's Ratings and Bank of Ghana Report (2004)

From Table 4 above, while inflation rose from 10% to 25% from 1992 to 1993, interest rates also rose from 19% to 30% in the same period. Comparatively, the ASI rose magnificently from -4% to 114%. There was a discovery of fortune in 1994 when the All-share index rose tremendously by 124% as against a slight fall in inflation to 25% and a rise to 35% in interest rates in the same year. Unfortunately, the trend reversed in the next two subsequent years, 1995 and 1996. In 1995 and 1996, the rise in inflation of 60% and 44% was higher than the rise in the GSE all-share index of only 6% and 14% respectively. This also meant that shareholders were at a disadvantage in investing in the Exchange for those two years. The rise in the all-share index of 42% and 70% was again higher than the rise in inflation of 25% and 19% for the years 1997 and 1998 respectively.

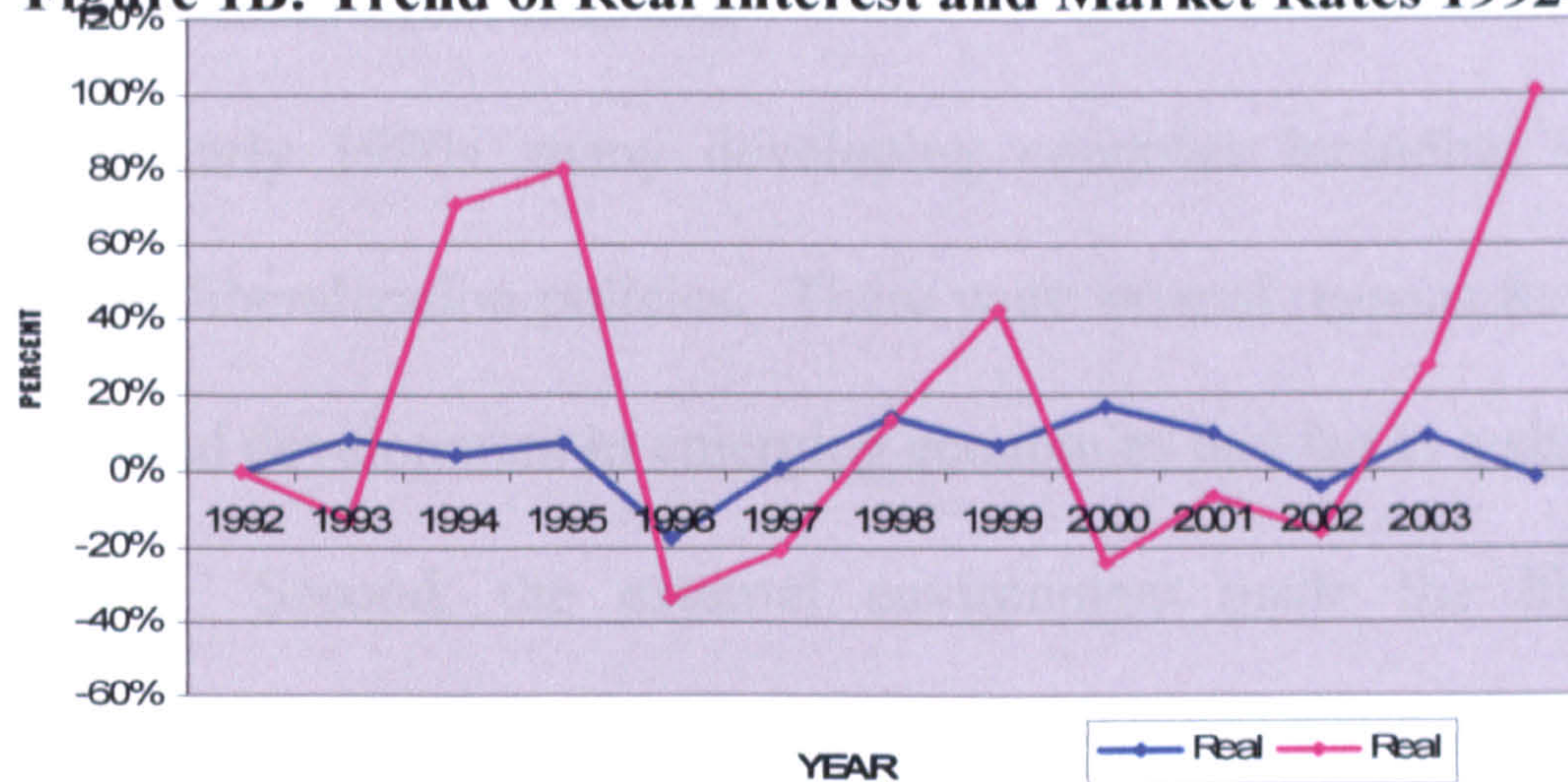
While inflation rose by 12% in 1999, All-share index fell by 15% and in year 2000, the rise in all-share index of 17% was far below the rise of 25% in inflation. Again, the years 1999 and 2000 saw investors in the stock market losing money. The period under review ended with the highest rise in the market return of 155% in 2003, with a rise in inflation of 27%.

A clear demonstration of the relationship between GSE ASI on one hand and inflation and interest rates on the other hand is done in figure 1A below. From Figure 1A, the trend described so far is clear. There was a two-yearly alternation between the performance of the All-share index and inflation. In 1995/6 and 1999/2000 the rise in inflation was higher than the rise in the All-share index, whilst in 1993/4 and 1997/8, the rise in the All-share index was higher than the rise in inflation.

A deeper analysis may require an examination of the real rates rather than the nominal rates used so far. There is need to adjust for inflation and convert the nominal rates to real rates. Using the Fisher's Equation of

$$(1 + \text{nominal rate of return}) = (1 + \text{real rate of return}) \times (1 + \text{rate of inflation}),$$

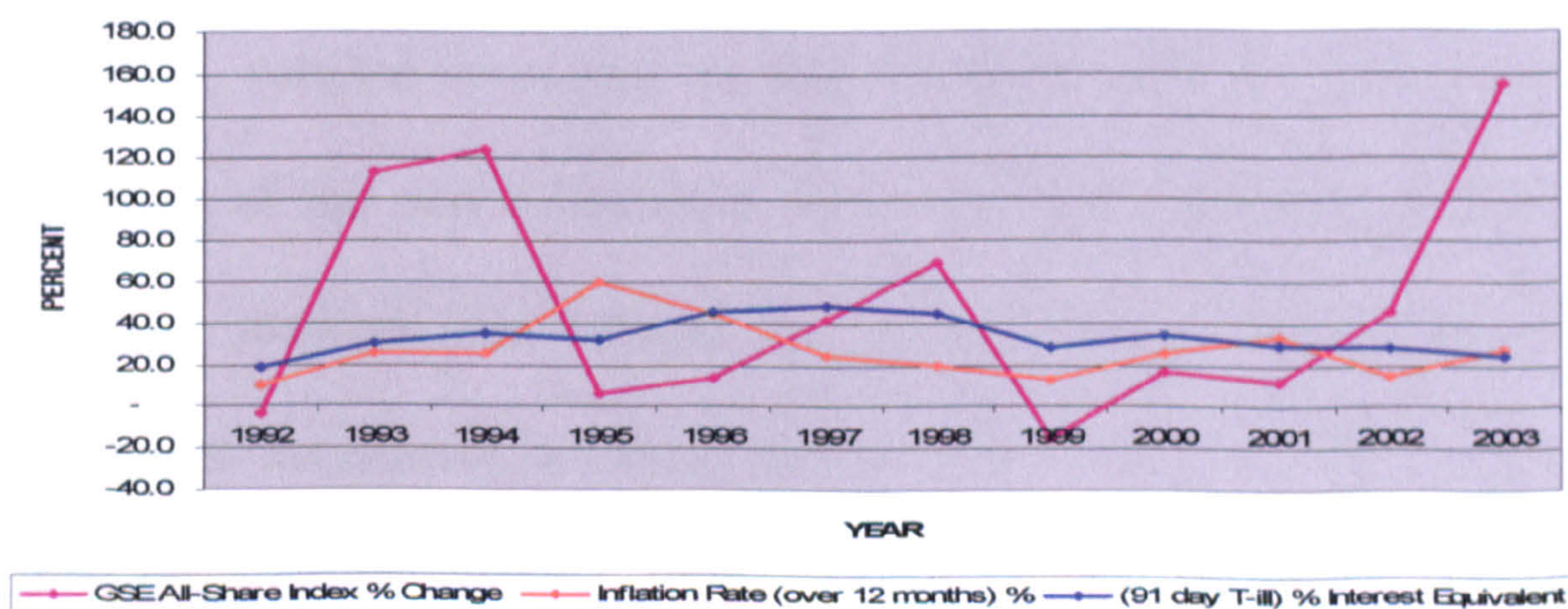
the real rates are then calculated. The figures of the real rate of GSE market returns are as shown in Table 4 above. It can be seen from the real rates that the fall in the All-share index in real terms was 12% as against a rise in real interest

Figure 1B: Trend of Real Interest and Market Rates 1992-2003

Furthermore, it can be observed that changes in the GSE all-share index could not be attributable to only inflation and interest rates. The dramatic rise in the All-share index in 1994 of 124% (80% in real terms) could largely be attributable to the listing of AGC. On the other hand, financial crisis at AGC in 1999, the mining group that accounts for almost 60% of the market, rocked the confidence in the local stock exchange by the end of 1999. AGC share, which was priced at \$20.00 at the time of its IPO in 1994, closed at \$1.87 on the New York Stock Exchange (NYSE) as at the close of 2000. This could have been caused by a fall in world gold prices. Other factors such as the fall in cocoa prices (Ghana's number one export) and the increase in international oil prices affected the performance of the Exchange, resulted in a drop in the All-share index by 15% in 1999. The beginning of the new millennium seems to be the dawning of a new day for emerging markets like Ghana. For several reasons including politics and economics, investment in Ghana increased by 1.6% in 1999 and by 22.2% in 2003. Table 3 refers.

rate of 8% in 1992. Also in 1995, 2001 and 2003 interest rates experienced negative growth while the stock market returns grew magnificently in 2003. Between 2002 and 2003, there was a significant improvement in the stock market returns, rising from negative 16% in 2001 to 101% in real terms in 2003. The year 2003 was the best year for investors in the Ghana Stock Exchange with the ASI experiencing a historic growth of 155% while interest rates fell to 25%. For all these years, the trend in the stock market has been a ding dong affair, gaining sometimes and losing sometimes. Notwithstanding, one can fairly say that in general terms, investors in the stock market have gained and would have gained more if not for the volatile nature of inflation in the country. The inflationary pressures, which were generated by fiscal imbalances, increased the foreign exchange risk of investing in the Ghanaian capital market. Few foreigners would be willing to take the risk. As indicated on Figure 1B below, there seem to be a correlation between the interest rates of government treasury bills and the GSE All-share index. Both are obviously affected by the same inflationary factors.

Figure 1A: Trend of Inflation, Nominal Interest and Market Rates 1992-2003



2.3.2 Financial Liberalization

By the early 1980s, many developing countries including Ghana introduced financial liberalization policies. There were several reasons for this introduction. First, rapid development in emerging economies had led to a shortage of financial services. Second, the external environment made the liberalization more necessary. Finally, the rise in many developing countries' foreign indebtedness in the 1980s pushed them to face a dual struggle. One struggle was aimed at attracting foreign capital and the other struggle was aimed at increasing domestic savings. Both required advanced financial sectors – including a well-functioning stock market – that would conform to the demands of the foreign savers and investors (as well as those of domestic savers).

The financial liberalization process was at the heart of Ghana's economic reform policies. This process was implicitly included in reforms such as trade liberalization, currency stabilization, inflation control and privatisation. Financial liberalization is not so much of an event, but is rather a process of removing or substantially reducing financial market distortions created mainly by government intervention in setting interest rates and allocating credit, Bascom, (1994). Since the 1950s, government intervention in many developing countries had created a regime of negative and subsidized interest rates, which, in turn, depressed financial savings and promoted inefficient investment through the low borrowing

cost of scarce capital. This implies that by removing financial market distortion, financial reform policies will make domestic financial assets attractive, and will ensure that scarce financial resources are allocated in the most productive manner. The elements of financial reform undertaken in Ghana during the last 2 decades include:

- 1) The partial lifting of interest rate ceilings, credit ceilings, and loans to priority sectors;
- 2) The abolition of impediments to entry of new institutions into the financial system;
- 3) The removal of restrictions of foreign currency payments; and
- 4) The opening of the domestic financial system to competitive market conditions.

Furthermore, the creation of the Ghana Stock Exchange (GSE) was obviously identified as an important objective of financial reform. This is because funds raised in these markets would enable firms in the private sector to decrease their over-reliance on debt finance, thereby increasing their overall efficiency, competitiveness and solvency.

The financial liberalization process provided three potential benefits in stimulating the Ghana stock market. First, there was a more efficient allocation of capital, which ultimately improved the overall performance of the economy.

Consequently, confidence of both domestic and foreign investors improved. In addition, more savings was available for domestic investors to use in the stock market.

Second, domestic firms and branches of multi-national corporations were encouraged to participate in the stock market by issuing new shares to expand their operations. More to the point, market capitalization and trading value were likely to increase due to the rise in the number of listings and expected increase in share prices.

Finally, financial liberalization had an important bearing on the development and operations of stock markets through reduced fees on transactions, stable and realistic exchange rates, lower inflation, and attracting foreign direct investment.

The GSE bond market has been very small with only five listed corporate bonds as at December 2003. These trends indicated that the exchange had had a limited effect since it started operations a decade ago. One of the reasons could be currency devaluation which, while helping exports, had increased both the cost of living and the prices of imported goods. This discouraged many investors from becoming active participants on the Exchange because of the worthlessness of the domestic currency in terms of the yield gained on stock trading. The government

of Ghana permitted the operation of a flexible exchange rate system. The equivalent value of Ghana's currency (Cedi) as pegged against foreign currencies was established independently through the use of an inter-bank market and licensed private Forex Bureaux. This was the system through which currency conversion was easily obtained. Article IV of the IMF Convention of Free Current Account Convertibility and Transfer was what Ghana acceded to.

With the implementation of the World Bank policies of liberalization, devaluation, and privatisation, Ghana won the "emerging markets of the year" award twice from the International Federation of Stock Exchanges, and was described by IMF (1997) as a "success story" and "a rising star".

The policy of trade liberalization and investment promotion adopted by the government of Ghana guided its effort to create a clear and transparent regulatory system. There were efforts to repeal laws that impeded and distorted investment, and the frequency of labour disputes. Parliament passed a new Labour Law in July 2003, (New Labour Law Act 651, 2003), which reportedly will reduce the incidence labour disputes and improve conflict resolution. The law went into effect in March 2004.

The Ghana Investment Promotion Council (GIPC) law codified the government of Ghana's desire to present foreign investors with a liberal and transparent foreign investment regulatory regime. To this end, the Ghana Investment Promotion Centre established a "one-stop shop" to eliminate the bureaucratic bottlenecks for investors. The Ghana Trade and Investment Gateway (GHATIG) Program, was implemented to ensure that time frames within which government officials must execute specific duties were set and were regularly monitored.

Regulatory bodies including the National Communications Authority, the Energy Commission, and the Public Utilities Regulatory Commission were established by the government to oversee the activities in the liberalized telecommunications, and utility sectors. As the problem has always been with government organisation in Ghana, these bodies seem to be under-resourced which limits their oversight ability. The next section review Ghana's privatisation program in the light of the development of its exchange market.

2.3.3 Privatisation

The performance of the all share index has been further affected by the government's divestiture programmes, which emphasize privatisation through strategic investor financing and in some cases a sale through the stock exchange. In recent years Ghana assumed the role of the "poster countries" for successful economic rejuvenation in the sub-region based on their commendable implementation of privatisation. The Ghanaian government implemented privatisation through public share offering in an attempt to develop the stock market. The State-owned Enterprise Reform Programme was launched in 1988, as part of Ghana's overall Economic Recovery Programme. The State-owned Enterprise Reform Program contained measures to improve the performance of enterprises that remain state-owned, as well as the rationalization of the state sector by means of a divestiture program.

Privatization began in 1988 with 350 state-owned enterprises. Between 1988 and 1993, 55 enterprises were divested. A Divestiture Implementation Committee was established in 1993 to oversee the implementation and execution of the program. The sale of the government's 30% of its 55% stake in Ashanti Goldfields Corporation (AGC) in 1994 boosted the privatisation program. Accra Breweries and Standard Chartered Bank were also divested in 1994. By December 1995, the Divestiture Implementation Committee had privatised 195 organisations, with

about 79 having been sold and pending approval. In the following year 1996, government sold its minority share in the Ghana Commercial Bank. Later in that year a 30% stake of the government in Ghana Telecom was sold to a Malaysian telecom consortium. The Government moved to a new phase of the divestiture program in 1998, by privatising major enterprises in the transport, energy, and banking sectors. The divestiture program further covered an additional 80 organisations in 1999/2000.

Bouterkova and Megginson (2000) reported that the value of proceeds raised in 1999 by privatising government organisations all over the world exceeded \$1 trillion. From a global perspective therefore, privatisation seems to have played a key role in the evolution of emerging markets since 1980 and Ghana is not an exception. A substantial amount of foreign investment has been attracted to Ghana through privatization.

Privatisation programs have provided two types of benefits to the Ghana stock market. First, the privatisation program has bestowed indirect benefits by widening the scope of the private sector. This has induced significant improvements in the efficiency of the privatised companies and in the efficiency of the economy as a whole. In addition, the privatisation process in Ghana's

economies has attracted considerable amounts of foreign direct investment with its potential merits.

Second, the Ghana Stock Exchange has directly benefited from privatisation programmes. The privatisation of state-owned enterprises has enhanced capitalization and stock market trading by expanding the supply of shares, many of them marketable internationally (Feldman and Kumar, 1995). In addition, as mentioned before, privatised firms usually account for very large fractions of the total market capitalization. Furthermore, Lieberman and Kirkness (1998) have shown that initial public offerings of privatisation shares tend to be much larger than general issues of new shares. As a result, privatisation could be the most important factor driving the equity market growth in Ghana over the past two decades. Notwithstanding the huge number of government enterprises that were divested by 2003, less than one half of the 25 listed companies emanated from government privatisation program.

2.3.4 Other Economic Factors

Apart from inflation and interest rates, some other economic factors have affected the performance of GSE. One drawback was the fiscal deficits which related to high-yielding government stocks. This adversely affected the demand for stocks being issued by private firms to raise long-term capital. Because of the high yields, many potential investors prefer to hold short-term government treasury bills. This shifted resources from the stocks markets to the government bill market, leaving the stocks market both thin and illiquid, and “crowding out” many small and medium-sized enterprises from the capital market.

Another issue to consider is the Ghanaian tax system, which is biased in favour of fixed income securities. Ghana introduced a favourable tax regime with non-residents paying a 10% withholding tax on dividends (locals paid 5%), but no capital gains, stamp duty or value added tax. Interest income on short-term government Treasury bills is exempt from tax withholdings, while dividends on equity investment are subject to tax withholding. This serves as a disincentive against investing in the stock market. In the years 2003 and 2004, listed companies were charged less corporate tax (30%) than unlisted companies (32.5%). The current incentive for listing is that a newly listed company is charged 5% less on corporate tax for 3 years, Table 5 refers.

Table 5: Income tax incentives - Corporate tax

	2003	2004	2005
Listed Companies	30%	30%	30%
Non-Listed Companies	32.50%	32.50%	30%
Newly listed Companies	25% for 3 years		

All these economic factors discussed above, whether they be inflation, interest rates, fiscal deficits, tax systems or even world-wide commodity prices, governments and politics also played a role in them all, the subject of discussion in the next section.

2.4 Ghana's Political Environment and The Stock Market

Financial market participants daily make fine-tuned, firm-specific investment decisions by drawing on a wide range of information, including relevant changes in the political environment. A study of the U.S. Financial markets by Schwert (1981) revealed that market participants have a keen appreciation for politics and its economic consequences and there is every reason to believe it holds true among participants in Ghana's emerging financial market, the GSE.

Though the intersection of elections (politics) and financial markets could be major area of research projects, it does not form the major area of this study. However, a brief review of the Ghanaian politics and its impact on the performance of the GSE is considered in the section. Appendix 1 summarises Ghana's political timeline from 1952 to 2004.

Some researchers, such as Lin and Roberts (2000), believe that politics generate cyclical movements in stocks. One of the political theories of stock behaviour says that P/E ratios tend to move in concert with the popularity rating of an incumbent president. Lin and Roberts (2000) suggest that the more popular the president, the higher the P/E Ratio. Some of these political cyclical theories, if true, may partly account for the performance of the Ghanaian Capital Market during the election years of 1992, 1996, 2000 and 2004. A review of the GSE ASI

from a political perspective over these years, seem to support the theories. With the inception of the GSE in 1991 when the government was purely a military government, the ASI index experienced a slow start. The first democratic elections in the country since 1979 was in 1992, brought mixed feelings to the stock market. The ASI fell in the months preceding the election month which suggest that uncertainty of the markets as to what a new president might do. Even with the election of Flight Lieutenant John Jerry Rawlings (the military ruler) in 1992, it was perceived that this could be a military dictator now in civilian uniform. The fears of investors deepened after the victory of the National Democratic Congress (NDC) party because this party represented a quasi military-democratic government led by a former military man, Flight Lieutenant Rawlings. This might be a cause for the further fall in the ASI even after the election, which was held in the first week of December 1992. Between November and December 1992, the ASI fell by 13%. It took quite some months for the return of investor confidence and the slow rise of the ASI. Considering that the election has potential economic consequences, this volatility was not unexpected. The uncertainty of the election outcome and its economic consequences were coupled with active market intervention by the Ghanaian government and the accusations of more nefarious private market manipulation to create a chaotic investment environment.

This scenario of a drop in the ASI during and immediately after elections repeated itself in the 1996 and 2000 election years. In support of the political theories of stock behaviour, the ASI took a longer time to recover after the 1996 election, partly because the popularity ratings of the Rawlings government was going down. On the contrast the popular cry for a change of government saw the Rawlings government voted out in 2000 and the New Patriotic Party (NPP) government under the leadership of J. A. Kuffour voted in. It is interesting to note that unlike the previous two elections, the ASI did not fall after the election. This NPP government had no traces of military attributes and being the popular choice of the people, investor confidence rose and the ASI continued to rise. Three years after the election (up to 2003) the ASI experienced significant growths that had never been before. It could therefore be concluded that the general approval given to the nation's leadership would appear to demonstrate long-term optimism about the Ghanaian business affairs and is good for the stock market.

Although the year 2000 Ghanaian presidential elections attracted wide coverage, most of this was done with a broad brush, focusing on aggregate regional and national consequences. This firm-level variation in election sensitivity might explain some aspects of the Ghanaian political economy.

Political risk influences stock investment in several ways. First, political instability hampers economic growth, and thus dampens stock attractiveness.

Moreover, political instability encourages alternative forms of savings as well as “capital flight.” Second, investors are very concerned about the possibilities of nationalization, particularly in developing countries. Investors will not invest if they expect that a government might nationalize firms. Finally, some confidence about the future is also required, both for firms to expand their operations and investors to participate in the stock market. In this regard, a correlation can be found between changes in the level of domestic political risk and movements in the systematic risk of the stock market. According to the Economist Intelligence Unit (2006), Ghana is one of the most politically stable countries in Sub-Saharan Africa and has one of the more robust democracies, although political tensions may rise in the run-up to the 2008 elections. On the economic front, it has been the struggle of Ghanaian governments to diversify the economy away from its heavy dependence on gold and cocoa. The struggle still continues. Further external debt write-offs by the World Bank under the multilateral debt-relief initiative are expected. This may push down the debt stock and ease debt repayments. The Economist Intelligence Unit does not expect any build-up of arrears. Table 6 below summaries the country risk of Ghana as at 2004.

Table 6: Ghana Country Risk Summary

	Sovereign Risk	Currency Risk	Banking Sector Risk	Political Risk	Economic Structure Risk
Dec 2004	B	B	B	BB	CCC

Source: 2005 The Economist Intelligence Unit Ltd

Although Ghana is today one of the most stable countries in Africa, it had its share of political upheaval after it became independent in 1957. Following the end of British rule, Ghana endured a succession of governments, five military and five civilian, which threaten to tear its social fabric apart between 1957 and 2000.

In general terms, the Ghanaian political environment seems to be relatively stable and predictable. The present level of political risk in Ghana does not appear to undergo any significant changes over the near term. This is confirmed with a peaceful and fair presidential and parliamentary elections held in December 2000 and a smooth transition from the NDC government to the main opposition party, the National Patriotic Party, led by President John Agyekum Kufuor, who won the elections. This was the first time in Ghana's history in which power passed peacefully from one civilian government to another through the ballot box. It was even more convincing when the Presidential and Parliamentary elections held in December 2004 ended peacefully with the incumbent government retaining power. However, certain concerns threaten the stability of Ghana's political climate. A multitude of chieftaincy disputes are occurring throughout Ghana. These have produced ethnic tensions in the past because chiefs wield considerable power in Ghana and are revered by their local constituencies. For some reason, the tribal disputes do not seem to affect the performance of the Ghanaian capital market in any significant way.

2.5 Conclusion

In conclusion, whatever form of government a country may have, whether military, quasi-military, or paternalistic democracies; their structure and nature confer on them a an amount of power and authority which they apply to endure that their policies and intentions are executed. A major problem not only in Ghana but Africa, which impedes the growth of stock markets, is the undemocratic military change of governments.

In Ghana, the military dictatorship indicated no features of any resemblance to fundamental and basic democratic tendencies. State owned organisations are perceived to be used by the government to control the state and to strengthen the political powers. Until the early 1990s, the military governments were not prepared to give up control over public enterprises to private individuals unless such individuals were considered to be willing to promote their political interests. The period of pseudo-military democracy in Ghana between 1992 – 2000, which represented a ‘quasi military-democratic’ government whereby J.J. Rawlings, a military dictator shod off his military uniforms and took on civilian garbs while still subterraneous controlling the instruments of state authority had serious negative repercussions on the performance of the Ghana stock market.

In a period of true democracy, the ability and capacity to cater for basic needs of poor and needy people must not be lacking in any government. It is important to note that the whole idea of privatisation is predicated on the premise that citizens will be encouraged to invest and to have a sense of ownership. Privatisation could also be intended to attract foreign investors on a high and more significant scale. With particular reference to Ghana, a large proportion of the indigenous population are impoverished with very little financial ability to participate and invest. The main reason for most Ghanaian's inability to participate in the stock exchange is their poor financial position.

Obadina (1999) suggested that a nation's economic development goes beyond figures and aggregate statistics. It has all to do about the ability to raise the society's capacity to produce and improve its own conditions of existence. Obadina (1999) discovered that in the absence of a suitable cultural environment, no amount of trade liberalization and privatisation policies, or macroeconomic policies can in any way promote a quick and sustainable economic development. In this regard, one must re-examine Ghana's capacity to shoulder such extra and tremendously stressful procedure of achieving definite economic transformation for a citizenry already at the lowest imaginable state of human subsistence.

The Ghanaian Government played a role in promoting the development of the Ghana Stock Exchange. The government strove to provide a sound macroeconomic environment which proved to be instrumental in attracting long-term portfolio investments. The evaluation and analysis of development activities in the Ghana emerging stock markets reveal that Ghana's emerging economic environment plays an important role in the growth and development of Ghana stock market. This environment is not a single one; instead, it is related to the political, legal, regulatory, and institutional environments.

Ghana, in the midst of a region (Sub Saharan Africa) plagued with political turmoil, conflict and economic stagnation, is still regarded as a success story. It has transformed itself politically from a series of military dictatorships and an economy nearing collapse to a democratic, politically stable state that shows impressive economic growth and decreasing inflation and national debt. By tightening its fiscal and monetary policies, Ghana has also strengthened its macro-economic stability.

CHAPTER THREE
LITERATURE REVIEW

Part A: Theoretical And Empirical Literature On Stock Markets

	<i>Page</i>
<i>3.1 Introduction</i>	46
<i>3.2 Financial Indicators of Share price Performance</i>	48
<i>3.3 Role of Accounting Information</i>	59
<i>3.4 Accounting Information and Stock Markets</i>	68
<i>3.4.1 Accounting Data as A Summary Of Events</i>	68
<i>3.4.2 Market Reaction to Accounting Information</i>	73
<i>3.4.3 Incremental information content studies</i>	86
<i>3.5 Stock Market Growth and Development</i>	92
<i>3.6 Economic and Political Factors and Share prices</i>	104
 <u>Part B: Theoretical and Empirical Literature on Emerging Markets</u>	
<i>3.7 Introduction</i>	110
<i>3.8 Some Literature on Emerging Markets</i>	111
<i>3.9 Macroeconomic Variables in Emerging Markets</i>	117
<i>3.10 Information Efficiency in Emerging Markets</i>	121
<i>3.11 Thin Trading in Emerging Markets</i>	128
<i>3.12 Accounting Information in Emerging Stock markets</i>	133
<i>3.13 Summary and Hypothesis Formulation</i>	139

Part A: Theoretical and Empirical Literature on Stock Markets**3.1 Introduction**

The explanation for changes in share prices has been a popular area of interest to financial economists. It has gradually been found by empirical researchers that there is a relationship between accounting information and share prices in capital markets. There is ample empirical evidence which suggests that the accounting variables convey information regarding future capital market activities in the developed economies. In contrast, little research has been conducted for the emerging markets such as Ghana which have different and peculiar characteristics.

In accounting and finance research, studies on the impact of accounting information on capital markets have primarily focused on well organised and developed security markets in Australia, United States and the United Kingdom, Sweden, and South Africa. Examples are Hall et al (1994) for Japan; Harris et al (1994) for Germany; Dumontier and Labelle (1998) for France, Davis Friday (1998) and Gordon (1998) for Mexico; Easton et al (1993) and Barth and Clinch (1996) for Australia. Other studies by Ball & Brown (1968), Brown (1970), Firth (1981), Forsgardh and Herten (1975), and Knight (1983), have established that accounting variables convey information to the stock markets in the aforementioned countries. However, very few studies have assessed the impact of accounting information on share prices in the developing markets. Among these few

are Dickinson and Muragu (1994) and Barnes (1986) who shed light on the efficiency of markets in Nairobi and Kuala Lumpur. This study examines the impact of accounting information on share prices in the GSE.

Frost and Pownall (1998), Frost and Kinney (1996) Hall, Hamao and Harris (1994), Jensen and Litzenberger (1970), and Kaplan and Roll (1972) concentrated their empirical studies on the correlation among some measures of performance on one hand, (Return on Equity (ROE), Cash Flow (CF) and Earning Per Share (EPS)) and their association with stock market prices on the other, in highly developed economies, which have relatively effective and efficient markets. For example, Dickinson and Muragu (1994), Dyckman et al (1975), Forsgardh and Hertzen (1975), Frost and Pownall (1998) all documented that an efficient market is important for a valid relation between the variables in the capital markets.

This chapter reviews the literature regarding the relationship between accounting information and the share prices. The remainder of the chapter is divided into five sections. The first section presents the literature on studies identifying the financial indicators of share price performance. The second part details the general role of accounting information. The third section presents a review of literature on empirical studies involving accounting information and stock markets. In the fourth part, literature on the development and growth of stock markets growth is reviewed. The final section summaries the relevant literature on the relation between political and economic factors on one hand and share prices on the other.

3.2 Financial Indicators Of Share Price Performance

The growth in capital markets have put companies under pressure to submit financial statements that are intended to help investors evaluate the present and future financial status of the reporting entity, Venkateswar (1997), Joos (1998), and Kaplan and Roll (1972). Studies conducted by Amir et al (1993), Gore and Stott (1998) and Abuzar and Khalid (2001) all have evidenced that managers and investors, alike, have a tendency to find indicative measures of their company's performance. All countries around the world, the professional accounting bodies and stock exchange authorities require companies to disclose summary performance measures, such as accounting earnings, and book values. Accounting researchers such as Beaver and Dukes (1972), Rayburn (1986), Wilson (1986, 1987), and Bowen et al (1987), have long had an interest in the informativeness of these measures. These studies have concentrated on discovering which of the accounting measures has a higher association with share prices. The concern of investors, which accounting bodies intend to address, is to provide information that is relevant and enables them to evaluate performance of the company, hence their impact on share prices.

Barth, Beaver, and Landsman (2001) discovered that 75-80 percent of the variation in market value of equity is due to the book value of assets and liabilities, and the net. It was also found by Bernard (1995) that 64% of variation in the market price of equity is accounted for by book value and the rank of return on equity.

Collins, Maydew, and Weiss (1997) investigated the value relevance common to both earnings and book values over 41 years from 1953-1993 for American firms, and discovered that when book values are added as an additional independent variable along with earnings, the value relevance holds steady with slight increases overtime. They further examined the incremental explanatory power of earnings and book values and found that there is a decrease in the ability of earnings to explain the movement in share prices. On the contrary, their investigation also revealed an increase in the ability of book values to explain changes in share prices, over the same period. But the explanatory power common to both earnings and book values is in fact higher. The findings show for the first ten years (1953-1962), using a multiple regression model and regressing earnings and book values on share prices, the average adjusted R^2 was 0.50, which rose to 0.69 for the other ten-year period from 1984 to 1993. They further discovered that reported losses, an increase in the incidence of one-time items and a decrease in the size of firms in the sample were the main reasons for the fall in explanatory power of earnings. Brown et al. (1999), however, argued that a scale factor common to price per share, EPS, and book value per share brings about a spurious increase in value-relevance over time.

An examination of the usefulness of financial information to investors by Lev and Zarowin (1999) revealed a systematic decline in the association between capital market values and major financial accounting variables.

They used the association between capital market values (share prices and returns) and major financial accounting variables (earnings, cash flows and earnings) to measure the usefulness of financial information over twenty years from 1977-1996. The results of Lev and Zarowin were contrary to Collins et al. The results showed that over the twenty years' period, R^2 level, which measures the association between share prices and earnings plus book values, fell from 0.90 in latter part of 1970 to 0.80 in 1980 and finally to 0.50 in the 1990s. In general, their results showed a decrease in the association over the period from 1977 to 1996.

A study conducted by Gornik-Tomaszewski and Jermakowicz (2001) examined the value relevance of a new accounting system in emerging markets, using Poland as a case study. They used the Edwards-BellOhlson valuation model and discovered a positive and significant correlation between current earnings and lagged book values on one hand and share prices on the other. They also found that the incremental information content of current earnings is less than that of lagged book values.

Other researchers including Joos and Lang (1994); Harris, Lang, and Muller (1994); and King and Langli (1998) undertook similar investigation but concentrated on a comparison of the value relevance of the accounting information across countries. More specifically, the value relevance of accounting information for German and American companies were

compared by Harris et al. (1994). They did consider the information of these companies on industry bases and the size of the firms over the period 1982 - 1991. They discovered no differences in the overall value relevance. In the case of German firms, higher coefficients applied to book values and earnings. To examine the individual explanatory power of earnings and book values, they applied a simple regression approach and discovered that the explanatory power of earnings in America is about the same as in Germany, but the explanatory power of book value in US is higher than that of Germany. Joos and Lang (1994) also used sample firms from United Kingdom, Germany and France and investigated the relation between share prices and earning and book values over a period of 9 years from 1982 to 1990. Their results showed that the association between the share prices and earnings and book values are not the same in all countries but rather varies from country to country. In Germany the explanatory power ranges between 20% and 38%, and for United Kingdom it is from 14% to 42% and 48% to 78% for France. Finally, King and Langli (1998) also studied the association between accounting data and share prices in the United Kingdom, Germany and Norway to check for any systematic differences in the value relevance of accounting data across these countries. Any possible variations in the incremental and relative value relevance of earnings and book values across these countries were also examined. The results of the study showed a significant relation between earnings and book values on one hand and share prices on another in all

these countries. The coefficient (R^2) was 40% in Germany, 60% and 70% in Norway and UK respectively. Whilst accounting numbers in the UK has the highest relation with share price, those in Germany has the lowest. The conclusion was that there are differences in the association between earnings, book values and share prices from country to country, though the explanatory power of book values is more than earnings in Germany and Norway, but less in UK.

An investigation into the relative value relevance in equity valuation by Bao and Chow (1999) on two sets of financial reports; one prepared under the International Accounting Standards (IAS) and the other applied the China's accounting regulations (domestic GAAPs). They selected a sample that consisted of firms that issued the so-called B shares to non-domestic investors covering a five years' period from 1992-1996. The study showed that book values and earnings prepared under International Accounting Standards account for 23.6% variation in share prices. On the other hand, financial information prepared under domestic GAAPs account for 21.1% of share price variations. Yearly regression analysis produced results that suggested that the explanatory power of book value and earnings increase over time.

Dechow (1994) tested the relation between the information content of cash flows and earnings. He found that cash flows are less strongly associated

with share prices than accounting earnings, while earnings are more associated to share prices. A more intensive study by Biddle et al. (1995), with a sample 40 industries, they tested the association between earnings and cash flows and their findings corroborated earlier studies. Consistent with Dechow (1994), Biddle found that earnings has the greatest information content, and that information content declines as the income measures move further away from accrual accounting earnings toward cash flows.

Fields et al. (1998); Gore and Stott (1998); Vincent (1999) all examined the relative information content of earnings vs. Funds From Operations (FFO), a measure that the Real Estate Investment Trust (REIT) industry has touted as a superior measure of firm performance. They reported similar results that FFO fails to provide statistically greater information content than does earnings. However, Vincent (1999) finds that earnings have statistically greater information content than FFO. She concludes that, *"it is premature to dismiss EPS as an inferior measure of performance as claimed by the REIT industry."*

Dissatisfaction with traditional accounting-based performance measures has spawned a number of alternatives, of which Economic Value Added (EVA) is currently the most prominent. EVA, according to Garvey and Milbourn (2000), represents a modification to earnings that includes a

charge for equity capital along with a series of adjustments purported to correct "accounting distortions" inherent in Generally Acceptable Accounting Practices (GAAP).

While practitioners and academics have a long history of interpreting univariate financial ratios as leading indicators of earnings growth (e.g., the P/E ratio), Ou and Penman (1989) initiated rigorous academic research on earnings prediction based on a multivariate analysis of financial ratios. Their focus was to investigate the effects of combining information in individual ratios on future earnings. They applied statistical approach to cut down the huge number of financial ratios to a small group that is most effective in forecasting future earnings. The methods produced a compound measure, which shows the chances of a negative or positive earnings variation. Positive abnormal returns can also be achieved with a fundamental strategy based on this measure. Lev and Thiagarajan (1993), Piotroski (2000) and Abarbanell and Bushee (1998) also continued on the work of Ou and Penman's earnings prediction by using conceptual arguments to analyze the ratios. These studies also demonstrated that the earnings prediction signals in variables like growth in accounts receivables relative to sales growth and gross margin rate are increasingly related to current stock prices and are significant in predicting future earnings.

According to Garvey and Milbourn (2000), the accounting-based measures rely on estimates and are inadequate in times of inflation. Cash flow and fund flow metrics have been proposed as substitutes or complements to the accounting-based measures. They argued that the process of searching for alternatives to accounting measures has culminated in the relative development of EVA (Economic Value Added). Other proponents of EVA including Biddle, Bowen and Wallace (1997) and Cates (1998) and Obstfeld and Rogoff (1996) believed that EVA and MVA (Market Value Added) are more significantly positively correlated with share price performance than ROA, ROE and ROS.

The critics of EVA; Rappaport (1994), AL - Ehrbar (1997), Teitlbaum (1997) and Stewart (1991) believed that EVA is a flawed concept, at least from the shareholder's view. They argued that EVA does not even fulfill the basic function it claims-- measuring the change in shareholders wealth. According to Rappaport, EVA is a short-term measure based on sunk cost and can report value increase while the business is investing below the cost of capital or value destruction while the company is actually investing above the cost of capital. They also argued that no one measure can capture all the dynamics of corporate performance. Similarly, AL-Ehrbar (1997), Teitlbaum (1997) and Stewart (1991) argued that EVA itself is not capable of measuring wealth and only MVA is capable of doing so. However, they argued that EVA is a good guide for management, since it

correlates better than any other measure. Regardless of these arguments, some writers, such as Cates (1998), attributed the increased following of EVA to its financial logic and simplicity. A more serious study by Biddle, Bowen and Wallace (1997) examined the widespread belief that EVA is more highly associated with stock returns and firm values than accrual earnings. The study used relative information content tests and incremental information tests to evaluate the contribution of EVA, earnings, residual income, and cash flow from operations. The relative tests revealed earnings to be more highly associated with returns and firm values than EVA and other measures. Incremental tests suggest that EVA does not provide much information beyond earnings. These results contradicted findings of a previous study by Kenneth et al (1996) which examined how EVA and MVA relate to stock performance. The study showed that EVA and MVA are more significantly positively correlated with share price performance than ROA, ROE and ROS. EVA simply equates profit less cost of both debt and equity capital. Stern Stewart and Company, the developer of the measure, along with other advocates, argued that accounting earnings are deficient and incapable of measuring the true economic results of operations and the wealth of shareholders. EVA, they claimed, measures the real profitability of operations and, thus, has advantages over those accounting earning -based measures.

There may be different opinions on how to design compensation contracts, but there is little or no contention in the importance of performance-based

compensation in corporate governance. While Rappaport (1986) argued that managers should simply be paid according to share price performance; Sloan (1996) contented that stock-based compensation imposes excessive risk on the manager, owing to market-wide movements. Also, Paulo (2002) pointed out an additional weakness with share prices: they tend to aggregate relevant information inefficiently for compensation purposes. These arguments seem to imply that firms could improve incentives by relying on other measures of performance which more accurately reflect the manager's contribution to firm value. But the question still remains, "which measures would accomplish this task, and how should they be combined to produce the best possible incentive contract?"

In an attempt to define the measures of performance which accurately reflect the managers' marginal contribution to firm value, a large number of consulting firms produce and aggressively market their own accounting-based performance measures. These measures include Stern Stewart's EVA (Economic Value Added), Boston Consulting Group's TBR (Total Business Return), LEK/Alcar's SVA (Shareholder Value Added), McKinsey's Economic Profit, and Holt's CFROI (Cash Flow Return on Investment). Paulo (2002) explained that whereas economic and financial fundamentals do affect value, they are not the main movers of share prices. Fama (1981) discovered that a substantial fraction of return variation cannot be explained by macroeconomic news. Roll (1984) also found that

news about weather conditions explains only about 10% of the movement in orange juice futures prices and is not the principal source of variation in the price of orange juice. Roll (1988) further found that more than one-third of the monthly variation in individual stock returns on the basis of systematic economic influences cannot be accounted for. Cutler et al (1989) investigated the factors that moved share price, found that macroeconomic news explains only about 20% of the movement in share prices, and they state: "The view that movement in share prices reflect something other than news about fundamental values is consistent with evidence on the correlates of ex post returns". A study by Haugen et al (1991) revealed that changes in volatility were the main driver of stock returns. They disagreed with the suggestion that the fundamental economic and financial factors were the main drivers of changes in share prices.

The above literature lends support to the existence of the Efficient Market Hypothesis (EMH). The evidence so far reviewed describes situations in which the EMH does seem to hold. Whereas no general conclusions about the degree of market efficiency may yet be inferred; the cited evidence may suggest that the EMH will hold in similar situations but questions such as to what extent is EMH applicable in emerging markets like Ghana remain unexplored, which this study will attempt to address and hence make the original contribution expected from the research.

3.3 Role of Accounting Information

Corporate news takes many forms but the most widely used sources of information, however, are the firm's published financial statements. Representing the most commonly available source of data on past performance, these financial statements are used by both amateur and professional investors to predict a firm's future performance, thereby providing a base for estimating future share prices and related cash flows to the investor.

A casual look on the number of copies of annual reports distributed by various corporations and the man-hours expended by accountants, security analysts, and investors in preparing and analysing these reports would undoubtedly lead one to suspect that published statements play an important role in the dissemination of corporate information. This section examines previous literature on the usefulness of accounting information for investors, focuses on the information contents of these measures and the signals they send to the market.

While it is recognized that there are many groups of users of accounting information, agreement does not exist about who should be the target user group, Chang and Most (1985). In addition, the purpose of financial reporting has shifted from providing information to managers and creditors to investors, Epstein and Pava (1993). The banking industry and creditors

were most influential in advocating audited financial statements and were considered the primary users of financial statements in the early years, Epstein and Pava (1993); Heath (1978). Lenders were mainly interested in the balance sheet as they wanted to know what assets could be sold in the event of liquidation.

The usefulness of accounting earnings and their proximity to the true economic earnings has been examined in several studies, Alford et al (1993), Auer (1996), Beaver (1970), Brown and Kennelly (1972) and Firth (1981). Fleischman and Tyson (1998) examined managerial decision-making and control as the primary use of accounting information during the industrial revolution in the United States and the United Kingdom. The inherent problems and criticisms of traditional standard costing systems were highlighted by Fleischman and Tyson (1998). They concluded that the use of predetermined, norm-based standard costs do not provide appropriate strategic signals in an era of global competition, continuous improvement, and perpetual cost reduction.

Kaplan and Johnson (1987) credited Alexander Hamilton Church with perfecting product cost accounting system in the early 1900s which facilitated the tracking of overall company profits to individual products. While the earlier systems gathered information to facilitate management evaluation and controls, and linking the performance of internal processes

with the firm's overall profitability, these other systems were completely different in nature.

A study conducted by Walker Evans & Cogswell Company (1921) identified the role of accounting information to include the following:

- **Managerial Decisions** - A broad scope of management decisions are supported by accounting information.
- **Pricing** – Accounting information facilitates the evaluation of pricing alternatives.
- **Cost Allocation and Estimation** – Accounting information is useful in costs allocation according to predetermined rates.
- **Profitability Assessment** – The comparative analysis indicates that accounting information can be used to evaluate the profitability of the firm.
- **Management of Receivables** – Accounting information assisted in the evaluation of each customer. Credit terms and price charged for goods could be based upon this analysis.

The role of accounting information as identified above is limited to the controlling of costs and the internal management of operations. Ali and Hwang (2000), Joos (1998), Ball et al. (2000), Harris et al. (1994), Arnold et al (1991) all examined the role of accounting information in capital markets.

From various regression analyses, Ali and Hwang (2000) used the coefficient R^2 to measure the value relevance of accounting information changes as it relates to cash flows, earnings and book values of shareholders' equity. Using the variations in the institutional characteristics of France, Germany and UK, Joos (1998) made the following predictions: (1) the value relevance of earnings will be higher than that of book value in the U.K. (because of the importance of shareholders), and vice versa in Germany or France; and (2) the multiples on both book values and earnings will be higher in both France and Germany than in U.K. (because of differences in conservatism).

Ball et al. (2000) applied an extensive institutional detail to examined seven countries some of which are under common law and others are under code law. They used regressions of earnings per share deflated by price per share on annual return per share deflated by price to capture the extent to which the annual earnings number reflects the same information the market impounded in share price during the fiscal year. The authors interpreted this measure as an indicator of timeliness of accounting earnings: their hypotheses about differences in timeliness stem from group-specific differences in the uses of accounting earnings. In common law countries where "shareholder-focused" economies apply, earnings are used by shareholders to determine share value and to remunerate managers. On the contrary, in code law countries, where "stakeholder-

focused" economies apply, accounting earnings may be applicable in determining payments of dividends to shareholders, payouts of taxes to government, employees' and managers' wages and bonuses.

In consistency with the first hypothesis, Ball et al. (2000) reported that earnings timeliness in common law countries is greater than that in code law countries. This discovery was consistent with their earlier hypothesis. Their study also revealed that in all seven countries, earnings are more timely than operating cash flows, and that differences in timeliness vary by country, ranging from over twice as timely for German firms to almost five times as timely for U.S. firms. They also suggested that in common law countries, accounting earnings are more conservative than in code law countries. This may be due to the arm's length relation between contracting parties exacerbates the asymmetric information problem.

Harris et al (1994) used reported accounting variables and tested the long-window association test statistics for 18-month stock returns regressed on annual earnings levels and changes and valuation models of share prices regressed on book values and accounting earnings. They found that for firms in Germany, the correlation between returns and earnings is similar to that of US firms. In consistency with the conservative accounting policies practised in Germany, German firms have higher earnings multiples. Results presented by both Easton et al (1993) and Barth and

Clinch (1996) indicate value-relevance for Australian share with regard to some kinds of Australian revaluation data for tangible and intangible assets.

Bowen et al (1986) found significant relations between accounting earnings and fund-based cash flow measures. This correlation could be considered as a support for those who argue for the relevance of accounting-based measures. But, the correlation found between earnings and alternative cash flow measures was low. The relation to capital markets was addressed by Bowen et al (1987), where a significant association between share price and cash flow information was reported. However, the study was not conclusive on the issue of whether cash flow information signals incremental messages beyond earnings.

Arnold et al (1991) provided U.K. evidence on the correlation between accounting income and different measures of cash flow. The study reported a significant association between net income and working capital flow, but not a significant association with other measures of cash flows. However, a correlation of cash flows with capital markets similar to the one reported by Bowen et al (1987) was not found. Wild (1992) investigated the relationship between returns and accounting information, using book values as the accounting measure. His findings indicate that book value is significantly positively related to cumulative abnormal

returns measured over a period from the release of analysts' forecast of book value through the announcement date of earnings. In looking at the value relevance of book value within industries, Wild concluded that book value is informative for share prices. Solomon and Laya (1967) and Fisher and McGowan (1983) argued that the divergence of accounting earnings from economic earnings is so large that the former can not be used as an indication of the latter. Even dividends, which are apparently the concern of sizable groups of investors, are deemed to be irrelevant.

As far as the relevance of accounting information is concerned, contrary to the claim of Chen and Dodd (2001), there is a large and growing body of evidence that shows that accounting information is becoming progressively less relevant. A study by Lev and Zarowin (cited in Stewart, 1998) sought to establish whether financial reporting conveyed useful information to investors. They also examined three foundation pieces of published financial information – earnings, cash flow, and book value for the thousands of companies in Compustat's data base – and correlated this information with changes in the companies' share prices. They concluded that the association between key financial statement variables and both stock returns and share prices have been declining in importance over the past 20 years. The relationship between the independent variables (earnings, price, intrinsic value) and the dependant variable (share price)

suggest that variables not yet part of the reported accounting information have a powerful impact on share prices and returns, Paulo (2002).

Conclusion

Given the plethora of accounting procedures and principles, one would not expect all participants in a market to be able to distinguish false or misleading information even if the information were consistently offered in the same basic format. But accounting information is not always presented in the same basic format because they are based on numerous assumptions and principles which allow the use of alternative procedures in different situations.

However, the Efficient Market Hypothesis (EMH) proposes that the total market is quite sophisticated in the way in which it digests financial statement data and arrives at equilibrium security prices.

Notwithstanding all that has been said so far by researchers, there is empirical evidence by Lev (1989), Ohlson (1995), Ali and Zarowin (1992) and Easton and Harris (1991), that suggests accounting information is of limited relevance even to residual risk bearers.

Abraham Briloff (1972), a strong critic of the accounting profession, described a number of cases which appear to show that the NSE market was fooled by accounting reports of publicly owned companies in that

their share prices were incorrectly set for some period of time. Whether in each case the data presented in the reports were deliberately misrepresented to confuse investors is subject to debate.

Thus, all of the stakeholders have different purposes and make economic decisions based on various data provided from accounting reports. The users' perspective on information usefulness does not necessarily agree with the providers' perspective as their purposes and types of decisions are different.

3.4 Accounting Information And Stock Markets

Accounting information aims to provide investors with the essential inputs for making investment decisions. The information that is drawn from financial statements, apart from the great importance that it has for creditors, suppliers and competitors, is extensively used in capital markets as the means of forecasting the future cash flows of the company, and thus helping investors to estimate the securities' future risk and returns, Negakis (2005).

3.4.1 Accounting Data as A Summary Of Events

The studies by Ball and Brown (1968) and Beaver (1968) demonstrated that accounting earnings is value relevant in some sense. Beaver (1968) showed that the stock market reacts with increased trading volume and increased price variability in the week of the earnings announcement. Ball and Brown (1968) explained that over the 12 months prior to the earnings announcement, earnings increases (decreases) are associated (on average) with positive (negative) abnormal returns and the unexpected component of earnings tends to have the same sign as unexpected price changes. The relation between new information in earnings and the market reaction to this information (as in Beaver, 1968) has been an area of emphasis in most recent research works. Others focus on the work of Ball and Brown (1968), which examines the association between new information and unexpected or abnormal components of returns.

The studies of Ball and Brown (1968) which examined the association between unexpected or abnormal returns and unexpected earnings, provided evidence of the role of accounting as a summary of the unexpected events that have affected the firm over the 12-month period prior to the earnings announcement. In contrast Beaver (1968) whose studies focused on the market response at the date of the announcement of the accounting data, examined the role of accounting data in providing information to the market about events that may affect investors' perceptions of the firm.

Similar to the perspective held by Paton and Littleton (1940) and Edwards and Bell (1961); most modern studies focused on the view that financial statements are a summary of the events that have affected the firm over the fiscal period for which the report has been prepared. Empirical studies that adopted this perspective required a benchmark against which to evaluate the effectiveness of the accounting summary. Since the events that have affected the firm over the fiscal period are captured in change in firm value (or returns), market returns are the obvious benchmark.

Other studies such as Easton et al. (1992) argued against earnings being a perfect summary of events and give two reasons why: (1) value-relevant events observed by the market (and therefore captured in returns) in a prior period may affect accounting earnings of the current period, and (2) value-

relevant events observed by the market in the current period may not be reported in accounting earnings of the current period. Basu (1997) sums up that accounting, reports the effects of economic events with a lag.

Easton and Harris (1991) sought to explain that the level of earnings (using a regression analysis) could increase the ability of the accounting earnings number to explain stock market return. They argued that today's market value of a share is a "stock" variable, being the value today of the entitlements to a flow, or series, of expected dividends which are expected to be received either in perpetuity, or with some liquidating dividend. Similarly, the accounting book value per share is a "stock" variable, which represents the firm's resources and commitment that together will determine the dividend flow per share. They suppose the price of share j at time t (P_{jt}) to equal the book value per share (BV), that is:

$$P_{jt} = BV_{jt}$$

Therefore, any change in price (ΔP) is equal to the change in the firm's (ΔBV): $\Delta P_{jt} = \Delta BV_{jt}$

In the case of a clean surplus assumption, then a change in the book value equals to a similar change in accounting earnings (A), less any dividend paid out to shareholders, d .

$$\Delta BV_{jt} = A_{jt} - d_{jt}$$

It therefore follows that $\frac{(\Delta P_{jt} + d_{jt})}{P_{j,t-1}} = \frac{A_{jt}}{P_{j,t-1}}$

Easton et al. (1999) showed that in a return-earnings regression there is a perfectly negative correlation between the omitted variable and the included variable (accounting earnings). The effect of this omitted variable is to bias the estimate of the earnings coefficient (implicitly, the regression R^2) toward zero, ceteris paribus, a lower earnings coefficient or a lower R^2 suggests that earnings are a poorer summary of the events that have affected returns of the fiscal period. The effect of this lag is that the RI from a regression of returns on earnings will be less than 1.

At any point in time, price reflects all returns (that is, changes in market value) since the firm came into existence, while book value represents all accounting measures of change in value (earnings) during this period. Book value will reflect the cumulative effect of accounting reporting lag—some of the value-relevant events observed by the market (and therefore captured in returns) in early years will be included in accounting earnings of later years, but some will remain unrecorded in book value. The effect of this accounting reporting lag in the price-levels regression is similar to the effect in the returns regression.

Papers by Hayn (1995) and Basu (1997) represented important developments in understanding the simple returns-earnings association. Hayn (1995) provided several reasons why both the estimate of the return-earnings coefficient and the regression R^2 will be lower for firms reporting

a loss than for firms reporting profits. These reasons include: (1) because shareholders have a liquidation option, losses are not expected to perpetuate, and (2) the related transitory nature of losses will result in a lower coefficient estimate. In simple pooled cross-section and time-series regressions of returns on earnings (deflated by beginning-of-period price), Hayn (1995) found that the RI for 14,512 loss firms was 0.0 percent and the estimate of the slope coefficient was 0.01, while the R^2 for 61,366 firms that reported a profit was 16.9 percent and the estimate of the slope coefficient was 2.62.

Basu (1997) observed that the effect of conservatism in accounting was that bad news tends to be reported more quickly than good news. He used returns of the fiscal year as an indicator of the net (bad vs. good) news. In simple pooled cross-section and time series regressions of earnings (deflated by beginning-of-period price) on returns, Basu found that the R^2 for a sample of 17,790 firms with negative returns was 6.64 percent and the estimate of the slope coefficient was 0.275, while R^2 for 25,531 firms with positive returns was 2.09 percent and the estimate of the slope coefficient was 0.059.

The results of these papers appear to show distinct non-linearities in the returns earnings and the earnings-returns relations.

3.4.2 Market Reaction To Accounting Information

Early studies on the relative association of accounting information with share prices differ in opinions on which accounting information or measures have closer correlation on share prices. Fama (1965), Beaver (1970), Beaver & Dukes (1972), Board, Day and Walker (1989), Brown and Kennelly (1972), and Ball (1972), all demonstrated that the association between stock returns and earnings was significantly higher than that between stock returns and operating cash flows. However, Griffin and Landsman (1982) found that both earnings and operating cash flows explained stock returns. Nevertheless, a study by Board, Day and Walker (1989) showed that share prices are influenced more by earnings than cash flows or funds flow.

Ball and Brown (1968) used a procedure similar to that used by Fama et al to assess the behaviour of share prices when a firm's annual earnings were announced in The Wall Street Journal. Ball and Brown (1968) used Ordinary Least Squares and linear regression to estimate the forecast error that resulted when the actual change in a firm's actual income differed from its expected income change after removing market wide effects. They argued that the market participants would have formed opinions reflected in their forecasts of what the earnings numbers should be, and, collectively, these forecasts would be reflected in a market forecast of the stock's price. They further reasoned that the reaction of a stock's price

would reflect the difference between the firm's actual earnings and the market's forecast. Ball and Brown (1968) discovered that the market reacted in the same direction as the unexpected change in income so that the increase in stock market price was in accordance with the unexpected change in income. They determined that the variables which were closest to stock returns to be net income and EPS. They interpreted this reaction as support for the EMH in that the market reflects the disclosed information in accounting earnings.

Continuing on Ball and Brown's (1968) use of stock returns as the dependent variable in regression analysis, Beaver and Dukes (1972) also compared the earnings-return association to the cash flow-return association and found that the earnings-return association was greater. Since Ball and Brown's (1968) use of operating income as a "cash flow" measure did not explain abnormal stock returns as accurately as net income, Beaver and Dukes (1972) suggested that a different cash flow measure was necessary. Their cash flow measure was calculated by eliminating the non-cash items (i.e. the common accrual items) of deferred taxes, depreciation, depletion, and amortization, from net income. Beaver and Dukes (1972) found that their cash-flow measure performed the worst when compared with two other accrual based earnings figures: earnings that included tax deferrals and earnings that did not.

Over twenty years later, Dechow (1994) recognized that the Ball and Brown (1968) and Beaver and Duke (1972) studies used rather naïve models and crude cash flow measures. She used more sophisticated analysis techniques to determine whether cash flows or earnings were the best summary measure of firm performance. When her results indicated that earnings were more highly correlated with stock returns over time, Dechow concluded that earnings were the superior measure. Since her study used firms from 1960 – 1989, a time when cash flow information was not required to be provided, Dechow (1994) defined operating cash flows as operating income less depreciation, interest, taxes, and change in non-cash working capital. She showed that operating cash flows suffer timing and matching problems, on the other hand, she found that if accruals are small and steady, cash flows are not statistically different from earnings as a measure of firm performance.

Marisetty (2004) argued that a stock exchanges' efficiency can be measured by its liquidity and price discovery. He intimated that an exchange that provides price discovery will have high liquidity. By measuring the speed of share price adjustment to its intrinsic value with the arrival of new information we can understand price discovery process and productive efficiency of a stock exchange. Marisetty (2004) found that it takes around nineteen days for the prices of a sample of stocks representing BSE and NSE exchanges, to adjust to their intrinsic values

during 1996-2002. The share prices overreact to the information before adjusting to their intrinsic values. Marisetty (2004) also found that market-wide information adjusts faster than firm-specific information.

Chan, Jegadeesh and Lakonishok (1996) demonstrated that share prices respond gradually to earnings announcements with a substantial portion of the momentum effect concentrated around subsequent earnings news.

A study by Beaver (1968) yields some insights into the speed with which the accounting information is impounded in share prices. Beaver examined the size of price changes and levels of trading volume in the weeks surrounding the announcement of firm's annual earnings in the Wall Street Journal. He found that the absolute values of the price changes and the levels of trading were significantly higher during the announcement week than any other week. He further found that price changes and volume in the week following the announcement week returned to the pre-announcement levels. While Beaver's research does not provide any definite conclusion concerning the lack of bias in the market's assessment of new information, it does provide substantive evidence that the reaction occurs quickly, one of the characteristics of market efficiency. Similar results were found for the duration of announcement effects for quarterly earnings by May (1971) and Forster (1981).

Nichols and Wahlen (2004) argued that earnings numbers might not provide useful information to the capital markets. They claimed that financial press reports, changes in economic indicators, or firm-specific announcements do pre-empt accounting earnings as a timely source of information and thus may: (1) provide an incomplete measure of firm performance, or (2) measure performance with a conservative bias.

A hypothesis, known as the Naïve Investor Hypothesis (NIH), has been advanced by some authors such as Sterling (1970). The NIH states that investors are conditioned to react to accounting information and may continue to react in the same way even if the measurement method underlying the accounting numbers changes. If the NIH occurs at the market level, it is a violation of the EMH and one would expect to observe share price changes with accounting changes.

Under the efficient market hypothesis, a natural metric for assessing the information content of accounting earnings announcements is the fraction of the annual variance of stock returns that is associated with these announcements. In a classic early study, Beaver (1968) found that the variance of residual returns was about 67% above normal in the week of an annual earnings announcement and about 10% above normal in the preceding and following weeks. Taking account of the three weeks surrounding the earning announcement, Baever (1968) suggests that the

announcement accounts on average for about one week's normal residual return, or about 2% of annual variance of the residual return. He further suggests that, taking account of quarterly earnings announcements, it seems unlikely that earnings announcements in aggregate could account for more than about 5% to 6% of the annual residual variance. This is consistent with the picture in Ball and Brown (1968), which revealed that most of the price action preceded the announcement. However, the results of Atiase (1985) suggested that results based on "averages" will conceal size-related cross-sectional variation.

Not only is a small part of the annual residual variance associated with the earnings announcement periods, but cross-sectional regressions of announcement period returns on measures of unexpected earnings have low explanatory power so that earnings announcements explain little of the return over the announcement period. This suggests that accounting earnings are not relevant for valuation, or that their announcement is swamped by other information that is relevant for valuation, or that the market treats deviations of reported earnings from prior forecasts as transient deviations.

On the other hand, the efficient market assumption that share prices change only because of the arrival of new information is becoming increasingly difficult to sustain. Roll (1988) showed that there is considerable variance

in daily returns that cannot plausibly be attributed to the arrival of new (public) information. His results suggested that new, firm-specific information accounts on average for an increase in the daily variance of only about 12%. The implied background noise on security returns, which is not related to news, is consistent with the rational expectations models of Grundy and McNicholls (1989) and Wang (1989), which allowed for both informed and uninformed rational traders and noise traders. It was the competitive Noisy Rational Expectations Equilibrium models (NREE) of Hellwig (1980) and others that underlay these papers, and the market microstructure models of Kyle (1985), Glosten and Milgrom (1985), Diamond and Verrecchia (1987), and others that appeared to offer the best prospects for developing our understanding of the means by which new information comes to be reflected in share prices; the periodic announcement of standardized accounting information provides an almost perfect set of data on which to study the effect of new information on share prices and trading.

The Forum article by Swaminathan (1991) used a noisy rational expectations equilibrium model (NREE) of Hellwig type to arrive at testable implications about the relation between the precision of earnings announcements on the one hand, and the variability of share prices on the other. These hypotheses were tested using the segmented earnings reports as a proxy for more precise information. The findings supported the

hypotheses that more precise information leads to greater variance in share prices and more agreement across analysts. These results lent support to the EMH. The attempt to derive testable hypotheses from the formal model is therefore laudable. Nevertheless, it must be pointed out that the formal model treats the earnings announcement as a private signal and allows for only a single round of trading. As the author makes clear, an increase in the precision of private signals given can increase the dispersion of posterior beliefs if the share price is a poor aggregator of private information because of supply noise. Consequently, the model itself did not yield unambiguous predictions about the sign of the effect of an increase in signal precision on either price variability or the divergence of posterior beliefs; instead, the hypotheses had to be derived by imposing ad hoc restrictions on the model parameters to yield predictions that depended not upon the model, though they were not inconsistent with it, but upon the author's prior (reasonable) conjectures. It might be more appropriate to cast the analysis in terms of a NREE with multiple rounds of trading and to analyze explicitly the effect of the precision of a noisy public signal. Such an analysis was possible within the framework of Grundy and McNicholls (1989), which characterised the volume of trading on release of a public signal. In their model, post-signal beliefs were congruent as the second round of trading revealed the earlier private information.

The paper by Stice (1991) had a more explicit efficient markets orientation. He demonstrated quite conclusively that, for a sample of small firms whose earnings were announced late in the Wall Street Journal (WSJ) relative to their 10-K filing, the market reacted not to the prior 10-K filing but to the WSJ announcement. The efficient markets apologist might be tempted to ask why it was that some WSJ announcements are delayed. Was it simply a matter of space in the newspaper or did the WSJ delay signal some unobserved obstruction to the timely dissemination of information? These theories predicted that uninformed “liquidity” traders who have the ability to postpone their trading would tend not to trade immediately before an important news announcement since this is the time when their information disadvantage is greatest. Paulo (2002) commented that accounting information is becoming less relevant and share prices are more affected by non-accounting variables. He quoted Lev and Zarowin (1999) to support his argument, which also showed that accounting information are becoming progressively less relevant. From these arguments, two issues should be addressed: firstly, how to appraise the role of accounting information in equity valuation from existing evidence? Secondly, how to assess the implications of market inefficiency for capital markets research in accounting?

Kothari (2001) provided a detailed review of accounting research which is capital market-based. There are two research topics in this accounting area

which are particularly relevant and these are the discussion-fundamental analysis studies and value relevance studies. The objectives of these research types are different. The fundamental analysis studies attempts to identify mispriced securities for investment purposes by including all variables that can help explain current or predict future firm value. The second, the value relevance research focuses on variables that assessed the valuation characteristics of particular accounting amounts. This type demonstrates how well particular accounting numbers reflected information used by investors in valuing firms' equity Barth et al, (2001). Therefore, low explanatory power may not be surprising only that in predicting equity values; one has to find the relevant fundamental factors, which was not the purpose of these studies.

Several studies used a market return model to assess the coefficient of earnings response. This measures the size of a stock's return in response to the amount of unexpected earnings of the firm. Most of these researchers have shown as proof of variation in the coefficient, yet modern investors are becoming more sophisticated in their approach to assessing the relevance of accounting information. On the other hand, much depends on factors such as growth, risk, and earnings quality and persistence. Kothari (2001) identified that one of the reasons for low explanatory power was "price lead earnings". In the case of an efficient market, changes in prices are immediately reflected on the market expectations about future cash

flows. Differences in accounting principles, account for variations in the impact of accounting information on share prices. In any case, an existing weak relation of accounting information and share prices does not mean that accounting information are of no value relevance. Francis and Schipper, (1999), explain that audited financial statements play a vital confirmatory role in disciplining other timely information sources such as management earnings forecasts and to this end, accounting information is relevant to investors when setting share prices.

A better assessment of the value relevance of accounting information is given by the price model that associates share prices with accounting numbers such as earnings and book value of equity. Many studies which apply the price model, obtain evidence for the value relevance of accounting information.

For instance, Lev and Zarowin reported that accounting information is highly value relevant, but not too timely. The declining value relevance pointed out by Paulo (2002) depends on models used in the studies. Some other studies report a weakening association of earnings with returns. Therefore, the results from price models are mixed. For example, Francis and Schipper (1999) reported declining value relevance based on a return model, but a rising coefficient (R^2) result based on a price model.

Givoly and Hayn (2000) reported a worsening timeliness of accounting earnings which is consistent with the increasingly conservative financial reporting practice. The capital market accounting research that have been reviewed so far is based on a maintained hypothesis of market efficiency, which allows researchers to test a relation between accounting information and share prices under the null hypothesis of no relationship, Kothari (2001). Price is used in several market-based accounting studies as the criterion variable because price is always equal to fundamental value when market efficiency is assumed. However, Paulo (2002) was concerned about the substantial evidence that contradicts market efficiency. Kothari, (2001); and Lee (2001) have also noticed these contradictory evidences in their accounting studies.

The main conclusion from these studies is that, in many cases, the magnitude of abnormal returns is not only statistically highly significant, but economically large as well. Ou and Penman (1989), Lev and Thigarajan (1993), and Abarbanell and Bushee (1998), and Piotroski (2000) used financial statement analysis of income statement and balance sheet ratios to provide evidence that suggests that the stock market does not overreact to earnings announcements and recognizes the full impact of the earnings information only gradually over time. These studies demonstrated that the information in the earnings prediction signals facilitates the generation of abnormal stock returns.

Meek (1985) extended his prior (1983) study by examining the impact of announcement of interim earnings of foreign firms on stock returns. He examined whether the nationality of the firm influences the value relevance of the earnings announcement. He studied a sample of foreign GAAP earnings announcements for twenty six foreign firms traded in the U.S. on the New York and American Stock Exchanges. He found abnormal returns for the earnings announcements, indicating they had value relevance. He also found that earnings announcements of U.K. and Netherlands firms had value relevance while those of Japanese firms are not value relevant. The study explicitly ignored firms from the African emerging markets.

The empirical relationship between the independent variables (earnings, price, intrinsic value) and the dependent variable (share price) suggests that variables not yet part of reported accounting information have a powerful impact on share prices and returns.

3.4.3 Incremental information content studies

While this study focuses on the incremental value relevance of accounting information it is of importance that a distinction is made between relative and incremental value relevance. Biddle et al (1995) pointed out the importance of distinguishing between relative and incremental value relevance. Incremental value relevance implies that one accounting measure provides value relevance beyond that provided by another while relative value relevance implies that one accounting measure provides greater value relevance than another. They specified some research contexts in which each value relevance measure was appropriate. Incremental value relevance is useful for studying the necessity of disclosure and components of financial statements and relative value relevance is useful in choosing between two competing sets of accounting information. In this study, the purpose is not to choose between earnings and book values but to assess the importance of these accounting information in the Ghanaian capital market. It is to this end that emphasis is given to incremental information content studies.

The famous stream of returns-based literature is the studies on the incremental information content. This research focuses on whether accounting items add to the explanation of share price or returns given the presence of (controlling for) other financial statement components. The first of these types of studies were Rayburn (1986), Bowen et al. (1987),

and Wilson (1987). These studies found that both earnings and cash flows together provide incremental information to each other in an association with stock returns. This was important because it was previously thought that cash flows did not provide any information content beyond that of accounting earnings, Ball and Brown (1968); Beaver and Dukes (1972). Additional studies that examined the incremental information content of accrual based earnings and cash flows were Bernard and Stober (1989), and Livnat and Zarowin (1990).

Rayburn (1986) was one of the first incremental information content studies in market research who wanted to determine whether the accrual process added information when valuing stocks. She therefore estimated three earnings components: operating cash flow, current accruals, and noncurrent accruals. Rayburn (1986) argued in her study that previous research operationalized operating cash flows inappropriately by using total cash flows that included financing and investing cash flows. Using *Compustat* data for firms from 1962 to 1982, she constructed an operating cash flow measure by adjusting net income before extraordinary items for depreciation, the change in working capital and change in deferred taxes. Employing cross sectional regression method, Rayburn (1986) assessed whether the accrual process created a difference in information content via current or noncurrent accruals. She concluded that operating cash flow and current accruals have incremental information content beyond each

other. While total accruals also have incremental information, noncurrent accruals do not.

Bowen et al. (1987) compiled their sample from data collected for the years 1971 to 1981 from firms' funds statements that were required beginning in 1971. Their study was to determine whether two different cash flow measures possess incremental information given either earnings or working capital from operations. Similar to Wilson (1987), the evidence supported that cash flow variables, especially operating cash flows, and earnings have incremental information beyond each other across firms over time, but working capital does not contain information beyond earnings. In contrast to the positive cash flow-earning relationship with returns that these described studies provided, Bernard and Stober (1989) refuted the results of Wilson's 1987 study. They used similar stock return association tests as Wilson (1987) but expanded the data to include all firms and increased Wilson's two year sample period to the years 1977 to 1984. Bernard and Stober (1989) provided evidence that the incremental information content of cash flows and the accrual components of accounting earnings that Wilson (1987) found were not generalizable over other time periods or economic conditions.

Livnat and Zarowin (1990) suggested an additional interpretation of Bernard and Stober's (1989) results: while the disaggregating of net

income into cash flow and accrual components failed to provide incremental information, it says nothing about the components in cash flows. Livnat and Zarowin (1990) added to the evidence in the incremental information content literature with their examination of the individual cash flow components of the newly required cash flow statement and the components' association with stock returns. They separated each of the operating, financing, and investing components using the definitions by the newly required SFAS No. 95 in their sample of firms from 1973 to 1986. Livnat and Zarowin (1990) corroborated Bernard and Stober's (1989) results in that separating net income into only operating cash flows and accruals did not significantly improve the association of those items with stock returns. Additionally, they found that the individual components of operating and financing cash flows were associated with stock returns but investing cash flows were not. Thus, the results indicate that operating and financing cash flows provide incremental information to the user but the components of investing cash flows do not.

In order to obtain a better understanding of how investors process accounting numbers, Firth (1981) examined the informative content of four accounting events. The sources of these accounting events were the interim financial statements, the summary of yearly profits and the yearly financial statements together with the annual reports from shareholders. A sample of 120 British companies was selected from the London Stock Exchange. The

study covered a three year period from 1976-78. To determine the information content, each event was classified according to the size, the mean of absolute prices of weekly abnormal returns around the publication dates throughout year. Firth's study revealed that the publication of interim financial statements and the early announcement of annual financial information possess higher informative content. The public disclosure of yearly financial statements demonstrates relevant informative content. Conversely, the effect of annual general assemblies in the prices showed to be insignificant. Controls of cross-correlation showed that the abnormal returns that were related with the statements of early earnings had positive relation with the abnormal returns during the days of statement of interim and annual reports. This implies that companies that present early statements of high informative content have also annual and interim statements of high informative content. Dumontier and Raffournier (2002) provided an extensive review of several European studies on capital markets based accounting research.

Ohlson and Penman (1992) examined the explanatory power of book values on share prices over four long windows: one year, two years, five years and ten years. Their findings showed that book value was informative and was significantly positively related to share prices over all four long windows.

Most of the studies discussed so far on the incremental information content based on the researchers' independent calculations of a company's operating cash flows from accrued financial statements. The validity of these calculations was based on the assumption that articulation exists between the financial statements, Bahnson et al. (1996). However, as a direct result of the required reporting of the cash flow statement, researchers discovered that financial statements did not necessarily articulate according to generally accepted accounting principles.

Putting all these findings together, accounting information (earnings and book value) are significant explanatory variables which contain incremental information in understanding the behaviour of stock returns/prices. This research seeks to confirm or otherwise the incremental information content of accounting earnings and book values in a developing capital market like Ghana,

Articulation in accounting is the interrelation between the elements of two groups of accounts. The interrelation means that the elements of one group of accounts are affected by the changes in the other group.

3.5 Stock Markets Growth And Development

The first objective of examining the growth and development of the Ghana Stock Exchange in analyzing its characteristics cannot be achieved without first acknowledging and appreciating what other researchers have documented in this area. There is little literature on this area of stock market growth development with just a few economists making attempts to investigate different aspects of this issue. Studies undertaken by Van Horne (1970) and Kitchen (1986) revealed that stock markets growth around the world is as a result of the increasing number of mutual funds and other investment institutions. Van Horne (1970) argued that investment institutions have become performance-oriented and thus engage in the mobilization of funds from individuals and channelling those funds into the stock markets. The positive performance of stock markets has attracted greater numbers of investors, therefore resulting in their growth. Kitchen (1986) also sees a well-functioning stock market to be a mix of both long-term (institutional) and short-term (individuals) investors. Therefore, the size of the institutional and individual investors that are involved in the market is a necessary prerequisite for the stock market growth. In other words, the number of relatively large companies trading in the market is very important.

Feldman and Kumar (1995) in their attempt to analyze the factors underlie the growth of emerging equity markets, assessed the extent to which the

growth of emerging equity markets has been affected by domestic policies and external factors. Their argument is that the growth of emerging equity markets has been as a result of the broad range of macroeconomic and structural reforms being undertaken by developing countries. More specifically, they emphasized that stock markets growth has been affected by factors such as access to the market by foreign investors, the legislative and regulatory framework governing domestic and foreign investment, the role and the size of the private sector, , the role of alternative sources of financing, and the institutional settings such as supervision, clearing and settlement arrangement.

In investigating how stock market affects investment incentives, Levine (1991) introduced an endogenous growth model, in which a stock market emerges to diversify risk. In this model, Levine showed that stock markets arise to help investors manage liquidity and productivity risk, by allowing agents to invest in a large number of firms. The emphasis of Levine's research was on how stock markets promote economic growth by diversifying portfolio and allowing investors to trade ownership of firms without disrupting the productive processes within firms.

An argument that stock market growth-development is a multi-factor process which relates to the political, economic, institutional, and regulatory environments, the corporate investors, and foreign participation

policies was put forth by Sudweeks (1989). He argued that an expanding and growing stock market requires the following: a sustainable positive economic growth rate, rational monetary policies; and mild inflation. In addition, reasonable political stability, a limited possibility of nationalisation; and favourable environment and legal framework are considered important factors in creating and activating stock markets. However, Harvey (1989) counter argued that one cannot use stock markets to predict the trend of economic events. He explained that changes in economic activities coupled with an adjustment in the apparent risk of stock cash flows could account for variations in prices of share. Therefore, the perception of investors about the risk associated with cash flows can complicate information about expected economic activities and presenting a different picture. Stock markets are a single most important indicator of the business cycle is the argument of Fama (1991) and Silvapulle and Silvapulle (1999) discovered that stock markets could predict business cycle as well as provide strong proof in support of the notion that negative returns have significant effects on the unemployment rate. They made this discovery when examining the relationship between the stock market and unemployment in the US.

In an attempt to explain the growth of stock markets based on the rate of return, Golob and Bishop (1997) argued that most stock markets around the world have grown because investors have been getting adequate returns

for their investment. In models of economic growth, returns on investment depend on how much the economy produces and how this output is shared between those who work and those who own the capital (investors). The share of capital is perceived by investors as substantial returns on their investment. This bumper reward has continued to spur more investors into stock markets, resulting in growth of their transactions.

Lyare and Edo (1992) argued that the demand for securities is only one aspect of the stock market, they found that it correlates with the general level of economic activities. In other words, in times of economic prosperity there will be significant increases in demand for securities, while economic depression will bring about a decline in the demand for securities. Thus, a progression in economic activities leads to growth in stock markets' transactions.

Investigating the extent of correlation between economic growth and stock market development, Bonser-Neal and Dewenter (1999) used savings rate and noted that the extent to which stock market can have effect on savings returns depends on several factors including the risk of savings and the individual responses to changes in savings return and risk. Using a sample of 16 emerging markets over a two-year period 1982-1993, and with the following model they established that there is a significant correlation between private savings and stock market size and liquidity.

$$S = \alpha + \beta z + \gamma SMD + \epsilon \quad \text{where:}$$

S = private gross savings;

z = economic factors determining savings,

SMD = stock market development.

Some researchers in the area of stock market growth including Mussa and Goldstein (1993), Levine and Zervos (1998) and Calderon-Rossell (1991) all presented various factors that contribute to the development and growth of stock markets. Mussa and Goldstein (1993) stated that foreign capital inflow has a positive influence on the development of stock markets. Also, Foreign Portfolio Investments (FPI) are capital flows that facilitate the purchase of securities in the equity markets of foreign countries by foreign investors and global financial market participants. Though FPIs are a phenomenon dating to the early 1980s they have attributed greatly to the boom in stock market activities; notwithstanding their accompanied repercussions on exchange rates and foreign reserves.

Levine and Zervos (1998) on the other hand expanded on their previous research by using data on 47 countries (1976 – 1993) to investigate whether well-functioning stock markets and banks promote long-run economic growth. Results from this study confirmed and added to results obtained from their previous work: both banking development and stock market liquidity are positively and significantly correlated with current and future rates of economic growth. Furthermore, stock market liquidity is a

robust predictor of real per capita GDP growth after controlling of a set of initial variables, the size of stock market does not have a significant link with long-run growth.

A basic partial equilibrium model of stock markets growth was presented by Calderon-Rossell (1991) in which he argues that the per capita GNP growth rate and liquidity (as measured by the turnover ratio) were the major determinants of stock market size. The empirical analysis of the model covered a set of 42 countries to include the main active stock markets in the world and with yearly observations from 1980 to 1987. Though the performance of the model may produce varying results from developed and developing markets; the empirical results were consistent with the main hypothesis of the model.

An analysis of the relationship between stock market and macroeconomic variables was undertaken by several researchers including Atje and Jovanovic (1993), Pagano (1993), Murinde (1996) and Greenwood and Bruce (1997). This analysis was performed within the framework of endogenous growth models. These models depicted the effects of feedback between financial growth and economic development. Their findings support the argument of the Friedman hypothesis that share price behaviour influence policy actions. In the Friedman hypothesis, a rise in

prices of shares predicts an increase positive wealth and negative substitution effect on demand for money.

With a simple (ΔK) endogenous growth model, Pagano(1993) illustrates the financial development-economic growth relationship to be $Y = \Delta K$ where Y is the aggregate output, which is a function of the aggregate capital stock, (K). The assumption is made in the model that fixed growth in population, and production of one good that is used either for consumption or investment. Gross investment is therefore stated as (Pagano, 1993):

$$I = K - (1-\sigma)K$$

where K is the human and physical capital, and the depreciation rate is σ . A closed market economy is assumed in this model where the capital market equilibrium (costs of intermediation) is achieved at the point when gross savings (excluding transaction costs) equals gross investment, $\Delta S = I$

Defining growth at $(t+1)$ as $g_{t+1} = ((y_{t+1})/(y_{t-1})) = ((k_{t+1})/(k_{t-1}))$, then a stable state can be defined as (Pagano, 1993); $g = \frac{\Delta x}{y} - \sigma = \Delta S - \sigma$

From the above model, Pagano then suggested that growth is affected by financial development through savings rate (S), the social marginal productivity of investment (Δ) and proportion of savings channelled for investment (ϕ).

Murinde (1996) also analysed the association between stock market development and economic growth. He extended the studies of Pagano (1993) and starting with the proportion of savings channelled to investment, he defined the behavioural functions of the derived model to be (Murinde, 1996):

$$\log \theta = \theta_0 \theta_1 BR + \theta_2 SR + \mu$$

where BR = return in bond market;

SR = return in the stock market; and

μ = white noise error term.

Then, social marginal productivity of capital (Green et al, 2000):

$$\log A = \lambda_0 + \lambda_1 \log(K/Y) + \varepsilon$$

where K/Y = capital-output ratio; ε = white noise error terms.

Savings ratio is given as: $\log S = \tau_0 + \tau_1 MR + v$

where MR = return in the money market;

v = white error term.

On the basis of the above, the growth model is specified as (Green, et al):

$$G = \alpha_0 + \alpha_1(K/Y) + \alpha_2 MR + \alpha_3 BR + \alpha_4 SR + \eta$$

The test of this model was made using data from Philippines, Thailand Hong Kong, Indonesia, Singapore, Korea and Malaysia for the period 1960 to 1993. The outcome of the The Zellener's model test showed a significant role of emerging markets in accounting for growth but on the contrary a weak support of the role of emerging markets to economic.

Using a pooled cross-section and time series estimation, Boutchkova and Megginson (2000) found that the number of privatisation deals (share-

offerings plus assets sale), is significantly and positively associated with stock market growth. They also indicated that indirect evidence shows that the impact of privatisation programs on stock market has been very significant. Moreover, these firms often account for very large portion of the total national market capitalization. El-Wassal (2002) confirmed that privatised companies are the first and second most valuable companies in many emerging markets.

Arestis, et al (2001) using data from developed countries, examined the relationship between banking system development, stock market development, stock market volatility, and the level of output in the long-term. Their results showed that the contribution of stock markets on economic growth might have been exaggerated by studies that use cross-country growth regressions. The researchers used quarterly data from (Germany, U.S.A., France, U.K., and Japan) on real GDP, the ratio of domestic bank credit to nominal GDP, stock market capitalization to GDP, and stock market volatility. They conducted their empirical investigation in a Vector Auto Regression (VAR) framework. The emphasis of their study was more on the contribution of stock markets and banking systems to long-term output growth rather than the contributory factors to stock market growth.

Realistically, when lending rates are rising, borrowers will borrow less amounts of funds from the banks. An increase in the lending rate will reduce the profitability of investment. Therefore, firms may decide to forego such investment. Beckett and Morris (1992) explained how the cost of bank loans can affect the level of activity in the stock market. They explained that the high cost of loans affect the amount of loans borrowers can borrow. Firms may therefore go to the stock market and consequently improve the level of activity in the stock market.

Scrutinizing the association between the growth of stock markets and economic development through the consumption side, Poterba and Samwick (1995) tested the predictive effect using the following model:

$$\Delta \log c = \alpha_0 + \alpha_1 (\Delta \log p) + \gamma (\Delta \log d) + \varepsilon$$

$\Delta \log c$ = growth rate in real per capita consumption,

$\Delta \log p$ = lagged changes in real share prices,

$\Delta \log d$ = the lagged change in dividend payments for the stock.

The outcomes of these studies indicated that share prices do have a significant extrapolative power for future consumption spending.

An investigation was made by Levine and Zervos (1998) on the effect of international capital control liberalization on the functioning of stock markets. With six indicators and two conglomerate indexes of stock market development and data on 16 emerging economies, they first

examined the time series properties of each stock market indicator (the stationarity of each series). Also applying the Unit Root Test, they identified event dates of major policy changes affecting portfolio flows. Finally, they compared the means of each series before and after the policy event date to gauge the effects of the policy on stock market development. The results suggested that stock markets become larger, more liquid, more internationally integrated, and more volatile following the liberalization of restrictions on capital and dividend flows.

From all the above arguments and counter arguments, stock market development indicators can be summarised to include size, liquidity and the degree of international integration.

Size – The market capitalization measures the size of the stock market and is calculated as the value of listed domestic shares on domestic exchanges divided by GDP. Market capitalisation is regarded by many as the key indicator of market development, though markets with high capitalisation do not necessarily imply effectiveness.

Liquidity indicators -Two related measures of market liquidity can be used: Turnover and Value Traded. Turnover measures the volume of domestic equities traded on domestic exchanges relative to the size of the market. Most often, high turnover is associated with low transaction costs.

Essentially, a large stock market is not necessarily a liquid market: large but inactive market may have large capitalization but small turnover.

Value traded is measured by the value of the trades of domestic shares on domestic exchanges divided by GDP. While not a direct measure of trading costs, theoretical models of stock market liquidity and economic growth directly motivate Value Traded (Levine, 1991; Bencivenga et al., 1995), value traded measures trading volume as a share of national output and is expected to positively reflect liquidity on an economy-wide basis. Demirguc-Kunt and Levine (1996) show that Value Traded may be importantly different from Turnover. Value traded on one hand captures trading relative to the size of the economy, and turnover on the other hand measures trading relative to the size of the stock market. In this regard, a small, liquid market may have high turnover but small value traded.

International integration measures - Besides liquidity and size, the degree of integration with world financial markets is a powerful indicator of stock market development.

In conclusion, Mark Mobius (1998) says, 'Emerging markets may be a euphemism but it is also a declaration of hope and faith'. He further explains that although some of the stock markets of developing nations may sometimes seem "submerged", they are generally emerging into bigger and better things.

Mark Mobius (1998) outlines five types of risk involved in emerging market investment: *Political, Financial, Investment, Transactional, and Systemic*. This leads the researcher to the final section of this chapter which considers theoretical literature on the impact of Economic and Political factors on share prices.

3.6 Economic And Political Factors And Share prices

Traditional finance theory predicts a positive relationship between expected returns and risk, where risk is measured by the volatility associated with investment returns. This postulation is based on the investor's risk aversion function and assumes that investment returns are at least lognormal. More importantly, the empirical formulation of the return-generating process, in the sense of Fama (1965), assumed that the residual term in the market model is identically and independently distributed about the mean of zero. However, the impact of changes in the level of risk on expected returns has become the focus of extensive research in the past two decades. Virtually all of these studies employ financial data from the U.S. stock market with most of them presenting compelling evidence about the impact of heteroscedasticity on the wealth of investors. Some of the studies that employed U.S. data are Pindyck (1984), French et al (1987), Bollerslev, Chou and Kroner (1992). These studies tested for the presence of autoregressive conditional heteroscedasticity (ARCH) or changing volatility in stock return process in stock markets. The common objective

was to verify the effect of structural economic, cultural and political changes on share prices in these emerging capital markets. Stock markets in all economies play an important role in economic development. However, in most developing economies, there exist environmental as well as regulatory barriers to the performance of these markets. The extent to which share prices are hindered by such changing policies may indicate the degree of investor wealth constraint.

Kearns and Pagan (1990) applied the ARCH model to the Australian market while Poon and Taylor (1992) tested the relationship between returns and volatility in the United Kingdom. Emerging economies and budding capital markets are fraught with several regulatory restrictions that further cause thinness in trading. Consequently, imposition of structural adjustments often presents a more than disproportionate shock in the overall market structure. The Ghanaian stock market possesses several of these constraints. The Ghanaian stock market has no official market makers. Commission rates are strictly regulated, and banks are not allowed to take positions in stocks. Transactions are settled only in cash further constricting the volume of transactions. The Ghanaian Securities and Exchange Commission prohibits the short selling of securities or explicit margin trading by investors. In addition, it rigidly controls "undesired" volatility in prices. As a result, the Ghanaian stock market possesses all of the frictions that would cause a market to depart from the standards of a

perfect price-setting situation. It therefore presents all the elements of a thin capital market, a condition that is characteristic of several developing economies. Cohen et al (1986) argued that thinness manifests itself in drift share prices which cause transaction returns variance to be systematically larger than quotation returns variance. In addition, Amihud and Mendelson (1987, 1989), and Bollerslev et al (1992) have all suggested that trading mechanism, which may be a result of government policies as outlined above, potentially affects the behaviour of share prices. Ayadi (1991) confirmed this observation in an empirical study of market efficiency using Nigerian stock market data. The preceding background provides the impetus to formally explore the relation between the economic changes and share prices in the Ghanaian stock market.

A review of literature on risk shifting and returns distribution existing asset pricing models, such as the Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Theory (APT), predict a positive relationship between asset returns and risk. For a long time, however, researchers discounted the impact of changes in the level of risk on expected returns. Merton (1980) noted the presence of heteroscedasticity in security returns but ignored the influence of investment performance. Pindyck (1984) observed that much of the decline in share prices in the United States during the 1970s was attributable to rising risk premiums brought about by increases in volatility. However, Poterba and Summers (1989) explained that the time

series properties of volatility make it impossible for Pindyck's empirical results to hold. Mandelbrot (1963), Fama (1965), and French, Schwert and Stambaugh (1987), all found that serial correlation in asset prices causes return distribution to have fat tails. These studies also concluded that large (small) changes in asset prices tend to be followed by large (small) changes of either sign. Other factors identified as pertinent to volatility changes are nonsynchronous trading patterns Scholes and Williams (1977), and financial crises and recessions Fama (1965); French and Roll (1986); Schwert (1989). The widely documented day-of-the-week effect has also revealed that stock market volatility tends to be higher on Mondays than on other days of the week, apparently due of the quantity of information arriving over a 72-hour weekend period compared to 24 hours for other trading days. The literature also presents evidence showing that high levels of nominal interest rates and inflation are associated with high market volatility Christie (1987); and Glosten et al. (1993). Earlier, Black (1976) discovered that the volatility of security returns rises (falls) as share price drops (rises). This leverage effect in asset return volatility would suggest that a decline in share prices relative to bond prices increases leverage and the variance of stock returns in the current period.

Bonser-Neal and Dewenter (1999) observed that investors tend to show growing interest in some emerging markets and this depends on the prospects for rapid financial reform, economic development, and the

benefits from international diversification. Also, Kawakatsu and Morey (1999) attributed the development of the emerging stock markets to institutional changes, with particular reference to changes in laws that permit foreigners to invest in the markets without any legal restrictions.

Uppal and Han (1994) based their studies on the Karachi Stock Exchange and they contended that emerging stock markets show evidence of a strong relationship between stock returns variance and the changes in the market environment. They explained that emerging stock markets are characterized by several institutional, political and economic changes of a magnitude not seen in the developed markets. Of a greater interest is the thesis of Hsu (1984) which revealed that general investment climate and political events can cause shifts in market return variability. Hsu presented empirical evidence to support the hypothesis that the market environment plays a role in the non-stationarity of the variance of stock returns.

Evidence in all of this literature lead us to hypothesize that the time series behaviour of share prices can be significantly influenced by changes in economic and political environmental factors. This study does not explicitly tests this hypothesis though briefly examined earlier in chapter two.

CHAPTER THREE**Part B: Theoretical And Empirical Literature On Emerging Stock Markets**

	Page
<i>3.7 Introduction</i>	<i>110</i>
<i>3.8 Some Literature on Emerging Markets</i>	<i>111</i>
<i>3.9 Macroeconomic Variables in Emerging Markets</i>	<i>117</i>
<i>3.10 Information Efficiency in Emerging Markets</i>	<i>121</i>
<i>3.11 Thin Trading in Emerging Markets</i>	<i>128</i>
<i>3.12 Accounting Information in Emerging Stock markets</i>	<i>133</i>
<i>3.13 Summary and Hypothesis Formulation</i>	<i>139</i>

Part B: Theoretical and Empirical Literature on Emerging Markets**3.7 Introduction**

In this section the theoretical and empirical literature on emerging stock markets are reviewed. This chapter focuses on the previous literature relating to market efficiency and examines the relationship between stock markets and macroeconomic policy framework. In order to stay focused, even though an examination of the main microstructure issues of emerging markets could be of interest, it is deliberately overlooked in this study. An exploration of issues relating to some microstructure issues such as trading systems, cost of trading, volatility and liquidity and their relation to market efficiency could be a fascinating venture for further research. Furthermore a review is made of previous literature on accounting information and information efficiency in emerging markets. In terms of division, the chapter examines Macroeconomic variables, Accounting Information, Information Efficiency and thin trading in emerging markets.

3.8 Some Literature on Emerging Markets

In almost all usage of the term, 'emerging market' denotes immaturity, weakness and underdevelopment. The negativity associated with emerging markets includes the incidence of thin trading, political risk caused by frequent government changes, currency risks and government intervention. Sinclair et al (1996), defined an emerging market simply as a market that is not developed. This underdevelopment is probably the reason why researchers have not paid much attention to these markets prior to the 1980s. Further definitions and explanations of emerging markets are considered in chapter 4. Meanwhile, general relevant and interesting literature on emerging markets is reviewed in the ensuing paragraphs.

Champ (1996) documented some negative comments made by a market professional about emerging markets. The political, economic and social volatility of these markets are too excessive. The market infrastructure is primitive. For example, the auditing standards in most of these markets are not at par with international standards. Moreover, the cultures are not generally shareholder friendly as in most matured markets. International investors would have to overcome all these obstacles in order to benefit from international portfolio diversification.

Interestingly, Richards (1996) reported results which suggest that there is little evidence that volatility of returns in emerging markets increased in the past

decade. These results are especially true after the respective countries had gone through some economic reform.

According to Errunza (1994), the motivation for research on emerging markets is the possible benefits of diversification into these markets by international investors. Thus, little is known about the price determination process as well as the return behaviour and how these markets compare with markets in industrial economies. It is a generally held view that the stock market plays a major role in the promotion of savings and the investment needed for economic development. Moreover, the stock market is believed to be an efficient allocator of capital in an economy. Furthermore, improved capital allocation is a catalyst for the overall economic efficiency.

Koot and Padmanabhan (1993) observed that the distributional characteristics of share price series on an emerging stock market can be substantially different from those of the developed markets. The reasons could be as a result of differences in culture and socio-political environment as well as the level of economic development. This is an area of emphasis in this research. The effect of economic factors on share prices is considered in chapter 2 of this study.

Champ (1996) identified some critical characteristics of a 'good' emerging market. These include a measure of how well the economy is managed, a well-articulated regulatory environment and the existence of a market valuation

model that works. There is currently a substantial and growing body of knowledge that indicates possible benefits of diversifying into emerging markets. But knowledge of these markets is still little. There is need for more research efforts in the direction of exploring the characteristics and investment potentials of the emerging markets. The thirst for knowledge about these markets provides the driving force behind this research. It is to this end that this researcher reviews the structure and behaviour of the Ghana Stock Exchange in chapter five.

Papaioannon and Duke (1993) identified four stages of development for financial markets. In the first stage is a market in a country which has achieved a degree of stability in economic and political arenas. In such an economy, the stock market is just being accepted as a necessary economic infrastructure. The second stage involves loosening of regulations in the domestic capital markets. At this stage, one observes increases in market liquidity and risk-adjusted returns. In the third level of development, the capital market provides prospects of higher, less volatile security returns. At this point, there is an increase in trading volume and subsequently, an increase in the level of market efficiency. In addition to these, the currency and derivatives markets would be in their formative years. In the final stage, securities' risk premia fall to internationally competitive levels relative to short-time money market rates. Thus, the equity market will operate at a much higher maturity level.

Feldman and Kumar (1995) observed that all emerging markets should not be considered homogeneous. According to the authors, there are significant size and structural differences among them. Moreover, it has been documented that market institutional characteristics could cause return behaviour to deviate from expected behaviour, Roll (1983). Claessens et. al (1995) also reported results which indicate that emerging markets have a variety of institutional features which could influence return behaviour. The peculiar and distinguishing characteristics of the Ghanaian emerging stock market are described and analyzed in chapter 5.

Platt (1997) made an investigative approach to identify the distinguishing characteristics of emerging markets. More specifically, Professor Platt applied multivariate statistical analysis to determine the predictive characteristics of a functioning stock market in developing countries. His results indicate that emerging markets are mostly found in middle-income countries, and that emerging markets are weakly correlated with developed stock markets. Moreover, a significant portion of securities market volatility is explainable by volatility in macroeconomic variables. Platt argued that the volatility of securities' returns are larger in emerging markets than in matured markets. His results are also consistent with International Finance Corporation's practice of classifying markets using per capita income.

Ayadi, Dufrene and Chatterjee (1998) examined whether the anomalous 'turn-of-the-year effect' reported for many matured stock markets is also present in low-income emerging markets. The authors focused exclusively on Ghana, Nigeria and Zimbabwe representing the low-income emerging markets in Africa. The statistical tools applied to test stock return seasonality are Kruskal-Wallis, Friedman, Wilcoxon-Mann-Whitney Tests and the dummy variables regression analysis. The results indicate no return seasonality in both Nigeria and Zimbabwe. Ghana's results are suggestive of a slight presence of January effect. Given that Ghana is the most open to international investors of the three markets studied, the authors attribute the findings to the international spill over from Britain.

Uppal (1994) investigated changes in the volatility of stock returns on the Karachi Stock Exchange (KSE) during the liberalization program in Pakistan. His results showed that the variance of the weekly changes in the General Index increased significantly following the opening of the market to international investors. Subsequently, the volatility of changes in the index stabilized at a higher level. Using stock market return series, Uppal (1994) found no change in variance both before and after the liberalization program. A test of market efficiency indicates that the KSE is informationally efficient. The author infers that the shift in the variance of index changes is related to the shift in the market regime rather than to economic and political events.

Roger (1996) examined the securities return patterns on the Bombay Stock Exchange (BSE) and the New York Stock Exchange (NYSE). The objective was to explore the investment opportunities available to international portfolio investors. His results indicate the presence of return patterns on the BSE. The return patterns on both exchanges are found to have some similarities too. As to the nature of seasonality on the BSE, Roger found that December provides the highest mean return compared to the other months of the year. Finally, both markets were found to be segmented.

Agbetsiafa (1998) examined two channels of financial intermediation in the presence of imperfect information in some selected developing economies. The focus of this paper was to determine the link between financial intermediation and economic growth. One of the theses in the financial literature is that financial intermediation serves as a catalyst in the saving- investment process. This author provided an extension to this thesis by throwing some light on how financial contracts and institutions affect economic growth and development and at the same time explain how economic development elicits the creation and modification of financial contracts. The results in Agbetsiafa (1998)'s paper supported the supply-leading intermediation for most of the sampled economies. Thus, despite governmental intervention in the financial markets in these countries, the financial intermediaries have helped to mobilize domestic resources for economic growth and development.

3.9 Macroeconomic Variables and Share Prices in Emerging Markets

Empirical research on emerging markets is still in the infancy, therefore foreign investors tend to treat all emerging markets as a homogenous asset, Aitken (1998). For instance, Kim and Singal (2000) observed that investors are reluctant to hold stocks in emerging markets due to the high volatility of share prices in these markets.

Studies by Mckinnon (1973); Pagano (1993); Murinde (1996); Boyd and Smith (1997); Levine and Zervos (1996); and Caprio and Demirgüç-Kunt (1998) all pointed to the belief that stock market development stimulates economic growth through its impact on various macroeconomic variables including, savings, productivity of capital, and investment. Greenwood and Bruce (1997) viewed from a reverse angle that, stable macroeconomic policies create a conducive environment for the development of stock markets. They argued that stable macroeconomic policies facilitate stable growth of the real sector, which in turn ensures prospective business environment and higher investment returns.

Other studies including Fama (1981), Kual (1987), Marshall (1992), Bodnar and Gentry (1993), Bartov and Bodnar (1994), Liljeblom and Stenius (1997) and Hess and Less (1999), all analyzed the relationship between share prices and macroeconomic variables such as growth of GNP, unemployment, yield spread, interest rates, inflation, exchange rate, monetary aggregates, external

market activities and other real economic activities. They further examined the response of stock markets to announcements of policy changes.

While proponents of the growth model; Mckinnon and Shaw (1973); Pagano (1993); Atje and Jovanovic (1993); Murinde (1996) and Greenwood and Bruce (1997) examined the contribution of stock market to economic growth, others like Fama (1981); Geske and Roll (1983); Thorbecke (1997); Bodnar and Gentry (1993); Bartov and Bodnar (1994); Dhakal et al. (1993), based on equilibrium asset price models, equilibrium money market models and economic growth models, examined the relationship between the stock market and the macroeconomic variables. They suggested an indirect relationship between macroeconomic variable and the share prices, through their impact on expected future cash flows, discount factor, and returns on competing financial assets. These models therefore indicate a vague relationship between stock market development and macroeconomic variables.

The relationship between the stock market, particularly share prices and the macroeconomic variables may also be explored in the context of the EMH prediction that efficient share prices incorporate public information instantaneously, including expected policy actions, thus defining semi-strong form efficiency. The subject of market efficiency (the EMH) is discussed in the latter part of the chapter with particular emphasis on emerging markets and accounting information.

The empirical evidence provided by the studies mentioned above showed that macroeconomic variables have strong effects on share prices. With respect to most macroeconomic variables, national stock markets are said to be informationally inefficient. If the market is inefficient with respect to information, then it has important implications both at the micro and macro levels. At the micro level, this implies that the individual investor can earn considerably higher normal rates of return from the stock market. At the macro level, it raises serious doubts on the ability of the market to perform its fundamental role of channeling funds to the most productive sectors of the economy.

Secondly, the developments in econometrics on the properties of time series have enabled researchers to investigate the relationship between integrated economic variables with ease and can provide precise estimates, in the sense that, spurious regression problems can be avoided. It has been noted that the traditional Granger (1969) causality test for inferring leads and lags among integrated variables will end up in spurious regression results, and the F – test is not valid unless the variables are cointegrated. Several tests for a unit – root(s) in a single time – series have been proposed (for example, Dickey and Fuller, 1979; Phillips and Perron, 1988). Unfortunately, however, the power of these tests is known to be very low against the alternative hypothesis of (trend) stationarity. Tests for cointegration and cointegrating ranks have also been developed, viz., error correction model due to Engle and Granger (1987) and the vector autoregression error correction model due to Johansen and Juselius

(1990). Unfortunately, these tests are cumbersome and sensitive to the values of the nuisance parameters in finite samples and therefore their results are unreliable, pointed out by Toda and Yamamoto, (1995) and Zapata and Rambaldi, (1997). The methodology that is applied to examine the nature of the causal relationship between accounting information and share prices is discussed in the chapter 6.

3.10 Information Efficiency in Emerging Markets

Fama (1970, 1991) defined an Efficient Market as the one in which "share prices fully reflect all available information". Fama (1970) identified three forms of Market Efficiency. In the weak form, no investor can expect to earn abnormal returns (i.e. returns other than those that are to be expected given the investment risk) by analyzing historical price data; in the semi-strong form, no investor can expect to earn abnormal returns by analyzing publicly available information; while in the strong form, no investor can expect to earn abnormal returns by analyzing information from whatever source.

The EMH hypothesis assumes that share prices incorporate all information such that changes in prices are only due to news or unanticipated events. It further assumes a perfectly competitive market with homogenous traders and no transaction costs. Furthermore, it presupposes that, unanticipated information is incorporated instantly. As a result, investors cannot use information available today to forecast tomorrow's share prices. Market efficiency is defined at three levels, weak-form efficiency, semi-strong efficiency and strong-form efficiency. Fama (1970) in the Efficiency Market Hypothesis (EMH) predicted the behaviour of stock returns. Fama (1991) also noted that share prices adjust to firm-specific information including investment decision, dividend changes, capital structure changes, and corporate control transaction. The issue under the researcher's consideration is

whether the same prediction can be applied in emerging stock markets. Do emerging stock markets exhibit similar general characteristics regarding the distribution behavior of share prices, as developed stock markets? While most of the literature is based on developed stock markets, little is known about the behaviour of stock returns in emerging markets especially during the evolution of and growth of these markets.

Some empirical studies test the EMH in terms of the null hypothesis that there is no serial correlation. The EMH predicts that series of price changes, and consequently series of stock returns, are uncorrelated with variables in the information set. According to Fama, (1981), and (1991), positive autocorrelation infers predictability of returns in the short horizon, while negative autocorrelation reflects predictability in the long horizon. However, Fama and French (1988) observed that some studies have inferred an efficient market by dismissing estimated small autocorrelation values as having no economic meaning, while predictability of returns is attributable to the slowly decaying stationary component of share prices.

Empirical results from studies conducted on various emerging markets showed varying evidence on stock return predictability. Chelley-Steeley and Pentecost (1994), by controlling for firm size, found that small firms in the UK market are inefficient while large firms are efficient. Lee et al (1998) rejected the

EMH with respect to non-European countries including Canadian and US financial markets. The results are consistent with the findings by Lee (1998) who used the mean-reversion hypothesis on Standard Poor's composite share price (US) that stock returns are predictable. Fama and French (1988) who used the regression-based method to demonstrate a negative autocorrelation for NYSE market found similar results. Gallagher (1999) using VAR method found support for the mean reversion hypothesis in various developed markets indicating predictability of share prices. However, studies conducted by Titman and Wei (1999); Koutmos (1999); De Santis and Imrohoroglu (1997); Titman and Wei (1999); on various emerging markets failed to confirm mean reversion in emerging stock markets.

Research on stock returns by Bekaert and Harvey (1997); De Santis and Imrohoroglu (1997); and Choudhry (1997) showed non-normal distribution for developing stock markets. This supports the general view that emerging markets may be characterized by non-normal distribution, Richards, (1996); this points to similarities in distribution of returns for both the developed and developing markets. Volatility clustering is also evident in developing markets. De Santis and Imrohoroglu (1997), using GARCH model and assuming Generalized Error Distribution (GED) of the conditional density function, showed predictability, clustering and persistence in conditional volatility of returns in emerging markets. Similarly, Fraser and Power (1997)

and Choudhry (1996) found evidence of volatility clustering, for both developed and emerging markets.

Song et al. (1998) used GARCH models to analyze the relationship between returns and volatility in the Shanghai and Shenzhen Stock Exchanges in China, and found that there exists volatility transmission between the two markets. Similarly, Booth et al. (1997) showed evidence of price and volatility spillovers among the Danish, Norwegian, Swedish, and Finnish stock markets. The EGARCH model describes the impact of good news (market advances) and bad news (market retreats). According to Booth et al (1997), volatility transmission is asymmetric and spillovers being more pronounced for bad than good news.

Koutmos (1999) applied the EGARCH model in testing for asymmetric response in five emerging markets including, Korea, Malaysia, Philippines, Singapore and Taiwan. He assumed a GED distribution to take care for the leptokurtic standardized residuals obtained from ARCH-type models. The study shows that in developing markets stock returns response to shocks are asymmetric. However, findings by Shields (1997) demonstrated non-existence of asymmetric response in emerging markets. Choudhry (1996) using the GARCH-M model confirmed that there is no time varying risk premium in several emerging markets and where it is significant the sign is negative,

indicating risk-averse investors. Interestingly, a significantly negative coefficient for Malaysia investors is found by Fraser and Power (1997), which they interpreted that investors in Malaysia are predominantly risk-lovers.

A study on the speed of share price adjustment to information in the Hong Kong stock market by Chan (2002) reported new findings on the speed of adjustment coefficient. Chan used the estimation model for price adjustment coefficient derived from a fundamental concept proposed in Amihud and Mendelson (1987) in which the observed price changes are partitioned into (i) intrinsic value changes and (ii) noise changes:

$$R_t = P_t - P_{t-1} = g [V_t - P_{t-1}] + u_t$$

Where P_t and V_t are in logarithms, R_t represents the observed return $P_t - P_{t-1}$ represents the observed price changes, and u_t is a white noise sequence.

Venkateswar (1997), researching on the adjustment of stock returns to earnings announcements in the Bombay Stock Exchange adopted the expectation model approach put forth by Benston (1967) and later refined by Gonedes (1971) and Forsgardh and Herten (1975). This expectation model may be stated as

$$AR = b_1 AR_{j,t-1} + b_2 AR_{j,t-2} + b_3 AR_{j,t-3} \quad \text{where}$$

$$b_1 = b_2 = b_3 = 1/3;$$

AR_{jt} = Annual earnings of firm j made known in time period t and

AR = Expected annual earnings for firm j in time t .

His study documents the adjustment of share prices to the release of earnings data in a developing country context. It suggests that earnings convey information of the stock market and share price reaction depends on the magnitude of the unexpected earnings.

Price discovery efficiency measures the ability of the market to incorporate quickly and correctly information into prices. Madhavan (1992) observed that a large enough call auction provides more efficient prices than a continuous market. This is because as more traders participate in auction asymmetric information is reduced and prices tend to reflect the asset value. Amihud et al. (1990) made similar observations in Milan stock exchange. However, in Tel Aviv stock market, Amihud et al. (1997) found with improved efficiency of the value discovery process the new continuous auction trading system. Share prices were found to adjust faster to market information while noise in share prices declined. Thus, with the gained efficiency share prices were made more informative. Chang et al. (1999) using the variance ratios however found price discovery to be more efficient in call than in continuous auction.

To conclude, Murinde et al (2000) noted that the empirical tests fail to support the random walk and martingale processes as proposed by the EMH, while there is no evidence that a deterministic chaos process defines the share prices. Both developed and emerging markets show evidence that returns are

predictable, leptokurtic, and with volatility clustering. Murinde et al (2000) confirmed that various factors are attributed to predictability of stock returns in emerging markets including the microstructure characteristics such as thin trading, the behavior of investors which could be used to portray rational or irrational behavior, and the determinants of share prices including both fundamental and non-fundamental factors. However, given the differences in institutional and policy environments in which emerging markets find themselves, the empirical literature is not conclusive as to whether these factors tend to show dominance across the markets.

3.11 Thin Trading in Emerging Markets

With a total number of only 25 listed companies in the Ghana Stock Exchange, the market could be experiencing low trading volume, resulting in wide bid and ask quotes and very little stock to buy or sell. Such could be the feature of emerging markets and therefore faced with the associated problems of thin trading or non-trading. A market in which trading volume is low could also be illiquid. This is supported by Mobarek and Keasey (2000), who examined the weak-form market efficiency of an emerging market, using the Dhaka Stock Market of Bangladesh, indicated that most of the less developed markets suffer with the problem of thin trading. They recommended that the problems of non-trading could be overcome by considering the individual company's daily share returns. This recommendation is questionable.

Bhattacharya, Daouk and Welker (2003) examined the world price of earnings opacity and showed that earnings management in a country is linked to a decrease in trading in the stock market of that country. Brooks, Faff, Fry and Rey (2004) investigated the empirical performance of an alternative beta risk estimator, which is designed to be superior to its conventional counterparts in situations of extreme thin trading in Latin American Stock markets. They demonstrated the empirical behaviour of the selectivity corrected beta estimator using a sample of shares in seven countries in the emerging Latin American markets. They indicated that the selectivity-corrected beta does

correct the downward bias of the OLS estimates and is likely to better estimate stock risk. Brooks, Faff, Fry and Rey (2004) demonstrated how this is adjusted by estimating the beta using the market model as well as by the Dimson (1979) model: $r_{it} = \hat{\alpha}_i + \hat{\alpha}_{i-2} r_{mt-2} + \hat{\alpha}_{i-1} r_{mt-1} + \hat{\alpha}_{i0} r_{mt} + \hat{\alpha}_{i1} r_{mt+1} + \hat{\alpha}_{i2} r_{mt+2} + e_{it}$ using least squares to estimate the Dimson beta from the relationship: $\hat{\alpha}_{i \text{ DIM}} = \sum \hat{\alpha}_{ik}$

The Dimson approach treats the thin trading problem as being caused by asynchronous movements in individual stock returns as compared to the market return. This they said, is overcome via the inclusion of lead and lag terms. They examined the Dimson beta with selectivity correction to assess the impacts of correcting for two elements of thin trading, both censoring and synchronicity.

While Errunza and Losq (1985) suggested that lower degree of market efficiency in less developed countries might be due to thin trading and discontinuity in trading; Butler and Malaikah (1992) suggested market inefficiency could be due to institutional factors such as thinness of trading, illiquidity in the market and market fragmentation.

Several other studies including Fowler, Rorke and Ridding (1979), Scholes and Williams (1977) and Dimson (1978) proved that the problem of thin trading was not a distinguished feature of only emerging markets.

Fowler, Rorke and Ridding (1979) in demonstrating the use of out of date prices introduces error in both the dependent and independent variables so that regression estimates of β_i may be biased and inconsistent, implied that, for thinly traded securities, R^2 will be low and the regression may exhibit heteroscedasticity. Fowler, Rorke and Jog (1978) went further to demonstrate the pervasiveness of the thin trading phenomenon, noting that on the Toronto Stock Exchange (TSE) as a whole only 6% of the securities can be considered to be “fat” and that of the securities in the TSE 300 index only 20% are similarly fat. Other authors have also become aware of the problems of thin trading. Dimson (1978) investigated the problems associated with thin trading with respect to the London Stock Exchange while Scholes and Williams (1977) have used New Stock Exchange data.

Fowler, Rorke and Jog (1979), examined the heteroscedasticity, R^2 and Thin Trading on the Toronto Stock Exchange with irregular and infrequent transactions. They investigated the effects of trading frequency on the residual behaviour of the Market Model. They found evidence of heteroscedasticity and low R^2 and a noticeable dependence of these with frequency of trading in the underlying shares.

In both the Australian market and the Canadian market, Brooks, Faff, Fry and Gunn (2004) and Brooks, Faff, Fry and Bissoondoyal-Bhecnick (2004) found

that thin trading introduces a censoring problem that leads to OLS estimates of beta risk being downward biased. Brooks, Faff, Fry and Gunn (2004) argued that the problems with thin trading can be overcome by using a sample selectivity model to estimate betas. If this issue is present in developed and relatively liquid markets such as Australia and Canada then it is likely to be accentuated for the emerging and illiquid markets of Africa, Ghana.

The observations made by Gallagher (1999), Fisher (1966), Scholes and Williams (1977), Koutmos (1999), Papachristou (1999) and De Santis and Imrohoroglu (1997) summarise the literature on thin trading and the efficiency of emerging markets. While Gallagher (1999) observed that deviation of the market value of stock from their fundamental values, with a reversion to their mean, could be explained by such theories as noise trading, limited arbitrage, fads, and speculative bubbles; Fisher (1966), Scholes and Williams (1977), Koutmos (1999) attributed the presence of serial correlation in returns to non-synchronous trading in portfolios of small stocks and thin markets. Papachristou (1999) and De Santis and Imrohoroglu (1997) introduced a lagged return variable in the conditional return model, to capture serial correlation induced by thin trading. Cochran and De Fina (1995) and Lee (1998) attributed predictability of stock returns to the activities of noise traders and inefficiencies in pricing of securities. Shefrin and Statman (1994) deduced existence of price efficiency in the presence of noise traders, using a

behavioural theory of CAPM and the volume of trade. Lee (1998) concluded that predictability of excess stock returns is a fad rather than a bubble factor.

In conclusion, a market with low trading volumes as purported by Mobarek and Keasey (2000) could also be illiquid. Most of the less developed markets including the Ghanaian Capital Market, suffer with the problem of thin trading. The suggestions of Errunza and Losq (1985) and Butler and Malaikah (1992) that market inefficiency could be due to thin trading will be considered in interpreting the results of this study which examines a market characterised with thin trading.

In studying the efficiency of the Ghanaian Capital Market using some market models, it would be borne in mind that the use of nonsynchronous prices in thinly traded securities leads to low R^2 values and as such the explanatory power of accounting information could be low. Thin trading may bias the results of this study. In the light of thin trading in Ghana the interpretation of the results from this study may be affected by the unavailability of adequate data. Thinness and discontinuity in trading in less developed markets (like Ghana) according to Errunza and Losq (1985), may result in a low degree of efficiency, thus affecting the interpretation of the analysis of the impact of accounting information on the stock prices.

3.12 Accounting Information in Emerging Stock markets

The growth of the global economy has led international investors, banks, brokers and fund managers to invest significant amounts of capital into emerging capital markets (ECMs). Surprisingly, there is limited research on the nature, characteristics and financial reporting standard and policies of these capital markets. Saudagaran and Diga (1997) addressed criteria for evaluating the financial reporting standards of emerging capital markets. Their criteria include the availability, reliability and compatibility of the financial reporting. They found that ECMs tend to have lower levels of disclosure than more developed markets because of the different information requirements. More than one half of the ECMs tend to adopt the International Accounting Standards (IAS). However, the reliability and compatibility of financial reporting in those countries is still an issue of interest since each market has a different environment and economic culture. Saudagaran and Diga suggested that research on financial reporting in the ECMs should consider the implications of various financial reporting policies on the political, economic and socio-cultural conditions and adequacy of the disclosure. Although each market has similarities in infrastructure such as the promulgated regulations, and the presence of market policy setters and accounting policy standard setters, the nature of the markets are different. Investors should not assume that all markets react to a specific event or utilize information in the same manner.

Although there is no doubt about the impressive growth of stock markets in the emerging economies over the last two decades, little is known about the impact of accounting information on share prices in emerging markets. There is little study of the information content of accounting variables in the emerging markets. Vachajitpan (1991), Srisawadi (1996), Graham, King and Bailes (2000), Naktabtee (2000) all investigated the implications of accounting information in the Thai Capital Market, using different methodologies. The results indicated that there is a positive association between earnings and share prices. Cheng and Yang (2000) found in their study of emerging markets that both earnings and cash flows have more incremental information content when they are relatively more permanent.

Al-Haddad (1989) showed that there was no relation between earnings growth, book value growth, stock turnover and stock return in the Saudi Stock Market. Almotaury et al (1995) stated that, cultural differences account for the non-use of financial information by Saudi investors. Butler and Malaikah (1992), however, attributed the inefficiency to the illiquidity, market fragmentation, trading and reporting delays, and the absence of official market makers. It is reported by Almotaury et al (1995) that the majority of Saudi investors do not reflect the companies' financial position and profitability.

Tsuyoshi (1997) examined the relationship between share prices and macroeconomic variables in Zimbabwe. He shows, using the revised dividend discount model, error correction model, and multifactor return generating model that increases of share prices in the Zimbabwe Stock Exchange can be explained by the movements of monetary aggregates and market interest rates. Habibullah et al. (1996) showed that share prices in Malaysia cannot be predicted using as predictors output and the money supply.

Although emerging markets share common characteristics, they do not constitute a homogeneous set of economies. Aitken (1996) suggested that investors, lacking local knowledge about each individual country's fundamentals may treat these markets as if they belong to a unique class, thus failing to take advantage of existing arbitrage opportunities. Therefore understanding the fundamentals underlying share prices in these markets is also important to the market development. Specifically, the study investigates questions regarding the relationship between accounting information and share prices in emerging equity markets. Ross (1989) pointed out that volatility is directly linked to the rate of information flow.

Examining the returns for the stocks traded on the NYSE during years from 1926 to 1968, Fama and MacBeth (1973) found empirical evidence consistent with prediction from the CAPM.

However, studies in the 1980s' find that stocks are also related to some variables that are not predicted by the CAPM. Banz (1981) documented that firm size, measured by the market capitalisation of common stocks, explains the cross-section of average returns after risk premiums associated with stock betas are accounted for.

The larger the firms, the lower the returns are. Stattman (1980) showed that firms' book-to-market ratio of equity plays an important role in explaining the average returns. This finding is further confirmed by Rosenberg et al. (1985). Both studies find that book-to-market ratio of equity is positively related to stock returns. He found that this variable is positively correlated with stock returns after the effects of stock betas and firm size are controlled for. Jaffe et al. (1989) re-examined the association between stock returns and price-to-earnings ratio and size by treating January as a special month. They found that the earnings-to-price effect is significant in both January and the rest of the year. However, the size effect is significant only in January. Furthermore, he showed that firms with negative earnings have significant higher returns than other firms after the size effect is controlled for. Finally, Bhandari (1988) examined whether stock returns and its effect on risk should have been captured by the stock betas. However, Bhandari (1988) was able to report a positive association between leverage and stock returns after accounting for the effects of size and Betas on stock returns.

Fama and French (1992) argued that the size, book-to-market ratio of equity, earnings-to-price ratio, and leverage can be regarded as different scaled versions of firms' share prices. Therefore, when these variables are used together in explaining the stock returns, some of them should become redundant. Based on the stock returns for firms listed in NYSE, AMEX, and NASDAQ during the period between 1963 and 1990, their tests reveal that size and book-to-market ratio of equity provide explanatory power to the ex post stock returns incremental to other variables, but not vice versa. Fama and French (1992) also showed that the relation between the beta estimates and stock returns is actually flat, although the stock beta should be the only theoretically correct determinant of stock returns. Therefore, the positive relation between stock returns and betas documented by Fama and MacBeth (1973) could be specific to the sample they examine.

Capaul et al. (1993) extended the tests to six major stock markets in the world. They found that portfolios of stocks with high book-to-market ratio (i.e. their "value" stocks) outperform those of stocks with low book-to-market ratio (i.e., their "growth" stocks) in each country they examined. Fama and French (1998) further extended the tests to thirteen developed markets and sixteen emerging markets. They found that the book-to-market premium is pervasive in the international stock markets. And their results from the emerging

markets also confirmed the evidence on the size effects from the US stock market.

The above studies clearly show that stock returns are reliably related to some easily measured variables. However, it is important to note that these studies are empirically motivated. There is no guarantee that the effect of some factor would be the same in different markets. For instance, the significance of the size effect is sensitive to model specification in Chan et al's (1991) study on Japanese stock market, although it has survived a battery of tests using the U.S data. Since the stock market in Ghana is relatively young and less known to the academic researchers, what determines the cross – sectional variation of stock returns in Ghana's emerging market is an interesting empirical issue to explore.

3.13 Summary And Hypothesis Formation

Studies conducted by Amir et al (1993), Gore and Stott (1998) and Abuzar and Khalid (2001) all have evidenced that managers and investors alike, have a tendency to find indicative measures of their company's performance. To this end, countries around the world, the professional accounting bodies and stock exchange authorities require companies to disclose summary performance measures, such as Return on Equity (ROE), Cash Flow (CF) and Earning Per Share (EPS). The informativeness of these measures have long been an area of interest for accounting researchers.

According to (Fama (1965), Beaver (1970), Beaver & Dukes (1972), Board, Day and Walker (1989), Brown and Kennelly (1972), and Ball (1972), Griffin and Landsman (1982), Day and Walker (1989), Bernard and Stober (1989), Livnant and Zarowin (1990), Dechow (1994), the association between share price and accounting information can be used to infer market participants' perceptions of the properties of accounting information including their relevance and reliability. Other earlier studies including Beaver and Dukes (1972), Rayburn (1986), Wilson (1986, 1987), and Bowen et al. (1987) also showed that an association need not mean that investors actually use the information in making their investments and trading decisions; it may simply reflect some common information with other accounting measures that are used by investors.

Fields et al. (1998); Gore and Stott (1998); Vincent (1999), Garvey and Milbourn (2000), Biddle, Bowen and Wallace (1997) and Cates (1998) and Kenneth et al (1996), Rappaport (1994), Hamel (1997), AL - Ehrbar (1997), Teitlbaum (1997) and Stewart (1991) all examined the relative information content of some accounting measures such as earnings and Funds From Operations (FFO). They have concentrated on discovering which of the accounting measures has a higher association with share prices.

Lev (1989), Arnold et al (1991), Easton and Harris (1991), Ali and Zarowin (1992), Harris et al. (1994), Ohlson (1995), Ali and Hwang (1998), Joos (1998), Ball et al. (1998), and other researchers also examined the role of accounting information in capital markets. Notwithstanding the importance of accounting information they also suggest that accounting information is of limited relevance even to residual risk bearers.

Most of these empirical studies reviewed including Frost and Pownall (1998), Frost and Kinney (1996) Hall, Hamao and Harris (1994), Jensen and Litzenberger (1970), and Kaplan and Roll (1972); Harris et al (1994); Dumontier and Labelle (1998), Davis Friday (1998); Gordon (1998); Easton et al (1993); Barth and Clinch (1998); Ball & Brown (1968); Brown (1970); Firth (1981); Forsgardh and Hertzen (1975); and Knight (1983); all concentrated on the highly developed economies with effective and efficient

markets such as Australia, United States and the United Kingdom. Other early literature and empirical studies by Dickinson and Muragu (1994), Dyckman et al (1975), Forsgardh and Herten (1975), Frost and Pownall (1998) supported the basic hypothesis that the existence of an efficient market is important for a valid relation between the variables and can affect the results of studies between the dependent and independent variables. They investigated the correlation among accounting measures of performance on one hand, and their association with stock market prices on the other.

There is limited research on the information content of accounting variables in the emerging markets. Vacharajittipan (1991), Srisawadi (1996), Graham, King and Bailes (1998), Kanogporn (2000) and Cheng and Yang (2000) all investigated the implications of accounting information in the Thai Capital Market. Other studies on emerging markets include Al - Haddad (1989), Ali et al (1995) and Almotairy et al (1995) on the Saudi Stock Market; Ysuyoshi (1997) on the young Zimbabwean Stock Market; and Habibullah et al. (1996) on the Malaysian Sock Market.

In sum, majority of previous researchers who studied the association between accounting data and capital market values (share prices and returns) focused mainly on:

- examining the value-relevance of earnings and book values in equity valuation,
- comparing the incremental explanatory power of earnings with that of book values,
- comparing the explanatory power of earnings and book values across countries, and
- comparing the value relevance of earnings and book values generated based on different sets of accounting standards in the same country.

Accounting research has largely targeted on whether accounting standards add value for investors or other stakeholders. Most of the studies like Kothari (2001) examined the relation between accounting information and share prices. The most significant conclusion from these previous studies is that the financial reports that are being published under regulation provide new and relevant information to investors. Furthermore, the previous researches (Collins and Kothari, 1989, Easton and Zmijewski, 1989, Alford et al., 1993, Ball et al., 2000a) showed that the informational content of required accounting diversifies systematically depending on firm and country characteristics.

From another perspective, several other literature has created widespread impression that financial statements providing accounting information have lost their value relevance because of a shift from a traditional intensive

economy into a high-technology, service-oriented economy. These studies provide evidence for a decline in the level of relevance of earnings and other financial statement items. Using different approaches, studies by Elliott and Jacobsen (1991); Jenkins (1994); Ramesh and Thiagarajan (1995); Chiang and Venkatesh (1988); Lev and Zarowin (1999); Francis and Schipper (1999) and Brown, Lo, and Lys (1999) all found that in developed economies like the US, the value-relevance of accounting information was in the decline. They argue that the relations between stock between share prices, earnings and book values have deteriorated over time. These studies examined the association between a combination of earnings and book values and contemporaneous share prices or returns. These researchers mentioned above all view the R^2 or coefficient on the explanatory variables in these regressions as a reflection of value-relevance. Collins et al, (1997), Francis and Schipper (1999), and Ely and Waymire (1999) also examined the relation between returns, earnings and book values. They found that while the relation between returns and earnings has deteriorated, this has been offset by an increase in the value-relevance of book values. However, Chang (1998) argued that these findings are sensitive to the authors' research design choices.

Dontoh, Radhakrishnan, and Ronen (2004), in their quest to confirm the declining value-relevance of accounting information applied the Collins, Pincus and Xie (1999) approach, which was also based on the Ohlson (1995)

model. This model expresses the share price as a function of its earnings and book value after controlling for the differential accounting information conveyed by the loss and profit firms and is given by

$$MV_{it} = a_{0t} + a_{1t}BV_{it} + a_{2t}NI_{it} + a_{3t}DL_{it}BV_{it} + a_{4t}DL_{it}NI_{it} + error_{it}$$

Where MV_{it} is the market value of firm i in year t three months after the fiscal year-end, BV_{it} is the book value of equity of firm i at fiscal year-end t , NI_{it} is the earnings before extraordinary items of firm i for the fiscal year ending in year t , and DL_{it} is an indicator variable that is one if the earnings is negative and zero or otherwise.

In light of the above, this study attempts to examine the association between the share prices and accounting information (earnings and book values) in the Ghanaian Capital Market. This study is expected to shed some light on the interactions of these variables and their usefulness to investors in a developing economy like Ghana. This study, also, sets out to help the accounting bodies in Ghana identify the variables that correlate with share prices and as such promote their disclosure to the investing public.

Cohen and Manion (2000) noted the formulation of hypotheses and testing them is one approach used in historical research such as this. Cohen and Manion (2000) also noted the role of generating hypotheses as one 'method' that can be applied in qualitative studies which involve recording and

analyzing accounts of events and social episodes. The use of hypotheses should not be considered as only for quantitative studies as they have useful roles in many approaches, Black (2002). Kerlinger and Lee (2000) suggested two criteria for acceptable hypotheses:

1. hypotheses should be statements of possible relationships between variables, and
2. these statements should imply how they are to be tested.

To this end therefore and following the above discussions the hypotheses below are formulated to test the impact of accounting information on share prices in emerging markets, using the Ghana Stock Market as a case study.

H₁ "The announcement (Publication) of accounting information has significant impact on share prices in the Ghana Stock Market".

H₂ There is significant relationship between accounting earnings and share prices in the Ghanaian Stock Market.

H₃ There is significant relationship between Book Values and share prices in the Ghanaian Stock Market.

In examining the above hypotheses, the argument of Paulo (2002) is seriously taken into consideration. Paulo argued that in a non-EMH world, the validity of using the CAPM as the basis for the calculation of EVA is questionable because the CAPM is derived from the EMH and is dependant upon the

existence and functioning of the EMH. Numerous studies over more than a decade have shown that using the CAPM and beta is an undesirable way of calculating the cost of capital and should not be used for valuation purposes, and this sentiment has been very clearly and unambiguously stated by Fama and French (1992, 1996). Thus, in a non-EMH market like the Ghana Stock Market, the basis for the calculation of EVA, namely CAPM and their use is not being considered in this research because of the possible poor relationship between the cross section of returns and the systematic risk coefficient, beta. The formulation or adoption of a model is therefore considered in chapter five in view that Ghana is an emerging market.

In conclusion, current knowledge on the behaviour of stock returns in the emerging markets comes from stocks of large firms in developed markets since the databases available to the researchers typically cover these large firms. For example, the Emerging Market Database of the International Finance Corporation (IFC) is frequently used by researchers to examine the emerging market. Examples include, Harvey (1995); Fama and French, (1998); (2001). The IFC only selects large stock for inclusion in the data base since it targets “60 percent of the total market capitalisation of the country and 60 percent of firm size indicates that the 60 percent sampling criteria should have excluded more than half of the stocks in the population. The results could thus be biased. Taking advantage of all available data, this study covers the

population of stocks of all firms listed in Ghana. Therefore, it also contributes to the finance and accounting literature by examining an emerging market in a complete and thorough manner.

A further review of models used by earlier studies in this type of research form part of the discourse on methodology in chapter 6 sections 6.7 and 6.8.

CHAPTER FOUR

AN OVERVIEW OF EMERGING STOCK MARKETS PERFORMANCE

	Page
<i>4.1 Introduction</i>	<i>149</i>
<i>4.2 Emerging Market Definition</i>	<i>150</i>
<i>4.3 Emerging Market Classification</i>	<i>155</i>
<i>4.4 Review of Emerging Stock Markets Performance</i>	<i>157</i>
<i>4.4.1 World Emerging Stock Markets: Asia, Latin America and Europe.</i>	<i>157</i>
<i>4.4.2 African Emerging Stock Markets</i>	<i>162</i>
<i>4.4.3 Sub-Saharan African Emerging Stock Markets</i>	<i>166</i>
<i>4.5 Summary and Conclusions</i>	<i>170</i>

4.1 Introduction

This part of the project, which is captioned '*An Overview of Emerging Stock Markets Performance*'; examines the definition and classification of emerging markets around the world. The chapter also reviews and describes the growth and performance of stock markets in emerging countries in Asia, Latin America and Europe with much attention on Africa and Sub-Saharan Africa. The chapter is divided into three parts.

Part 1 (4.2); considers various definitions of emerging markets.

Part 2 (4.3); gives a general classifications of emerging markets.

Part 3 (4.4); a general overview of emerging markets performance is undertaken, with a more detailed appraisal of the African and sub-Saharan African markets.

Part 4 (4,5); a summary of the overall performance of emerging markets.

4.2 Emerging Market Definition

The International Finance Corporation (IFC) defines emerging stock markets (ESMs) in various ways. One definition refers to a market that has begun a process of change which involves growth in size and sophistication, IFC (2000). Another definition refers to a market in a developing economy. The term "emerging market" according to IFC (1997) implies a stock market that is in transition, increasing in size, activity, or level of sophistication. Furthermore, the Emerging Markets Factbook, IFC (1999) indicates that the term is most often defined by a number of parameters that attempt to assess a stock market's relative level of development and/or an economy's level of development. Divecha, Drach and Stefek (1992) defined Emerging Stock Markets in terms of the following attributes: (a) securities that are traded in a public market; (b) An undeveloped market as defined by countries within the Morgan Stanley Capital International Indices; (c) the market is of interest to corporate investors worldwide; and (d) has a reliable data source

The IFC further classifies emerging markets into three categories by following the World Bank classification of economies as low-income, middle-income and high-income. In 1999, a low-income emerging market is located in an economy whose GNI per capita is \$755 or less. A middle-income emerging market exists in an economy whose GNI per capita is between \$756-\$2,995 and upper-middle (\$2,996-\$9,265). Finally, a

developing economy whose GNI per capita is greater than \$9,266 is said to possess a high-income emerging market. This definition has been adopted in most of the academic research, Fifield et al (1998). However, a review of the emerging markets literature shows a marked difference between how both academics and practitioners define emerging market. Practitioners use a more narrow definition than that of the IFC. Practitioners tend to focus on those markets where the purchase and sale of securities by global investors is achievable in practice, and where investments are made in an orderly and relatively safe manner. For example, Mark Mobius, President of Templeton Emerging Markets Fund, declared that emerging markets are those that are not part of the United States, United Kingdom, Canada, Australia, and the Far East, if they meet the following criteria: 1) There is a fully functioning stock exchange; 2) Foreign portfolio investors have access to securities; and 3) There is a free repatriation of capital and income or alternatively, the currency is convertible. Practitioners also consider other factors when deciding on what constitutes an emerging market such as, politics that can play a role in such definition.

In general, Standard & Poor's Emerging Market Data Base (EMDB, 2001) classified a stock market as "emerging" if it meets at least one of two general criteria: (i) it is located in a low- or middle-income economy as defined by the World Bank, and (ii) its investable market capitalization is low relative to its most GNI figures. Until 1995, EMDB's definition of an

emerging stock was based entirely on the World Bank's classification of low and middle-income economies. If a country's GNI per capita did not achieve the World Bank's threshold for a high-income country, the stock market in that country was said to be "emerging." More recently, this definition has proved to be less than satisfactory due to wide fluctuations in dollar-based GNI per capita figures. Dollar-based GNI figures have been significantly impacted by severe swings in exchange rates, especially in Asia. Moreover, reported GNI figures, which take significant time to prepare, are often out-of-date by the time they are released.

Accordingly, EMDB (2001) adopted new criteria for a market to graduate from index coverage. To graduate from index coverage, GNI per capita for an economy should exceed the World Bank's upper income threshold for at least three consecutive years. The three-year minimum limits the possibility that the GNI per capita level is biased by an overvalued currency. Based on 1999 data, economies with a GNI per capita of \$9,266 and above were classified as high income countries. The same figure in 1998 was \$9,361 and \$9,656 in 1997, demonstrating the impact of economic downturns and currency devaluations on the statistics.

Another typical characteristic of an emerging stock market according to IFC (1999) is its relatively small investable market capitalization relative to gross domestic product. The IFC explains that investable market

capitalization is a market's capitalization after removing holdings not truly "in the market" for foreign portfolio investors. Non-investable holdings include, but are not limited to, large block holdings and parts of companies that are inaccessible due to foreign investment limits. For a market to graduate from index coverage it should have an investable market capitalization-to-GNI ratio in the top 25% of emerging markets for three consecutive years.

Emerging markets were defined by Khambata (2000) and grouped into four categories as follows:

Group 1 – those markets at their early stages of development who have just few companies listed on the exchange. Such markets have little capitalization, low liquidity, high concentration, and high volatility with relatively basic institutional set up;

Group 2 – This group has more companies listed, higher liquidity, some amount of interest from foreign investors, but with a relatively small equity;

Group 3 – This group has a less volatile market return, a significant volume of issued shares with an accelerated growth in trading activities, coupled with an expanded capitalization and an increasing interest in developing mechanism to remove risk;

Group 4 – This is a more mature market with high liquidity and trading volumes, a considerable financial depth and an equity risk premium which is close to international competitive levels.

In summary, two criteria must be met for a market to graduate from EMDB Index coverage: i) GNI per capita must be in the high income economy range for three consecutive years, and ii) the investable market capitalization-to-GDP ratio must be in the top 25% of emerging markets for three consecutive years. New markets being added to EMDB Index coverage must have GNI per capita levels below the upper income economy threshold defined by the World Bank in at least one of the last three years. Therefore, stock markets that retain or introduce investment restrictions such as foreign limits, capital controls, extensive government involvement with listed companies, and other legislated restraints on market activity, particularly on foreign investors, are generally considered emerging markets. Again, IFC (1999) indicates that the pervasive investment restrictions on foreign portfolio investment should not exist in developed stock markets, and their presence is a sign that the market is not yet "developed."

There are also many qualitative features to consider about specific stock markets. Areas such as operational efficiency of stock markets, quality of market regulation, supervision and enforcement, corporate governance practices, minority shareholder rights, transparency, and level of accounting standards are important characteristics for investors to consider in their tolerance for any specific emerging market exposure.

4.3 Emerging Markets Classification

Although emerging markets share common characteristics, they do not constitute a homogeneous set of economies. According to IFC, emerging markets can be divided into four groups. The first group consists of countries with markets in the prime stages of growth, with just a few listed companies, high concentration, low liquidity, small capitalization, volatility, and a relatively unfavourable institutional framework. Several countries in Africa and Eastern Europe are included in this group (e.g. Morocco, Romania and Tunisia). The second group consists of countries that have higher market liquidity and a wide variety of listed companies. Although global investors have begun to participate in these markets, they are still small in relation to the economy (e.g. Brazil, Colombia, India, and the Philippines). The third group contains countries with less volatile market returns that have experienced a rapid increase in trading activities and the volume of issued shares. In addition, market capitalization expands considerably, and there is more interest in developing mechanisms to remove risk (e.g. Argentina and Chile). The last group includes the more mature markets, with very high liquidity and trading activity and considerable market breath. These markets enjoy equity-risk premiums that are very close to internationally competitive levels (e.g. Korea and Mexico).

Emerging markets can also be classified by their geographical location. Table 7 below shows the geographical location of emerging markets across

the world as reported by the International Finance Corporation (IFC, 2000). They have been classified under various geographical locations as Asia, Latin America, Middle East/Africa and Europe. Another grouping is the Frontier Emerging Markets consisting of countries with low GNI per capita.

Table 7: Emerging Market Classification

<i>Latin America</i>	<i>Asia</i>	<i>Europe</i>	<i>ME& Africa</i>	<i>Frontier Markets</i>
Argentina	China	Czech	Bahrain	Bangladesh
Brazil	India	Republic	Egypt	Botswana
Chile	Indonesia	Greece	Israel	Bulgaria
Colombia	Korea	Hungary	Jordan	Cote d'Ivoire
Mexico	Malaysia	Poland	Morocco	Croatia
Peru	Pakistan	Russia	Nigeria	Ecuador
Venezuela	Philippines	Slovakia	Oman	Estonia
	Sri Lanka	Turkey	Saudi Arabia	Ghana
	Taiwan		South Africa	Jamaica
	Thailand		Zimbabwe	Kenya
				Latvia
				Lebanon
				Lithuania
				Mauritius
				Namibia
				Romania
				Slovenia
				Trinidad
				Tunisia
				Ukraine

Adopted from IFC (2000)

4.4 Review of Emerging Stock Markets' Performance

4.4.1 General Performance of Emerging Markets Worldwide

The last 20 years of capital market history have witnessed a dramatic expansion of opportunity for global investors, led primarily by emerging markets in Asia, South America, Africa, the Middle East, and Eastern Europe. ESMs now exist in about 70 developing countries all over the world. The emerging equity markets all over the globe have grown rapidly from tiny, fledgling markets with little volume and limited international participation to significant and impressive markets with huge trade volumes and providing an important source of capital. The major factor in the growth of these emerging markets could be the fundamental shift in the global political environment.

One of the most significant changes in the world financial markets over the past two decades has been the growth of emerging markets around the world. In 1990 for instance, emerging markets surveyed by IFC had a combined market capitalisation of US\$604 billion. That figure increased to \$1.9 trillion in 1995 and to \$3 trillion in 1999 but fell slightly to \$2.7 trillion by the end of 2000 reflecting in part the worldwide slide of equity markets. In the same year 2000, developed markets experienced a similar decline of 10.4% to \$29.52 trillion. Overall, the market capitalisation of emerging markets represented 8.5% of the world total market capitalisation in 2000, the same as in 1999. Emerging markets also posted strong positive

returns in 1999, ending the Asian market crisis that affected most developing equity markets in 1997 and 1998. Over the years, emerging markets also show increased share prices, which could be attributed to increased demand as argued by Kim and Singal (2000). The S&P/IFCI regional index for Asia gained 70.5% in 1999, while its Latin American and Middle East/Africa counterparts rose 56.9% and 49.1% respectively (IFC, 2000). The overall slide in world equity market was also reflected in the performance of the emerging markets' prices, with all of them, Asia, Latin America, Middle East/Africa and Europe falling by 44.6%, 16.7%, 13.9% and 41.1% respectively. A comparison with the developed markets shows a similar fall of 10.1% in the US, S&P 500; 16.8% in the UK, FTSE 100, and 34.7% in Japan, Nikkei 225.

A casual review of the performance of ESMs by Kumar and Tsetsekos (1999) indicates a growing competition with the developed markets. Using the ratio of the market capitalization to GDP to measure the size of the market, the review shows some emerging markets are larger than the developed markets (Table 8 refers).

Kumar and Tsetsekos (1999) suggested that developing economies are growing in their capacity to raise capital through the stock markets and therefore enhances the ability to the diversification of risk, Bonser-Neal and Dewenter (1999). Also, the liquidity of the market which is measured by the ratio of value traded to market capitalization; do show that in terms of

liquidity, some emerging markets could be more liquid than the developed markets. This is a signal of a gained momentum in the growth and development of emerging markets.

Table 8: Performance indicators for emerging stock markets (ESMs) and developed stock markets (DSMs), 1980-1992

<u>Variable</u>	<u>DSM</u>	<u>ESM</u>	<u>F-value</u>
<u>Ratio of Value traded to Market Capitalization (1)</u>	<u>.0346</u>	<u>.3022</u>	<u>.1267</u>
<u>Ratio of Market capitalization to GDP(2)</u>	<u>.3729</u>	<u>.1546</u>	<u>16.18**</u>
<u>Real Market capitalization per firm(3)</u>	<u>5.1568</u>	<u>2.7295</u>	<u>157.80**</u>
<u>PE ratio(4)</u>	<u>17.7233</u>	<u>14.6504</u>	<u>3.2170*</u>
<u>Real dividend yield(5)</u>	<u>0.0372</u>	<u>0.0406</u>	<u>3.5740*</u>
<u>Real market capitalization(6)</u>	<u>0.2107</u>	<u>0.2970</u>	<u>4.0200**</u>
<u>1 = measure of market efficiency</u> <u>2, 3 = measure the size of the market</u> <u>4, 5, 6 = indicator of the pricing mechanism</u> <u>Note: Significance level of univariate F-test for differences in mean value *** 1% level;</u> <u>**5% level; *10% level.</u>			

Source: Kumar and Tsetsekos (1999)

Following the Asian and Mexican economic crises, there have been concerns raised as to whether these upward trends reflect existence of rational speculative bubbles. Chan et al. (1998) surveyed some Asian markets including Korea, Japan, Hong Kong, Taiwan, Thailand and Malaysia, and found that there is no proof of rational speculative bubbles. Conversely, Aitken (1998) admits a herd-like manner of foreign investors.

A brief review of the performance of these emerging markets in accordance with their geographical classification is being considered. In terms of market weights in the S&P/IFCI Composite index as at the close of 2003, Asia emerging markets constituted the largest of 38% followed by Latin America with 29% and Europe and the Middle East/Africa with 17% and 16% respectively. In terms of stock distribution, Asia controlled 54% as at end of 2003. Less than half of the total emerging markets stocks were controlled by Latin America, Europe and ME/Africa in the order of 17%, 16% and 13%. These distributions are depicted on Figures 2 and 3 below.

Figure 2

Market Weights in the S&P/IFCI Composite Index 2003

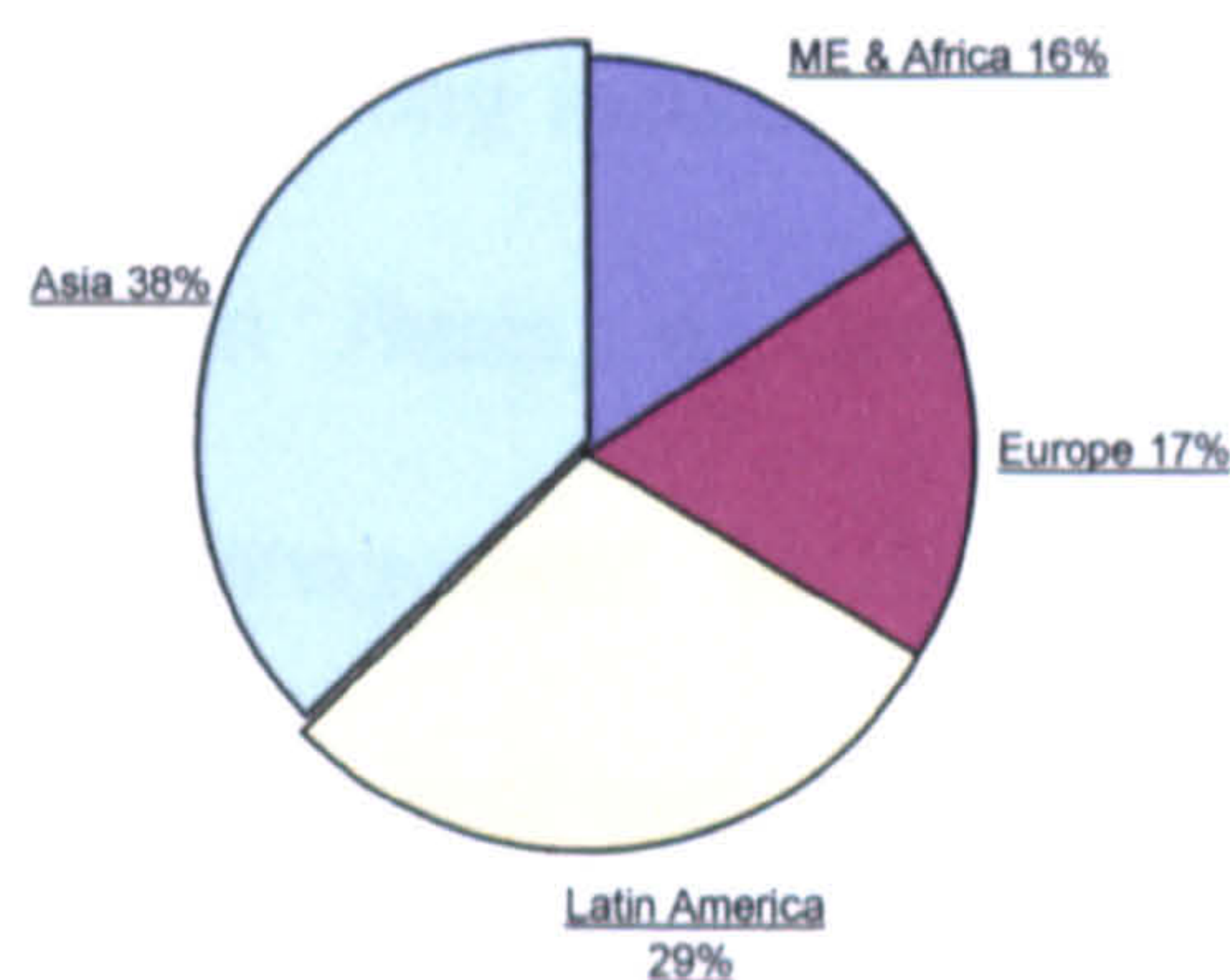
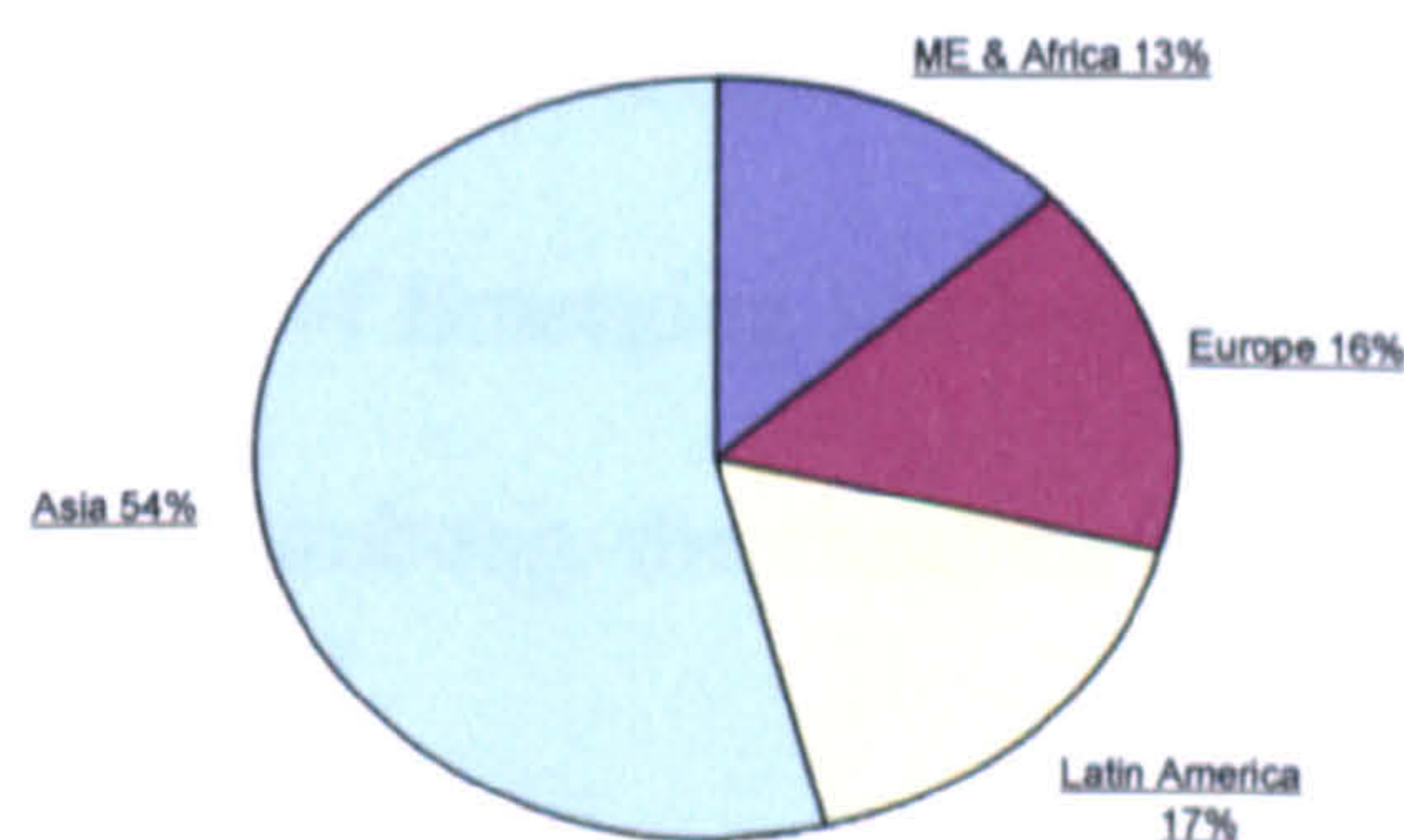


Figure 3

Stock Distribution by Region in the S&P/IFCI Composite Index (2003)



Among all the emerging markets, the Asia region seems to be the fastest growing in the world. China and India being the economic giants of the Asia region are attracting foreign investors as a result of their economic reforms. One could hardly disagree with Rama Krishna, director of Asian equity research at Alliance Capital Management in Tokyo who says, "Now is a great time to get into India."

Unlike the 1990's when Latin America was a quagmire of debt and dictatorships, the current political atmosphere could be the reason for the improved government accounts, control over inflation and better stock market performance. Share prices in emerging markets like Argentina, Chile and Hong Kong increased on average by 200% over the 1988-1993 periods. Steven Bates, a director of emerging markets at Fleming Investment Management in London says: "Some of the Brazilian companies are the best managed of any in our portfolio". The researcher agrees with Neumeier (1994) that it takes good management to survive in an environment of economic chaos. The Argentine stock market has suffered over the years but Mexico has suffered even more; rocked by social, political, and economic shocks all at once. Antoine van Agtmael (1993), President of Emerging Markets Management in Arlington, Virginia said: "Mexico is probably the cheapest market in Latin America."

4.4.2 African Emerging Stock Markets

Since the 1980s, many African countries adopted macroeconomic policies aimed at turning their economies around, largely from state-domination to market orientation - with little or no choice. Pursuant to this, the privatization policy has become a flagship policy instrument and most governments now believe in the powers of the free market to deliver economic growth and stability. The message sent by the World Bank has been constant: "For meaningful economic growth and a reduction in crippling budget deficits, African nations must privatize state-held assets". Following the examples of the western countries, most African nations began to diversify state assets. The transition from central planning to the free market led to a swift sell-off of state assets and a windfall for Africa's fledgling stock markets.

Ghana is a prime example. Six years into an aggressive privatization program launched in 1990, the government had disposed of 159 state-owned companies. As a result of the sell-off, the market capitalization of the Ghana Stock Exchange climbed from \$91 million in 1990 to \$2 billion by the end of 1995, and then to \$5 billion in 2000 and to \$14 billion by the close of 2003. It is relevant to note that between 1990 (date of inception) and 2000, the overall growth in the exchange was 1124.29% and was up by 4970.5% in 2003.

Thanks to the liberalization of investment laws, institutional investors in Asia, Europe, and the Americas are looking at African stock markets in a new light. Despite their volatility, these markets offer huge potential returns. The continent had eighteen exchanges by the end of 2000 with a combined market capitalization of \$265 billion.

In the year 2003, there were 20 stock markets in the Africa continent, three of which are in Arab North Africa. The leading markets, besides South Africa, are Nigeria, Zimbabwe, Kenya, Mauritius, Ghana and Cote d'Ivoire. South Africa and Mauritius offer unrestricted access to foreign investors, and in Ghana, share ceiling for foreigners is 74%, while in Kenya 49% and 40% in Zimbabwe, and Nigeria. However, despite selective opportunities and rich natural resources, Africa so far remains the poor in relation to other emerging markets. The continent accounts for about 12 per cent of market capitalisation of 75 emerging markets.

The performance of other stock markets in Africa has been remarkable. Kenya's stock exchange saw the market capitalization of its fifty-seven listed companies soar from \$1.06 billion in 1993 to \$2.02 billion in 1998. Kenya's share index rose from 2514 in 1993 to 2962 in 1998. The Nigerian Stock Exchange's (NSE) all-share index was up 37.3% in 1996 and 54% in 2000. Between 1985 and 1994, the number of corporations listed on the NSE jumped from 96 to 177. The dollar value of market capitalization of

the NSE has been quite erratic as a result of the variability in the dollar value of the Nigerian currency. The number of firms listed on the Zimbabwean stock market increased from 55 in 1985 to 64 in 1994. The success of these smaller African stock markets has encouraged other nations such as Malawi, Tanzania, and Uganda.

The African Emerging Market attracted interest of foreign portfolio managers. An investment firm Blakeney Management put it: "It's probably the biggest pool of undiscovered value outside the ex-Communist world". By the year 2001, there were six Pan African dedicated funds, targeted at sophisticated risk-tolerant investors with minimum investment ranging between US\$50,000 - US\$250,000. These funds invest in mostly the top 50 sub-Saharan listed companies like of Ashanti Goldfields, or Delta Corporation. The top 50 African blue-chips (with combined market capitalisation of US\$7.7 billion) are spread broadly between different sectors - natural resources, manufacturing, financial and services. Future flows of portfolio investment in these companies in 2002 were in the hands of investment funds such as Morgan Stanley Africa Investment Fund (US\$262m), Africa Emerging Markets Fund (US\$119m), Southern Africa Fund (US\$113m), Simba Fund (US\$32m), and GT Africa Fund (US\$21m). Africa remains a small component of the total emerging markets' portfolios. Assuming further liberalisation of capital markets and privatisation, the size

and number of African funds were expected to increase over the medium-term.

Africa remains untapped rich territory and there are a few bluechips offering good value and which are undervalued by international standards. Assuming improved economic fundamentals remain intact and market reforms continue Africa will also participate in the growth of emerging markets. The challenge for Africa is to integrate more rapidly into a globalised economy and hence benefit from increasing trade and investment.

Acheampong (1994), Ayadi (1994), Beehhakker and Unger (1995) and Album (1996) undertook an extensive discussion of the characteristics of the major African stock markets. In most African markets, the marketability of securities can be restricted thereby affecting their liquidity. The reliability of corporate disclosures is not verifiable and exchange rate fluctuations as well as currency devaluation are potential sources of risk. Moreover, many of the African corporations are heavily dependent on exports of agricultural and natural commodities and thus are susceptible to fluctuations in the world market. Political instability and the absence of market infrastructure are big risk factors that can significantly affect the level of international investors' participation in these markets.

Based on the foregoing, many of the African stock markets have unique characteristics that could dichotomize them from other stock markets in the other parts of the world.

4.4.3 Sub-Saharan African Emerging Stock Markets

In recent years, the financial services industry in a sub-Saharan African country like Ghana has been subjected to extensive and dynamic changes. The combination of economic and regulatory forces with an increase in competitive activities, have resulted in the upsurge in interest in marketing activities. Although the application of marketing concept arrived late in the banking and financial services, the increase in pressure on market players have required companies to seek what opportunities they can, by providing the customer with a more satisfying marketing offer. Associated ideological changes towards neo-liberalism have raised the value of consumer sovereignty in society which has had consequences for organizations and their relationship with 'external' customers. The legitimacy of marketing as a specialism has been raised as compared to other managerial/ professional groups. The author argues that by analyzing some selected variables, processes and elements, marketing strategies for an emerging stock market can be developed.

Sub-Saharan Africa is a region commonly known for its poverty and political instability. The past decades have seen significant economic reforms however, which are reflected in expanding equity markets. Compared with other emerging markets the sub-Saharan region is tiny: total market capitalisation in mid-1994 was under \$9 billion, compared with a market capitalisation of over \$250 billion in South Africa alone. With a capitalisation of \$1.85 billion, or just under 50% of GDP, Ghana's market is the biggest. Kenya and Zimbabwe come second with capitalisations of \$1.7 billion each. There are just fewer than 400 listed stocks in the region; the 25 biggest firms account for almost half of the total market. With 175 listed companies, Nigeria's equity market is perhaps the most developed. But its economic difficulties have resulted in low share prices: total capitalisation barely exceeds \$1 billion. With only four listed companies, Swaziland has the tiniest market in absolute terms. The total value of its companies as at the end of 1995 was \$270m, which is 30% of GDP.

The Nigerian Stock Exchange (NSE) was established as Lagos Stock Exchange in 1960, a private limited liability company. In 1977 the exchange was reorganized and renamed NSE, with trading floors in Lagos, Port Harcourt and Kaduna. The NSE set up three additional trading floors in Kano, Onitsha and Ibadan. In April 1985, the exchange introduced the Second-Tier Securities Market (SSM) for trading securities of medium-sized, wholly-owned Nigerian corporations.

The Bulawayo Stock Exchange opened in 1896 but closed six years later. The current Zimbabwe Stock Exchange (ZSE) was an outgrowth of the stock exchange that opened in Bulawayo in 1946 after the Second World War. The ZSE was formalized by the Zimbabwe Stock Exchange Act of 1974. The ZSE does not have a formal trading floor. Securities trading are based on a daily meeting (for a few hours) among brokers who "buy" and "sell" orders on the telephone.

The Panafrican News Agency (1996) in a treatise noted that the Zimbabwean stock market recorded a significant growth as a result of the central bank's move to increase foreign participation in the stock market. This was a move on the part of the Reserve Bank of Zimbabwe to revive investors' confidence subsequent to the serious uncertainty about the future of the economy. The Zimbabwe stock exchange was labelled one of the worst performers in 1993 by the International Financial Corporation after the market lost about 70 percent of its value. Since that time, the stock market has recovered. The market was rated in year 2000 as one of the top five performing markets in the emerging world.

The Nigeria Stock Exchange in 1997 recorded the highest value of public equity offerings in sub-Saharan Africa. On the other hand, South Africa recovered its superiority in 1998 when rights issues were taken into consideration. The JSE in 1997 and 1998 raised an amount 18 times larger than that of the NSE through public offers.

In the whole sub-Saharan African region, a total amount of \$3,69m worth of shares and rights were publicly offered. Of this amount, about 93% came from the JSE. A total sum of R4,029m (\$683m) were raised from the public through the IPO of Sanlam, which was South Africa's biggest ever.

Other parts of sub-Sahara Africa did experience the significant growth. The most impressive was Botswana where Medrescue was the first primary listing on the BSE since 1992. The Malawi Stock Exchange also showed a fairly steady growth during its short time of existence. Lastly but not the least, Tanzania also saw a growth but only at a slower pace.

In 1997, 4 times the amount raised from the combined offers of TPS (Serena), Athi River Mining and Kenya Breweries was raised from the offer for sale of KCB. This makes it difficult to draw conclusions on Kenya. With only one IPO, Zimbabwe has been relatively quiet with a deteriorating market condition since 1997. The total absence of public offers in 1998 in Mauritius suggests a bleak future as compared to other countries. Uganda has still not made any IPO while the restricted privatization of ZCCM in Zambia in 1998 limited the growth of the Lusaka Stock Exchange.

4.5 Summary And Conclusion

While investors may never see another year like 1993, when emerging markets delivered an average return of 67%, those with strong nerves and a good eye for value can still expect to outperform the S&P 500 by a wide margin. The interest of international investors in securities markets in developing countries has reached an unprecedented level. According to Mullin (1993), Gill and Tropper (1988), and Feldman and Kumar (1995), the interest is based on the outstanding return performance of these markets. For example, between 1990 and 1992, the equity returns in Chile and Mexico approached 50 percent. Mullin also reports returns exceeding 20 percent for Argentina, South Korea and Thailand between 1976 and 1992. Furthermore, Mullin notes that "the extraordinary equity returns registered by several developing-country markets have exceeded levels that can be explained by measures of ex ante risk and ex post macroeconomic performance." The same viewpoint has also been expressed by Beenhakker and Unger (1995).

In spite of the differences in their characteristics, emerging markets still provide international money managers opportunities to diversify risk and seek higher returns, Errunza (1994), Gill and Tropper (1988). On the other hand, cross-border portfolio investment flows represent a catalyst in the economic development efforts of developing countries. For example, Gill and Tropper report that between 1984 and 1988, emerging markets as a

group attracted about \$2 billion in cross-border portfolio investment from developed countries.

The stock exchange market in developing economies such as those in Africa, Ghana, are in principle no different from the organized stock exchanges in the advanced economies in terms of their day-to-day activities. With the rapid pace of technological advancement in the developed world, however, stock exchanges in emerging markets are relatively new and small and are possibly less efficient in comparison with the London or New York Stock Exchanges. While many of the African stock markets have only been established in the last decade, a few have longer histories, the oldest being Egypt's Cairo Stock Exchange, established in 1881. As at 2000, there were 20 exchanges and the number has been rising and is still expected to rise. The largest exchange, which is also ranked 12th in the world, is South Africa's Johannesburg Stock Exchange (JSE) with a capitalization of \$400bn. The Botswana Stock Exchange, with capitalization of under \$400m, is the smallest. Gains of 107.5 per cent in dollar terms have been reported in the Kenya Stock Market. Other exchanges with meaningful sizes include exchanges in Nigeria, Zimbabwe, Cote D'Ivoire and Morocco.

In sum, Mark Mobius (1998), a frequent commentator on emerging markets concluded, 'Emerging markets' may be a euphemism but it is also a

declaration of hope and faith. Although some of the stock markets of developing nations may sometimes seem "submerged", they are generally emerging into bigger and better things.'



CHAPTER FIVE

AN OVERVIEW OF THE GHANA STOCK MARKET

	<i>Page</i>
<i>5.1 Introduction</i>	<i>174</i>
<i>5.2 Brief History of Ghana and the Stock Exchange</i>	<i>175</i>
<i>5.3 Ownership and Structure of Ghana Stock Exchange</i>	<i>185</i>
<i>5.4 Trading and Settlement Systems</i>	<i>187</i>
<i>5.5 Recent Trading History</i>	<i>191</i>
<i>5.6 The Equity Market</i>	<i>196</i>
<i>5.7 The GSE Market Price Performance</i>	<i>200</i>
<i>5.8 The Bond Market</i>	<i>209</i>
<i>5.9 Summary and Conclusions</i>	<i>211</i>

5.1 Introduction

This chapter examines the Ghanaian Stock Market, which has basically two sections – the Equity and the Bond markets, which operate under the Ghana Stock Exchange (GSE). The chapter starts by outlining a brief history of GSE, to ensure an effective analysis in latter parts. The GSE ownership structure shall be described since it may have a bearing on the mode of operation of the Exchange. Next in this chapter will be an examination of the GSE trading and settlement systems. A description of recent trading history shall also be considered. A central issue in this chapter will be the descriptive analysis of the structure and performance of the Ghana Stock Exchange to gain a clear understanding and to effectively relate accounting information to share prices in subsequent chapters.

The chapter integrates an analytical framework with a synthesis of secondary financial and statistical data in order to depict a clear picture and perception of the exchange. The study also applies descriptive statistical tests guided by the analytical foundation and stylized facts of the Ghana Stock Exchange. The chapter is outlined as follows: 4.1) Introduction, 4.2) Brief History of Ghana and the Stock Exchange, 4.3) Ownership and Structure of Ghana Stock Exchange, 4.4) Trading and Settlement Systems, 4.5) Recent Trading History, 4.6) The Equity Market, 4.7) The GSE Market Price Performance, 4.8) The Bond Market, 4.9) Summary and Conclusions.

5.2 A Brief History Of Ghana and The Stock Exchange

5.2.1 Ghana

Ghana began an economic recovery program in 1983 and has undertaken a series of comprehensive macro-economic and structural adjustment reforms aimed at reversing the economic decline that characterized the economy for nearly a decade. The major aspects of these reforms include reducing government involvement in the economy, encouraging private sector development, eliminating exchange controls, and lifting virtually all restrictions on imports. One thing that has greatly expanded access to foreign exchange in Ghana is the establishment of an interbank foreign exchange market. Furthermore, the elimination of subsidies on local products indicates the government's intention to move toward a free market orientation for the economy.

Privatization of state-owned enterprises continues in earnest with the object of boosting the economy. Of a total of about 300 state controlled enterprises, the government of Ghana has divested itself of more than half since the mid-1980s. The government's sale of its shares in the two largest banks; the Social Security Bank and Ghana Commercial Bank, gave signals to other institutions in the banking sector to follow same.

To lay a firm foundation for private sector recovery by attracting foreign direct investment, the Parliament enacted the Ghana Investment Promotion

Centre Act of 1994 which established the Ghana Investment Promotion Centre (GIPC) as an autonomous agency mandated to encourage, facilitate and promote domestic and foreign investments. The Ghana Investment Code does not only offer guarantees against expropriation, but also encourages foreign investment by giving guarantees for the free transferability of dividends, loan repayments, and licensing fees, and the repatriation of capital. It also provides for dispute arbitration. Considering the importance of foreign direct investment on economic development, the Ghanaian Government encourages foreign investors by giving them national treatment on taxes, prices, access to foreign exchange, imports and credits; given the realization that donor assistance cannot be relied upon to sustain economic growth and development. The mining and manufacturing sectors attract the greatest of the foreign investments.

By the year 2002, 27 American firms, affiliates, and subsidiaries such as Volta Aluminium Company (VALCO) Ltd., Teberebie Goldfields Ltd., Regimanuel-Gray Ltd., and Starkist Foods had been established in Ghana and range of areas covered including accounting, consulting, banking, mining and manufacturing. With the unabated divestiture program, various state-owned firms are slated for divestiture, and with the recent expression of American companies' interest in Ghana, investments from the U.S. are expected to increase. The listing of Ashanti Goldfields Company, Ltd. (AGC) on the New York Stock Exchange (NYSE), brought Ghana into the

international financial markets. By the end of February 1996, Ashanti Goldfields remained the first African operating company to trade global depository receipts representing its common stock on the NYSE. The overall regulation and supervision of the banking and financial services market in Ghana has been the responsibility of the Bank of Ghana. A fiscal policy adopted by the Bank of Ghana in an effort to absorb excess liquidity and contain inflationary pressures was a high interest rate policy. While short term interest rates were between 25-35 percent, inflation which measured about 70% in 1995 dropped to 12% by the close of the year 2000. Nevertheless, Ghana achieved real economic growth of 4.5 percent in 1995, 3.2 percent in 2002 and 5.8 percent in 2004.

The country's high demand for imports led to the sharp depreciation of the local currency known as the cedi (¢). The Ghanaian cedi (¢) continued to lose value to the US dollar over several years in the 1990s. But from the year 2003, the value of the cedi became stabilised. However, the high rate of inflation resulted in an appreciation of the cedi's (¢) real exchange rate.

The United States of America is Ghana's third largest supplier of imports, behind Nigeria and the United Kingdom. Over the past five years to 2003, America's share of Ghana's total imports grew from 9% to more than 13%, and this trend is expected to continue. In 1996, of the total U.S. exports to the Sub-Saharan Africa, Ghana took the fifth largest share. By the end of

the third quarter of 1996, U.S. exports to Ghana had risen by nearly 60% over and above the same period the previous year, to \$178 million. This increase could be analysed to cover three major areas: machinery, wheat and rice. The mining and drilling machinery exports more than tripled; that of wheat more than doubled; and rice quadrupled. The key sectors for U.S. exports and investment include: mining industry machinery, construction and earthmoving equipment, food processing and packaging equipment, light trucks, automobiles, and vans, hotel and restaurant equipment, telecommunications equipment, computers and peripherals. Other exports which are basically agricultural exports include wheat, rice, and frozen beef, chicken, and turkey. On the other hand, the leading U.S. imports from Ghana include diamonds, cocoa, seafood, and timber.

In February 1996, the late Ron Brown became the first U.S. Secretary of Commerce to set foot on Ghanaian soil when he led a five-nation Commercial Development Mission to Africa. Due to the growing potential that the U.S. Government and private sector recognized in Ghana, the Department of Commerce opened a commercial office in Accra, making Ghana one of only five countries in Sub-Saharan Africa in which Department of Commerce personnel are stationed.

5.2.2. The Ghana Stock Exchange

Over the past two decades, many countries in Sub Saharan Africa undertook structural adjustment and financial sector reforms, designed to reverse the poor performance of their economies. Ghana is one of those countries that had undergone such reforms aimed at enhancing savings mobilization and credit allocation to the private sector. Since 1983 Ghana embarked on the transformation of her economy from a largely state controlled economy to a liberalized market economy. Ghana liberalized its financial markets in line with the general trend of economic policy liberalization. A fully-fledged capital market was instituted in 1990 with the formation of the Ghana Stock Exchange (GSE).

The GSE as an organized market in securities was incorporated in July 1989 under Ghana's Companies Code, 1963 (Act 179). The Exchange was given recognition as an authorized Stock Exchange under the Stock Exchange Act of 1971 (Act 384) in October 1990, and trading on the floor of the Exchange commenced in November 1990. From a modest beginning, the GSE has witnessed a marked growth over a decade of its existence. In GSE, individuals and companies can buy shares of listed companies through Licensed Dealing Members (Stockbrokers) of the stock exchange. GSE started trading with eleven listed companies in 1990 and got an addition of two listings per year through to 1996. Within four years from 1997 to 2000, only one company was listed, bringing the number of

listed companies to twenty-two by the close of 2000 and to 25 by 2003, (Table 9 below refers). The manufacturing and extraction sectors dominate the GSE followed by the banking and finance sector. A distant third is the food and drink sector. A large proportion of the listed companies on the GSE are Ghanaian with some few multinationals.

Table 9 - Listed Companies In GSE As At December, 2006

	COMPANY	DATE OF LISTING
1	Accra Brewery Company Limited	Nov. 12, 1990
2	British American Tobacco Company	Nov. 12, 1990
3	Enterprise Insurance Company Limited	Nov. 12, 1990
4	Fan Milk Limited	Nov. 12, 1990
5	Guinness Ghana Limited	Nov. 12, 1990
6	Metalloplastica Ghana Limited	Nov. 12, 1990
7	PZ Ghana Limited	Nov. 12, 1990
8	Standard Chartered Bank Ghana Ltd	Nov. 12, 1990
9	Unilever Ghana Limited	Nov. 12, 1990
10	Ghana Breweries Limited	Nov. 23, 1990
11	Mobil Oil Ghana Limited	July 23, 1991
12	CFAO Ghana Limited	March 12, 1992
13	Super Paper Products Co. Ltd	June 12, 1992
14	Mechanical Lloyd Company Limited	May 10, 1994
15	Ashanti Goldfields Company Limited	May 17, 1994
16	Home Finance Company Limited	March 17, 1995
17	Pioneer Aluminium Factory Limited	August 25, 1995
18	SSB Bank Limited	Oct. 13, 1995
19	Ghana Commercial Bank Limited	May 17, 1996
20	Alluworks Limited	Nov. 29, 1996
21	Camelot Ghana Limited	Sept. 17, 1999
22	Produce Buying Company Limited	May 19, 2000
23	Cocoa Processing Company	Oct 1, 2000
24	Trust Bank Limited (The Gambia)	Nov-15-2002
25	Sam Woode Ltd	Apr-24-2003
26	AngloGold Ashanti Limited	Apr-27-2004
27	Benso Oil Palm Plantation Limited	Aug-30-2004
28	CAL Bank Limited	Nov-05-2004
29	Starwin Products Limited	Dec-29-2004
30	Golden Web Ltd	Aug-29-2005
31	Ecobank Ghana Limited	Jul-07-2006
32	Ayrton Drugs Manufacturing Company Ltd	Aug-14-2006
<i>Source: Compiled from GSE Market Statistics (2006)</i>		

It is notable that there has been no delisting from the Exchange since its inception.

A company is said to be listed when its securities are approved to be bought and sold on the Stock Exchange. Any company, which wants its securities to be traded on the floor of GSE, must be listed with the Exchange. There are certain requirements that a company must meet in order to qualify for listing on GSE. These requirements are stipulated in the GSE Listing Regulations, 1990 (L.I. 1509). To make it possible for many companies to list on the Exchange, there are three lists with different requirements: the First Official List (FOL), the Second Official List (SOL) and the Third Official List (TOL).

A company applying for listing of any of its shares is, as a general rule, expected to meet certain requirements. It must have a stated capital of at least ₵100 million in the case of an application relating to the FOL, ₵50 million for the SOL and ₵20 million for the TOL. Also, the applying company must issue or offer for sale to the public, shares whose market value (as determined by the company's auditors at the time of application) is not less than ₵30 million in the case of an application relating to the FOL, ₵15 million for the SOL and ₵5 million for the TOL. The shares issued to the public must not be less than 25% of the number of shares issued by the company. Finally, but not the least, the company's shares must be fully paid for. Except in exceptional circumstances, the Exchange will refuse listing in respect of partly paid shares. New application and listing fees for all equities and bonds are as stated on Appendices 9 and 10.

As at September 2004, the Exchange had thirteen licensed brokers, which are subsidiaries of commercial banks dealing in the Exchange (Appendix 4 refers). As at December 2003 the GSE market capitalization had grown from ₵30.46 billion (US\$91million) in 1990 to ₵12,616.80 billion (US\$14 billion), with about 517 million shares traded between November 1990 and December 2003. Over the years of trading, many equities have performed remarkably well, sending the stock exchange index to significant heights. Tables 10a and 10b below summarize the volume/value of trading and market capitalization over the period 1990 to 2003.

Table 10a: History Of Market Activities 1990 To 2003

Year	Totals		Trades per Session		Year-end	Value of Listed Bonds	
	Volume Traded (m)	Value Traded (₵b)	Volume Traded ('000)	Value Traded (₵m)	Market Cap Equities (₵b)	Gov't Bonds (₵b)	Corporate Bonds (US\$m)
1990 (Nov-Dec)	0.22	0.00	18.50	5.36	30.46	5.00	-
1991	1.83	0.10	17.90	1.03	29.62	5.00	-
1992	2.04	0.17	20.65	1.75	43.75	5.00	-
1993	37.95	3.18	379.46	31.78	96.51	5.00	-
1994	93.04	73.09	715.67	562.22	1,968.43	5.00	-
1995	55.84	27.09	369.79	179.37	2,399.02	-	-
1996	35.75	27.88	232.14	181.03	2,862.72	-	2.55
1997	125.63	93.35	815.77	606.20	2,552.78	-	4.80
1998	91.41	134.01	605.61	887.50	3,245.61	-	6.80
1999	49.57	69.61	326.11	457.97	3,205.39	-	9.50
2000	30.72	50.62	202.09	333.04	3,655.04	-	11.01
2001	55.30	92.28	359.06	599.20	3,904.03	1,003.72	10.20
2002	44.12	89.41	290.20	588.23	6,183.84	1,326.94	10.98
2003	96.33	389.00	625.50	2,527.92	12,616.80	1,442.44	8.98
	719.75	1,049.79					

Source: Compiled from GSE Market Statistics (2004)

Table 10b: History Of Market Activities 1990 To 2003

Year	No. Of Listed Equities	Volume Traded (Million)	Value Traded (¢'million)	Market Capitalisation (¢'billion)
1990	11	0.22	64.37	30.46
1991	13	1.83	104.69	29.62
1992	15	2.04	173.43	43.75
1993	15	37.94	3,177.93	96.51
1994	17	93.04	73,088.18	1,968.43
1995	19	55.84	27,085.35	2,399.02
1996	21	35.75	27,878.56	2,862.72
1997	21	125.63	93,354.70	2,552.78
1998	21	91.45	134,012.28	3,245.61
1999	22	49.57	69,611.72	3,205.39
2000	22	30.72	50,622.02	3,655.04
2001	22	55.3	92,280.00	3,904.03
2002	24	44.12	89,410.00	6,183.84
2003	25	96.33	389,000.00	12,616.80

Compiled GSE Factbook (2004)

The simultaneous listing of Ashanti Goldfields Corporation (AGC) on both the GSE and the London Stock Exchange and the subsequent listing on New York, Toronto and Zimbabwe Stock Exchanges have given GSE a whole new international dimension and stature. *"AGC brought credibility to the Ghana Stock Exchange. It was often the way that foreign investors gained their interest in that market. It led investors on to other stocks in the market"*, Augustine Kwakye Agyekum (2000).

In the case of listing requirements for debt securities (bonds), a company seeking the admission of debt securities to the FOL or the SOL may be considered for such admission if the security concerned has a total issue amount of not less than ¢200 million face value and there are at least 100 holders of such securities. In the case of TOL, the total issue amount must not be less than ¢20 million face value and there must be at least 50

holders. In the case of Government securities, there is no prescribed minimum in respect of either amount of issue or number of holders to permit admission to the GSE's list. In addition, debt securities (other than Government securities) for which listing is sought shall be created and issued pursuant to a Trust Deed duly approved by and registered with the GSE. For each class of original and additional loan securities issued by a listing company, application and listing fees are as stated on Appendix 8.

The exchange has undergone significant developments since it commenced operations in 1990. Firstly, the opening of the market to non-resident Ghanaians and foreigners in June 1993 was a big boost to the development of the market. Also, foreigners and non-resident Ghanaians were given exchange control permission to invest through the Exchange without prior approval. These attractive moves drew a number of top-rated foreign institutional buyers.

As indicated earlier in this chapter, the Government of Ghana has also used the Exchange to privatize some state owned enterprises and banks. Notably amongst them was the Government's off-loading of its shares in Ashanti Goldfields Company (one of the largest mining companies in the world). With particular reference to the efficiency of information dissemination, GSE has improved significantly and is now hooked to Reuters to enable investors have access to the Exchange's trading results and other developments.

5.3. Ownership Structure of GSE

The Ghana Stock Exchange is a private sector initiative and is not funded by Government. It is an incorporated public company limited by guarantee with members who are either corporate bodies or individuals who have contributed to the promotion of the Exchange. From an initial three promoters, the Exchange currently has fifty-two members made up of twelve Licensed Dealing Members (licensed stockbroking firms) and forty Associate Members.

While a Licensed Dealing Member (LDM) is a corporate body licensed by the Exchange to deal in listed securities; an Associate member is an individual or corporate body, which has satisfied the Exchange's membership requirements but not licensed to deal in securities.

To become a LDM or Stockbroker, the applicant must fully meet the conditions contained in its membership regulations, which include the following: An LDM must be a company or firm incorporated under the Ghana Companies Code 1963 (Act 179) or the Incorporated Private Partnership Act, 1962 (Act 152) and have a minimum stated capital of ₵100 million. In addition, the company or firm must have liquid funds of at least ₵10 million per director or partner. After all procedures have been complied with, LDMs must obtain a Certificate of Specification before

commencing operations and finally, the Securities Regulatory Commission must license the company or firm.

The Exchange is governed by a Council (Board of Directors) with representation from Licensed Dealing Members (LDMs), Listed Companies, Banks, Insurance Companies, Money Market and the General Public. The duty of the Council in addition to its supervisory roles is to prevent the commission of frauds or malpractices. The Council has the power to suspend and expel any member who contravenes any of the regulations of the exchange. Other supervisory bodies of the Exchange are the Governor of the Bank of Ghana and the Minister for Finance and Economic Planning.

The Securities and Exchange Commission (SEC), established under the Securities Industry Law 1993 (PNDC L333), is the apex regulatory body of the Exchange. The functions of SEC include maintaining surveillance over securities to ensure orderly, fair and equitable dealings in securities. The SEC also oversees the registering, licensing, authorizing and regulating the Stock Exchange, investment advisors, and securities dealers. The Securities Industry Law also provides for the establishment of a Fidelity Fund for the purpose of compensating persons who suffer financial loss from any defalcation committed by a Stock Exchange member.

5.4. Trading and Settlement Systems

Trading takes place on the floor of the Exchange three times a week on Mondays, Wednesdays and Fridays starting at 10.00am. Trading in Ashanti Goldfields' shares also takes place over-the-counter after GSE trading hours, with these trades being reported to the GSE at the next trading session. Trading is carried out on the floor of the Exchange under the Call-over system.

The authorized dealing officers who are representatives of stockbroking firms assemble on trading days on the floor and a designated official of the Exchange presides over the transactions and also directs the conduct of business on the floor. Trading is done in lots of 100 shares, except Ashanti Goldfields shares for which 10 shares are a round lot. Delivery and Settlement system is centralized but not automated. The settlement period is currently T + 5 working days and it is also strictly delivery versus payment. A minimum of ₵1,500 is charged on trade value not exceeding ₵50,000. For trades greater than ₵50,000, a declining rate from 2.5% to 1% (for Ordinary and Preference Stocks) and from 2.5% to 0.25% (for Government and Corporate Bonds) as the trade value increases is applied. Details of value traded and charges are shown on Tables 11 and 12 below.

TABLE 11 – CHARGES ON ORDINARY/PREFERENCE SHARES

<u>Value Traded (Cedis)</u>	<u>Commission</u>	<u>Cumulative Commission</u>
First 50,000	C1,500 flat	C1,500 max.
50,001 – 5,000,000	2.5%	C125,250 max
5,000,001 – 50,000,000	2.0%	C1,025,250 max
50,000,001 – 100,000,000	1.75%	C1,900,000 max
100,000,001 – 500,000,000	1.5%	C7,900,000 max
Over 500,000,000	1.0%	

TABLE 12 – CHARGES ON GOVERNMENT/CORPORATE BONDS

<u>Value Traded (Cedis)</u>	<u>Commission</u>	<u>Cumulative Commission</u>
First 50,000	C1,500 flat	C1,500 max.
50,001 – 5,000,000	2.5%	C125,250 max
5,000,001 – 50,000,000	2.0%	C1,025,250 max
50,000,001 – 100,000,000	1.75%	C1,900,000 max
100,000,001 – 500,000,000	1.5%	C7,900,000 max
Over 500,000,000	0.25%	

Source GSE Trading and Settlement Regulations (2000)

Stocks are bought and sold on the Exchange through Licensed Dealing Members (Stockbrokers).

Despite all the incentives to foreigners and non-resident investors which included the opportunity to deal in securities listed on the exchange without obtaining prior exchange control permission, there are some restrictions on portfolio investors not resident in Ghana. The following limitations and restrictions apply to all types of non-resident investor holdings (be they institutional or individual) are as follows. 1) a single

investor (i.e. one who is not a Ghanaian and who lives outside the country) is not allowed to hold more than 10% of every equity. 2) The cumulative total that foreign investors may hold for every equity may not exceed 74% (in special circumstances, this limit may be waived). This restriction does not apply to shares of Ashanti Goldfields Company Ltd (AGC). 3) A withholding tax rate of 10% is applied on dividends income for all investors.

There is also a tax exemption on capital gains on all securities listed on the exchange. Furthermore, the government removed all restrictions in respect of remittance of all initial investments, capital, dividends, interest payments, capital gains and returns. The GSE is open to foreign investors and guarantees free transfer of dividends. Equity investments are also permitted, whereas capital outflows are currently restricted.

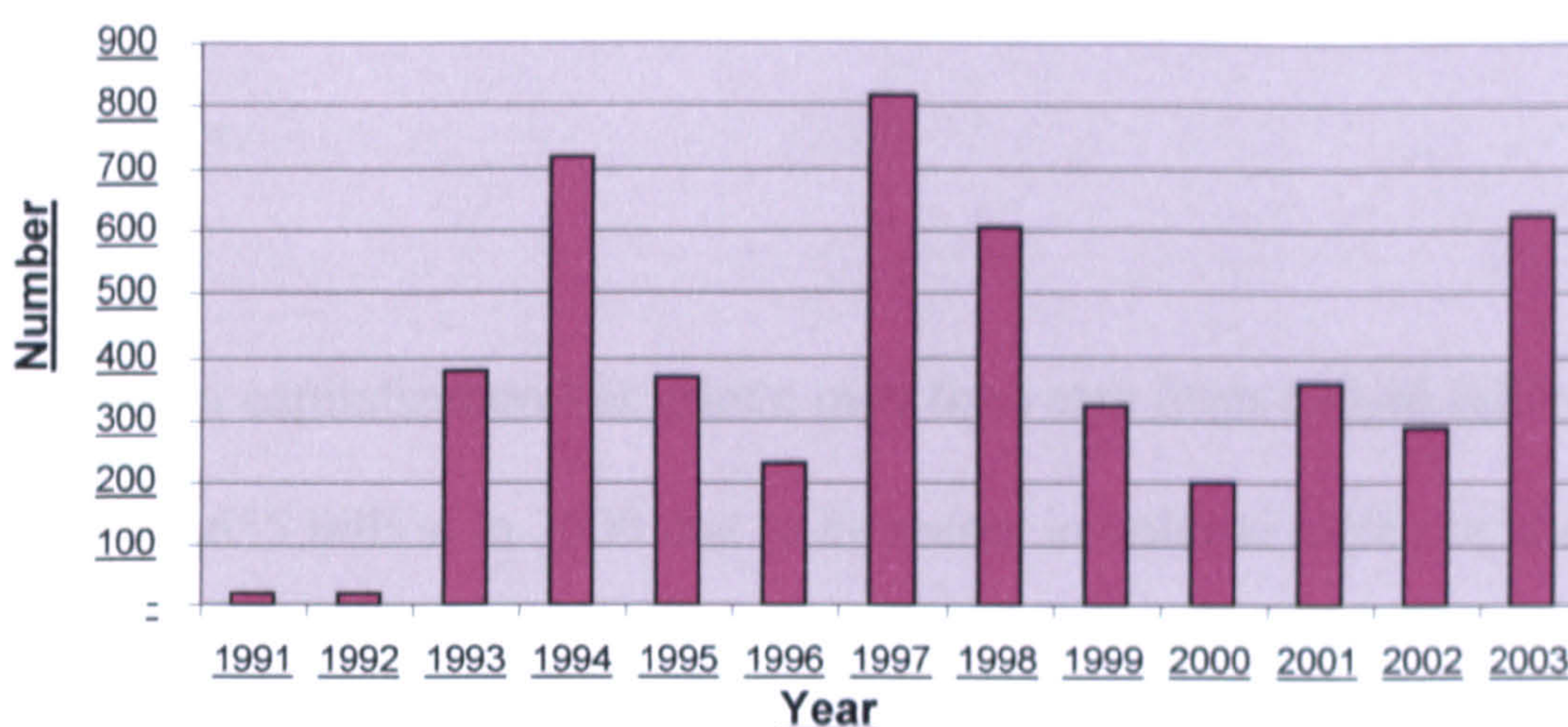
The Ghana Stock Exchange introduced some fresh rules in November 1996 to establish the Securities Clearing and Settlement House (SCSH). The body functions as a centralised clearing and settlement facility for stock exchange trades. The managing director of the stock exchange oversees the day-to-day running of the SCSH. The Stock Exchange Council sets the policy for the SCSH. Membership of the SCSH is made up of all registrars of listed securities on the stock exchange and all licensed dealing members of the exchange. Membership of the SCSH is

also open to other institutions and custodians. Membership admission, resignation and termination of the SCSH are regulated by Sections 4 to 6 of the new clearing and settlement rules.

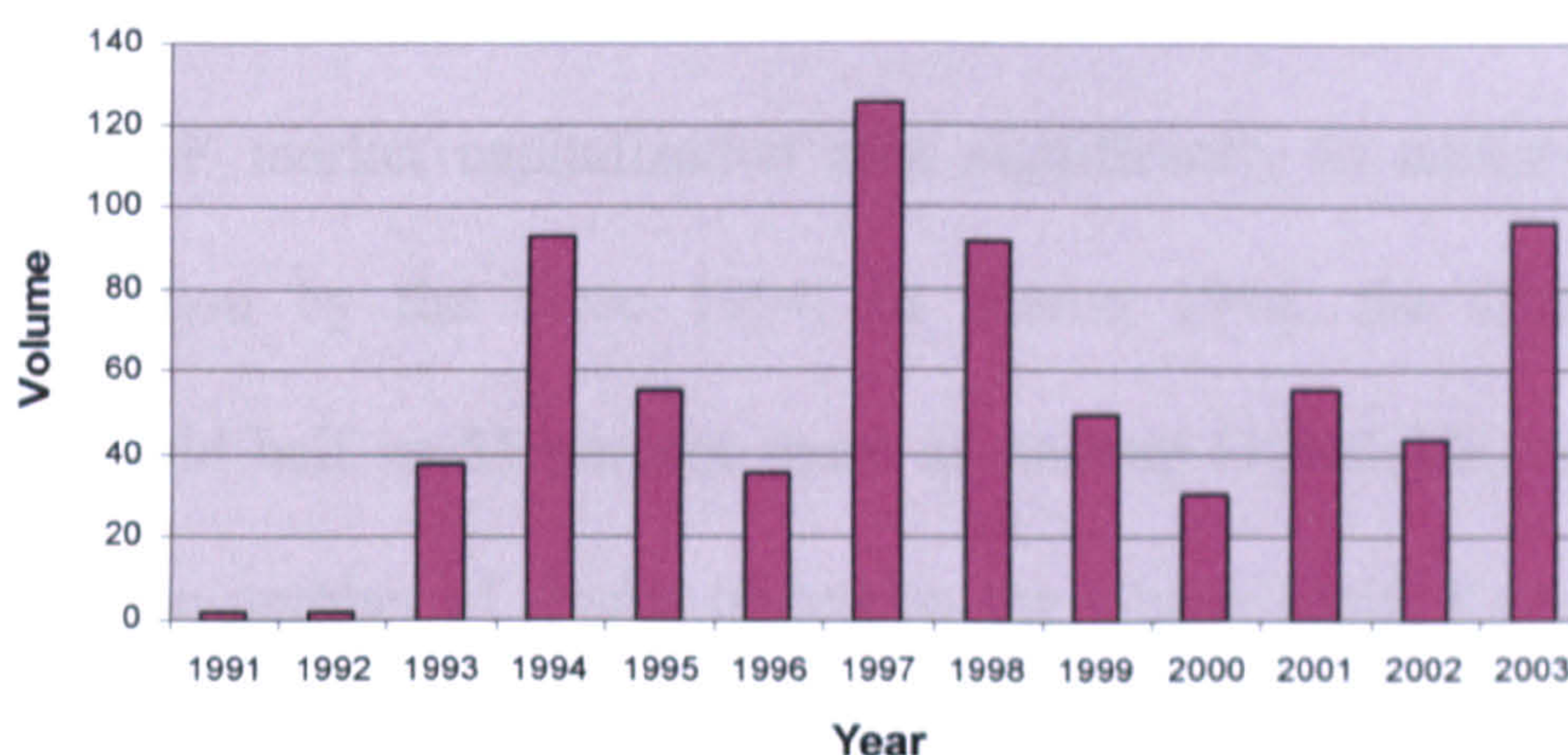
Further to the establishment of the SCSH, the new clearing and settlement rules were set to reduce the settlement period for securities transactions on the stock exchange. The rules adopt a T+5 settlement period. A T + 10 basis was previously used to settle trades on the stock exchange. The new clearing and settlement rules regulate participation in the clearing and settlement process by representatives of SCSH members, documentation requirements in connection with clearing and settlement and the timing of various aspects of the clearing and settlement process. Also, the penalties for failures to satisfy clearing and settlement obligations were laid down in the rules.

5.5. Trading History Since 1990

Steady improvements are being recorded continuously in trade volumes and values as indicated earlier in Table 10b. From 1990 to 1992, four million shares valued at about ₵342 million were traded on the Exchange. 1993 saw a dramatic increase in volume by ₵38 million and ₵3.178 billion in value. In 1994 alone, 93 million shares worth ₵73 billion changed hands while in 1995, 55 million shares worth ₵27 billion were traded. Though the volume traded in 1996 dropped slightly by 37.5% over the previous year, the value of shares traded experienced a slight rise by 3.7%. The exchange recorded its greatest volume of trading in 1997 with 126 million shares, which was worth ₵93 billion. But in terms of value, GSE hit its greatest of ₵134 billion in 1998 despite a drop in the volume traded to 91 million shares. 1999 and 2000 saw a downward trend in both volume and value traded in the exchange. While 1999 recorded a volume of 50 million shares with a value of ₵70 billion, 2000 recorded 31 million shares with a value of ₵51 billion. Fears associated with the Y2K caused a drop in sales volumes from 326k in 1999 to 202k. The exchange experienced a growth again from 2001 to 2003 and reached a remarkable height of 625k with a value of ₵2,527.92 million. The charts below, Figures 4 and 5 clearly depict the trend in trading sessions and volumes of the exchange since its inception in November 1990.

FIGURE 4 GSE Trades Per Session 1991 to 2003

Compiled from GSE Fact Books (1999, 2001 & 2003)

FIGURE 5**GSE Volume Traded (millions) 1991 to 2003**

Compiled from GSE Fact Books (1999, 2001 & 2003)

A close examination of the volume traded for year 2000 as per Table 10a, revealed that about 70% of exchanges were in the shares of just three companies – SSB Bank, Guinness Ghana Ltd and Aluworks. Of the total 30.6 million shares traded, almost 9.0 million were in respect of SSB Bank, Guinness was 8.0 million and Aluworks was 4.4 million. Most equities had less than 1% of trading in that year and the least traded equity was that of AGC, which took only 0.01%, being 3,990 shares. The drop in

world price of gold coupled with fierce political tension between management of AGC and government partly affected the company's performance.

GSE market capitalization has grown over the years from ₵30.46 billion in 1990 to ₵3,655 billion in 2000 due to increases in volume traded as shown in figure 1 and as well as increase in share prices over the years. When the number of companies increased from 11 in 1990 to 15 in 1993, the market capitalization more than trebled to ₵96.51 billion. With the listing of Ashanti Goldfields in 1994, one of the largest mining companies in the world, the GSE market capitalization rose significantly in multiples to ₵1,968.43 billion by the close 1994. In March 1994, the Ghanaian government sold half its 55 percent share in Ashanti Goldfields, thereby quadrupling the number of shares traded on the Ghana Stock Exchange. The Exchange ended in 1993 with 15 listed companies and a total capitalization of ₵96.51 billion. However, following flotation by the Ghanaian government of 50 percent of its stake in the Ashanti Goldfields, activity on the market was significantly boosted and its capitalization rose to ₵1968.43 billion by the end of 1994 and the number of listed companies to 17.

As the number of listed companies continued to increase by 2 in each year of 1995 and 1996, the market capitalization also grew by ₵430.59 billion

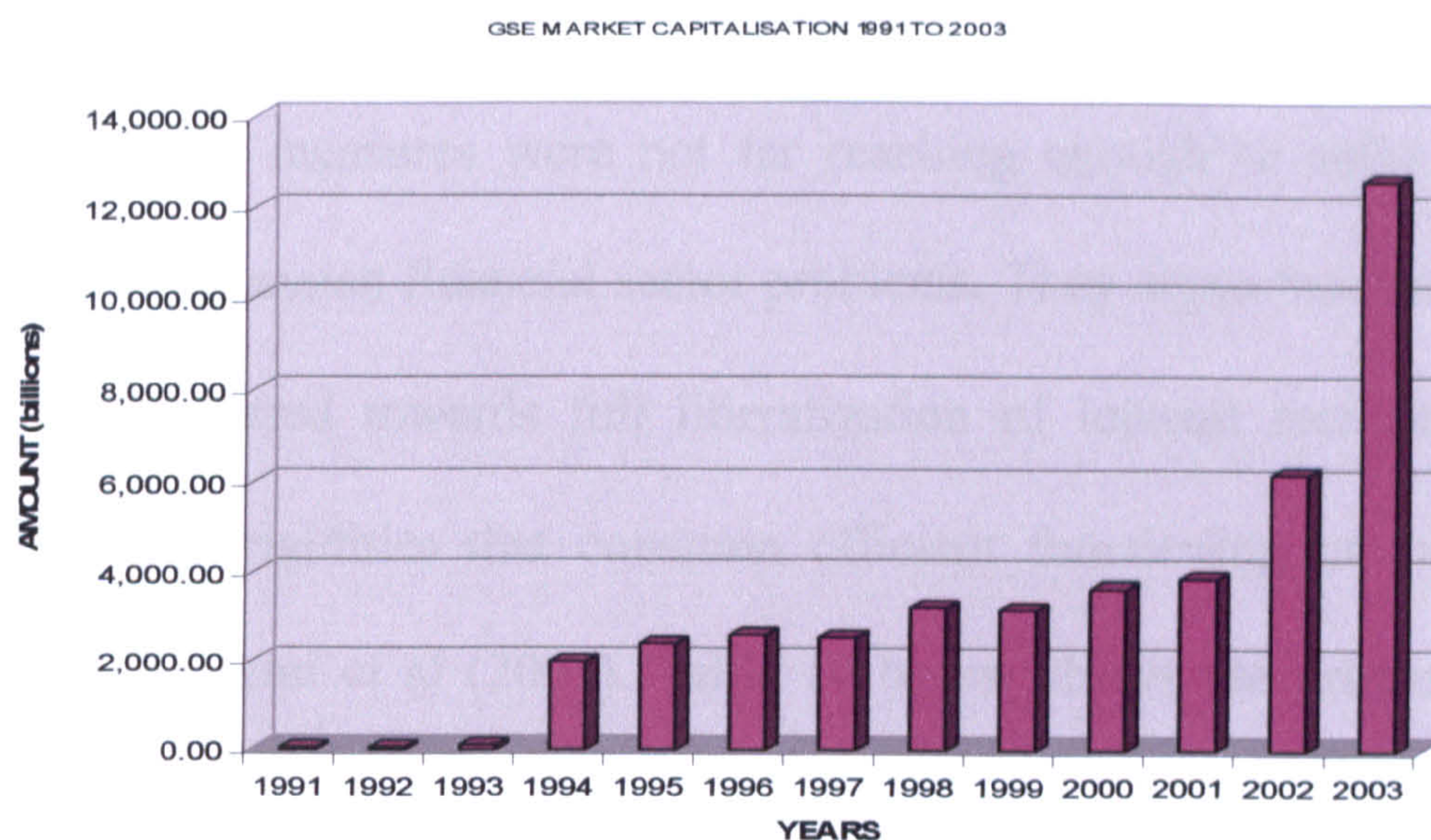
and ₵463.6 billion respectively. It is notable that the growth in market capitalization was not entirely due to new listings. In 1997 there was no new listing and the market capitalization fell by 11% and in 1998 it rose by 26% with the same number of listed companies in the Exchange. Between 1999 and 2000, there was no new listing yet the market capitalization rose by 14% and fell by 1% in 1999 despite the listing of Produce Buying Company. By the year 2003, market capitalisation rose to ₵12,616.80 billion with a total of 25 listed companies. Table 13 below summarizes the percentage changes in the market capitalization from 1990 to 2003.

Table 13 – Trend Of Market Capitalisation – 1990 to 2003

YEAR	MARKET CAPITALISATION ₵'billion	Percentage Change
1990	30.46	0%
1991	29.61	3%
1992	43.8	48%
1993	96.51	121%
1994	1,968.43	1940%
1995	2,399.02	22%
1996	2,862.72	19%
1997	2,552.78	-11%
1998	3,245.61	27%
1999	3,205.39	-1%
2000	3,655.00	14%
2001	3,904.03	7%
2002	6,183.84	58%
2003	12,616.80	104%

Source: Compiled from GSE Market Statistics (2004)

In terms of market capitalization, GSE has become one of the largest sub-Saharan Stock Exchanges. A graphical presentation of GSE market capitalization as per Figure 6 below reveals a growth in GSE in thirteen years of trading.

FIGURE 6

An analysis of the market capitalization of year 2000 as per Table 19 shows that Ashanti Goldfields' share was 57.45% and Standard Chartered Bank Ghana Limited coming second with only 9.32%. The Exchange is therefore dominated by Ashanti Goldfields whose performance has a direct bearing on the Exchange. A further descriptive analysis of GSE's performance is undertaken in the ensuing sections 5.6, 5.7 and 5.8.

5.6.The Equity Market

Critics of the Ghanaian economic policy reformation argue that the liberalization measures were not far reaching enough to solve the root causes of Ghanaian financial sector problems. They argue that the reforms were not geared towards full liberalization of interest rate policy and institutional rigidities that constrain efficient functioning of the capital market, Ziorklui et al (2001). Table 14 below shows the primary equity issues by each company and the method applied.

Table 14 - Primary Equity Issues

Company	Description	Offer Period	Issue Price ₵	No of Shares Offered (m)	No of Shares Sold (m)	Am't Raised (₵m)	% of Target Realised
Super Paper Products Co. Ltd	IPO	Dec. 91-Feb. 92	150	8.00	4.20	630	53
Mechanical Llyod Co.Ltd	IPO	Dec. 93-Feb. 94	50	11.00	9.36	468	85
Ashanti Goldfields Co.Ltd (1st Local Offer)	IPO	March-April, 1994	18700	2.80	3.20	59,840	114
Ashanti Goldfields Co.Ltd (2nd Local Offer)	IPO	May-June, 1994	18700	1.20	0.15	2,815	13
Home Finance Co.Limited	Placement	January 1995.	100	11.35	13.10	1,312	115
Pioneer Aluminium Factory Ltd	IPO	May-July, 1995	115	6.40	6.40	763	100
SSB Bank Limited	IPO	Sept.-Oct. 1995	800	21.36	15.03	12,021	70
Accra Brewery Co.Limited	Right Issue	June-Aug. 1992	120	12.00	12.00	1,440	100
Aluworks Limited	Placement	Sept.-Nov. 1996	1350	5.00	2.45	3,308	49
UTC Estates Ghana Ltd	OFS	Oct.'94-Mar'95	100	24.00	24.00	2,400	100
PZ Ghana Limited	Right Issue	Sept-Oct. 1995	400	24.00	24.00	9,600	100
Ghana Commercial Bank Ltd	IPO	Feb.-March 1996	500	49.50	68.44	34,219	138
Guinness Ghana Limited	Right Issue	May-June, 1996	210	23.50	23.50	4,934	100
Mechanical Llyod Co. Ltd	Right Issue	Oct.-Nov. 1997	149	13.36	13.36	1,990	100
Home Finance Co. Limited	Right Issue	Oct.-Nov. 1998	600	9.50	9.50	5,701	100
Accra Brewery Co. Ltd	Right Issue	November, 1998	500	19.89	19.89	9,945	100
Metaloplastica Ghana Limited	Right Issue	Jan. -Feb. 1999	180	12.00	12.00	2,160	100
Camelot Ghana Limited	IPO	August 1999.	400	1.75	1.75	700	100
Produce Buying Co.Limited *	IPO	Dec.'99-Mar 2000	500	384.00	142.37	59,190	-
Accra Brewery Company Ltd	Right Issue	July 2000	605	33.26	33.26	20,122	100

Source: Compiled from GSE Market Statistics (2002)

On the contrary, primary market activities have been on the ascendancy. Fresh capital has been raised in the exchange basically through Initial Public Offers (IPOs), Placements, Offer for Sale and Right Issues.

Over the 13 years of trading, the GSE has effectively facilitated the raising of long-term capital to the sum of ₵233.558 billion. Almost all listed companies in the Exchange have benefited in terms of available opportunity to raise long-term capital. Companies such as Ashanti Goldfields, Ghana Commercial Bank, Produce Buying Company and Accra Brewery Company have all raised funds through the Exchange either by IPOs or right issues. Table 15 below summarizes the total sums raised by some companies in the GSE listing.

TABLE 15 - CAPITAL FUNDS RAISED FROM PRIMARY ISSUES OF EQUITIES

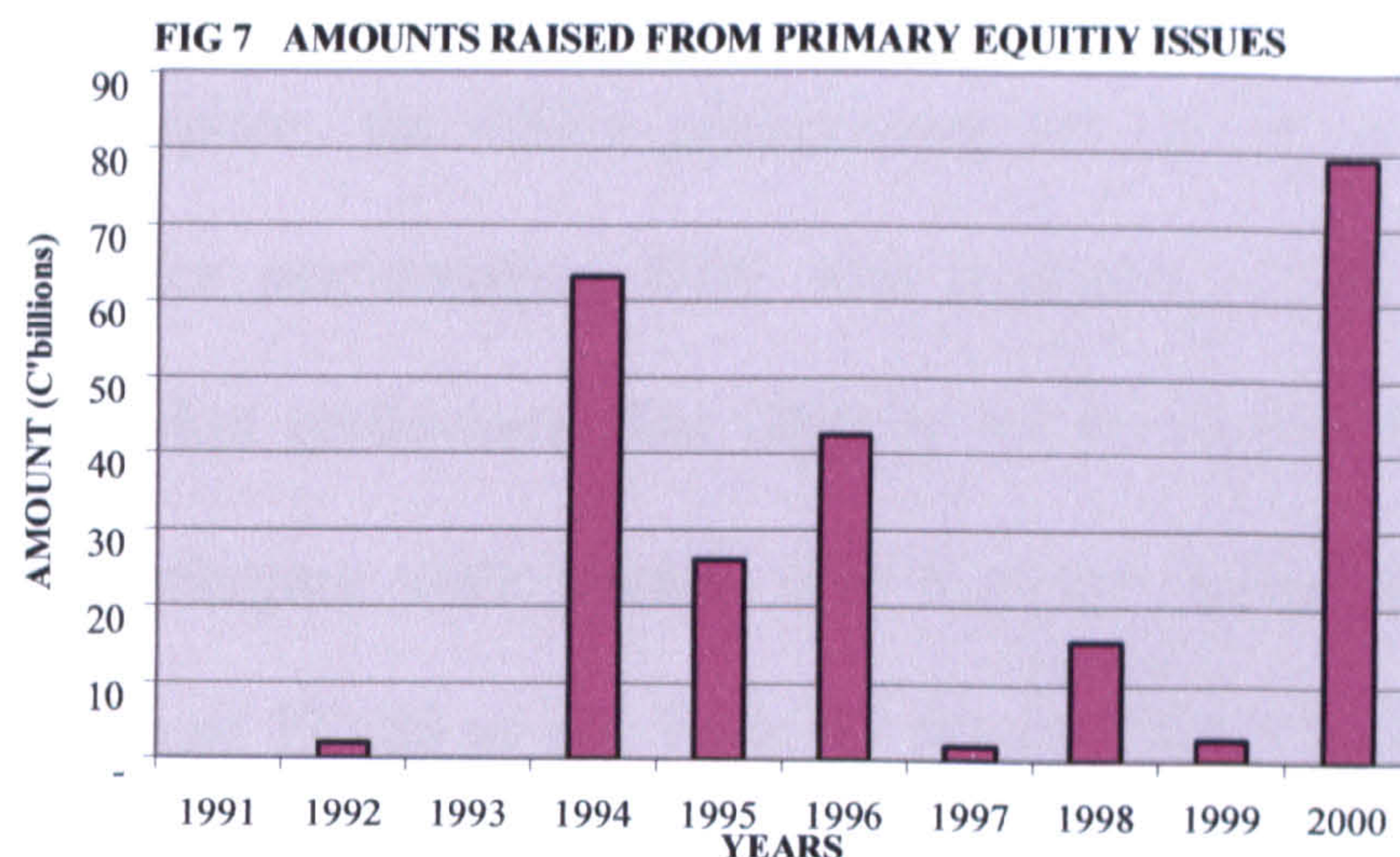
PER COMPANY		PER YEAR		PER METHOD OF ISSUE	
Company	Am't (₵m)	YEAR	Am't (₵m)	TYPE	Am't (₵m)
Ashanti Goldfields Co.Ltd	62,655	1991	-	Initial Public Offer	170,646
Accra Brewery Co. Ltd	31,507	1992	2,070	Offer For Sale	2,400
Aluworks Limited	3,308	1993	-	Right Issues	55,892
Camelot Ghana Limited	700	1994	63,124	Placements	4,620
Ghana Commercial Bank Ltd	34,219	1995	26,096		
Guinness Ghana Limited	4,934	1996	42,461		
Home Finance Co. Limited	7,013	1997	1,990		
Mechanical Lloyd Co. Ltd	2,459	1998	15,645		
Metalloplastica Ghana Limited	2,160	1999	2,860		
Pioneer Aluminium Factory Ltd	763	2000	79,312		
Produce Buying Co. Limited	59,190				
PZ Ghana Limited	9,600				
SSB Bank Limited	12,021				
Super Paper Products Co. Ltd	630				
UTC Estates Ghana Ltd	2,400				
	233,558		233,558		233,558

The greatest amount raised was Ashanti Goldfields, which was over ₵62 billion as at December 2000. Ghana Commercial Bank raised over ₵34

billion, while Produce Buying Company raised over ₵59 billion. Almost all companies that used IPOs or made right issues had realized not less than 100% of the targeted number of shares offered, Table 8 refers. Except Aluworks Limited that realized the lowest of 49% of the shares offered on placement, Ghana Commercial Bank hit 138% of the targeted IPO and most other companies had 100% of all shares offered bought. There are yet several companies that have not raised further capital since listing.

As per Table 16 below, except Accra Brewery Company, which made three right issues since listing, all other right issues were just once per company. It may be worthwhile researching into why a significant number of listed companies have not taken advantage of the exchange to raise additional funds they may require.

Since the inception of the Exchange, funds have been raised every year from issues of equities except in 1991 and 1993. The highest amount was raised in 2000 of over ₵79 billion followed by ₵63 billion in 1994, which was largely attributable to AGC and ₵42 billion in 1996. The least amount of ₵2 billion was raised in 1997. (Table 15 above refers). This is clearly depicted on Figure 7 below.



Analyzing the amounts raised in terms of the method use reveals that about ₵170.6 billion of the total funds raised were through IPOs being 73%. The use of right issues raised the second greatest amount of ₵55.9 billion, while Placements and Offer for Sale raised ₵4.6 and ₵2.4 billion respectively.

TABLE 16 RIGHT ISSUES

COMPANY	DATE OF LISTING	No of Right Issues Since Listing
Accra Brewery Company Limited	Nov. 12, 1990	3 (1992, 1998, 2000)
Ashanti Goldfields Company Limited	May 17, 1994	0
Alluworks Limited	Nov. 29, 1996	1 (1996)
British American Tobacco Company	Nov. 12, 1990	0
CFAO Ghana Limited	March 12, 1992	0
Enterprise Insurance Company Limited	Nov. 12, 1990	0
Fan Milk Limited	Nov. 12, 1990	0
Ghana Breweries Limited	Nov. 23, 1990	0
Ghana Commercial Bank Limited	May 17, 1996	0
Guinness Ghana Limited	Nov. 12, 1990	1 (1996)
Home Finance Company Limited	March 17, 1995	1 (1998)
Metalloplastica Ghana Limited	Nov. 12, 1990	1 (1999)
Mechanical Lloyd Company Limited	May 10, 1994	1 (1997)
Mobil Oil Ghana Limited	July 23, 1991	0
Pioneer Aluminum Factory Limited	August 25, 1995	0
Produce Buying Company Limited	May 19, 2000	0
PZ Ghana Limited	Nov. 12, 1990	1 (1995)
Standard Chartered Bank Ghana Ltd	Nov. 12, 1990	0
Super Paper Products Co. Ltd	June 12, 1992	0
SSB Bank Limited	Oct. 13, 1995	0
Unilever Ghana Limited	Nov. 12, 1990	0
Camelot Ghana Limited	Sept. 17, 1999	0

Source: Compiled from GSE Market Statistics (2001)

5.7 GSE Market Price Performance

Since its inception, the GSE's performance has varied considerably. In terms of *index performance*, GSE was regarded as one of the best emerging market performers. The GSE in 1993 was the 6th best index performing emerging stock market, with a capital appreciation of 114% with an index of 132.88 as per Table 17 below. With a 124% gain in its index level, it won the best index performing stock market position among all the emerging markets in 1994. The following year's (1995) index growth was a disappointing 6.3%, partly due to of high inflation and interest rates prevailing in the country during the year. In that year, inflation rate more than doubled over the previous year, from 34.2% in 1994 to 70.8% in 1995. Between 1996 and 1998, the GSE All-share index experienced a steady growth from 360.76 in 1996 through 511.74 in 1997 to 868.35 in 1998. Growth of the Index for 1996 was 13.82%, 1997 41.85% and at the end of 1998 it was 868.35, a growth of almost 70%.

Table 17 - Percentage Change In GSE All-Share Index 1990-2003

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
1990														70.08
1991	-7.95													64.51
1992	-11.29	-3.63												62.17
1993	89.61	105.98	113.74											132.88
1994	325.37	362.1	379.49	124.34										298.10
1995	352.3	391.35	409.84	138.54	6.33									316.97
1996	414.78	459.23	480.28	171.49	21.02	13.82								360.76
1997	630.22	693.27	723.13	285.11	71.67	61.45	41.85							511.74
1998	1139.1	1246.1	1296.7	553.48	191.29	173.95	140.7	69.69						868.35
1999	950.46	1041.2	1084.1	454	146.95	132.25	104.06	43.85	-15.22					736.16
2000	1124.3	1230	1280.1	545.68	187.82	170.68	137.83	67.66	-1.19	16.55				857.98
2001	1264.08	1381.86	1437.64	619.41	220.68	201.59	164.98	86.80	10.09	29.86	11.42			955.95
2002	1891.02	2062.94	2144.35	950.05	368.07	340.20	286.77	172.66	60.69	89.54	62.63	45.96		1,395.31
2003	4970.52	5408.32	5615.65	2574.16	1092.02	1021.06	884.98	594.38	309.22	382.70	314.16	271.72	154.67	3,553.42

Source: Compiled from GSE Market (2004)

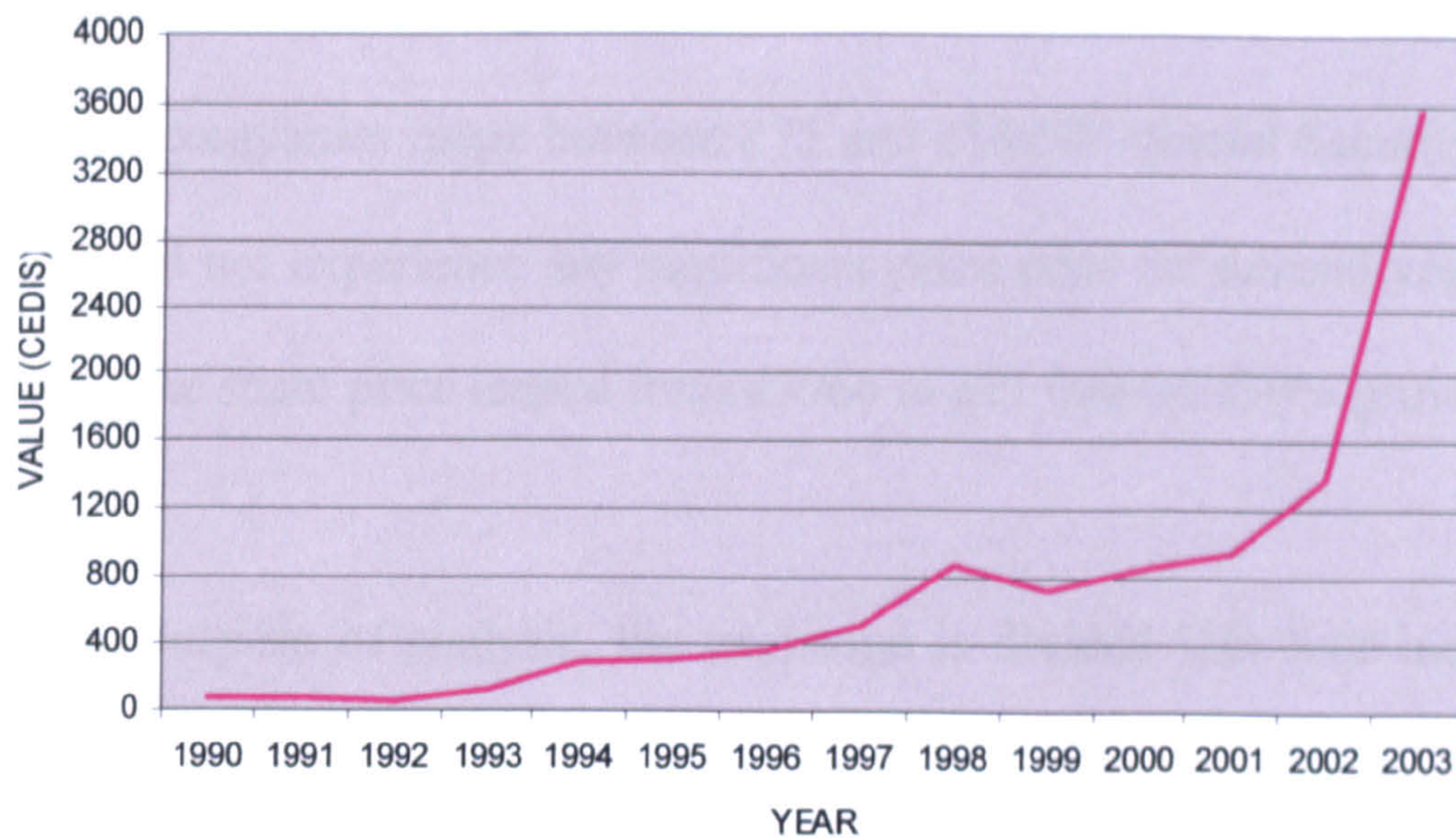
From the above Table 17, the Exchange experienced a negative growth in 1999, with the index falling by 15.22% to 736.16, but rose slightly in year 2000 by 16.55% to 857.98. It is relevant to note that between 1990 (date of inception) and 2000, the overall growth in the exchange was 1124.29% from 70.08 to 857.98. In 2003 GSE again was among the best index performing emerging stock markets with a growth of 154.67%; the highest in the history of the exchange.

The movement in the GSE All-share index can be depicted graphically as shown in figure 8 below. It reveals an initial struggle in 1990 and 1991 but picked up in 1992 and maintained a consistent upward trend except in 1999 when there was a downward turn but recovered again in the year

2000. Over the thirteen years of trading, the GSE All-share index hit its maximum in 2003 to 4970.52.

Figure 8

MOVEMENT IN GSE ALL-SHARE INDEX



To what extent did accounting information impact the GSE All-Share index? This is the key research question which will be addressed in a more detailed analysis in chapters 7.

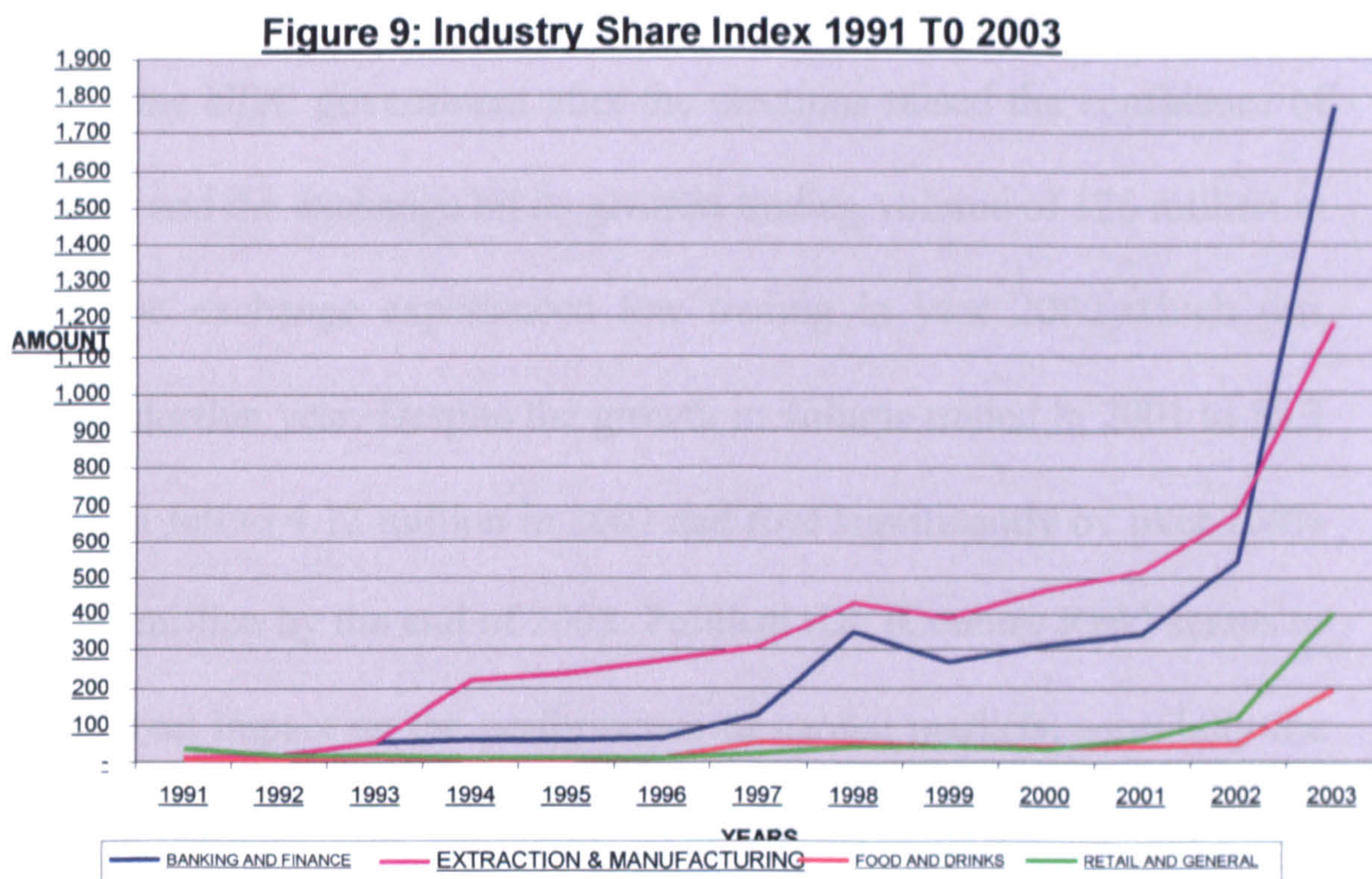
Detailed description of the movement in share prices of all listed companies of the exchange since 1991 are as shown in Table 18 below. In all cases, the prices of all equities as at year 2003 were far higher than the last price on first trading, this is indicative of growth. The listing of these companies in the stock exchange facilitates the measurement of their performances over the years.

The share price indexes of Ashanti Goldfields, Mobil Oil Ghana Limited and Standard Chartered Bank Ghana attribute a very large proportion of the overall all-share index. While the prices of these three companies during 1998 to 2003 range between ₵28,000 and ₵61,000, share prices of all other companies range between ₵75 and ₵14,000. Social Security Bank shares did not experience any significant price rises for several years, but in 2003 the share price leaped from ₵3966 to ₵21,000 by 430% growth.

For the purpose of analysis, the exchange is divided into four industrial sectors: Banking and Finance; Extraction and Manufacturing; Food and Drinks; and finally, Retail and General. The industry index analysis reveals that the banking and finance sector tops the exchange being the best performing industry since the inception of the exchange. The extraction and manufacturing industry which includes mining follows second; and then the Retail and General and the Food and Drink in that order. A close observation of figure 9 on page 205 reveals that the extraction and manufacturing industry topped the exchange for several years until 2003 when the banking and finance sector took over the leadership. Over the 13 years of trading, the least performing industry is the Retail and General which picked up in 2002 and surpassed the Food and Drink industry.

Table 18 - Trend In Share Prices (Industry Classification) 1991-2003

COMPANY	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BANKING AND FINANCE	¢	¢	¢	¢	¢	¢	¢	¢	¢	¢	¢	¢	¢
Enterprise Insurance Co. Ltd	119	105	223	600	465	430	957	2,400	1,880	2,700	3,050	4,600	10,500
Ghana Commercial Bank Limited	-	-	-	-	-	701	800	1,300	760	1,505	1,570	3,516	8,170
Home Finance Company Limited	-	-	-	-	117	136	235	750	750	952	952	955	4,000
Standard Chartered Bank Gh Ltd	419	540	2,017	5,830	5,800	5,000	8,100	24,000	19,000	21,500	20,500	28,700	61,001
SSB Bank Limited	-	-	-	-	804	1,057	1,700	2,250	1,984	2,040	2,200	3,966	21,000
Industry Share Index	12.84	18.85	49.91	56.70	58.38	65.73	128.60	346.21	265.77	314.78	340.18	547.84	1,773.21
EXTRACTION & MANUFACTURING													
Ashanti Goldfields Company Ltd	-	-	-	21,000	24,400	22,500	17,000	18,000	18,700	18,600	18,800	27,000	28,650
Aluworks Limited	-	-	-	-	-	1,415	2,500	2,500	2,489	4,350	4,300	3,700	4,000
Metalloplastica Ghana Limited	53	52	55	140	130	150	160	200	200	200	241	254	275
Mobil Oil Ghana Limited	380	610	2,340	4,100	4,800	5,900	8,230	17,000	13,800	18,600	18,500	19,730	35,001
Pioneer Aluminium Factory Ltd	-	-	-	-	136	171	179	400	300	267	800	750	740
Produce Buying Company Ltd	-	-	-	-	-	-	-	-	-	503	450	390	1,300
Industry Share Index	10.34	19.35	53.36	222.57	239.37	270.47	306.12	429.66	386.96	466.41	518.49	680.24	1,185.28
FOOD AND DRINKS													
Accra Brewery Company Limited	130	135	323	301	240	576	745	850	458	630	320	410	552
Fan Milk Limited	145	88	171	290	330	404	488	1,100	916	850	950	1,785	3,800
Ghana Breweries Limited	93*	91*	236*	590*	605*	660*	3,000	2,050	1,450	1,350	1,000	500	1,460
Guinness Ghana Limited	47	34	46	191	218	275	650	800	950	900	901	1,050	5,650
Industry Share Index	7.69	7.51	12.03	6.90	6.40	11.26	53.25	54.13	41.15	40.91	38.16	49.16	194.18
RETAIL AND GENERAL													
British American Tobacco Gh Ltd	91	54	70	76	127	133	364	400	469	400	627	1,001	5,200
CFAO Ghana Limited	-	16	29	49	28	20	38	50	38	51	60	67	75
Mechanical Lloyd Company Ltd	-	-	-	35	49	53	194	200	151	135	145	270	700
PZ Ghana Limited	78	60	85	290	430	370	325	900	800	400	1,010	2,005	2,700
Super Paper Products Co. Ltd	-	161	150	95	104	105	158	251	150	260	341	387	390
Unilever Ghana Ltd	1,240	272	455	809	840	800	1,100	1,600	1,850	1,600	2,300	4,805	14,041
Camelot Ghana Limited	-	-	-	-	-	-	-	-	420	425	430	460	550
Industry Share Index	33.64	16.46	17.58	11.94	12.82	13.29	23.76	38.35	42.28	35.88	59.12	118.07	400.75
ALL SHARE INDEX	64.51	62.17	132.88	298.10	316.97	360.76	511.74	868.35	736.16	857.98	955.95	1,395.31	3,553.42



The performance of GSE in terms of **volume and value traded**, has been significant though limited, due to the few number of companies listed on the Exchange and also some unfavourable political and economic factors.

As indicated earlier on Table 10a and as analyzed in section 5.5; about 720 million shares in total were traded over the 13 years to December 2000. Several factors account for the variation in the year-by-year trading volumes. Unfavourable political factors (instability of military rule) impaired the performance of the Exchange during its early years of trading. With the change of government, from military to democracy, coupled with some favourable market conditions, trading on the exchange grew tremendously from 2.04 million in 1992 (election year) to 37.94 million in 1993. The listing of AGC on the Exchange in 1994 further boosted trading

but again elections in 1996 caused a slow down in trading. The continuity of the same NDC government after the elections raised the confidence of investors and the exchange hit its greatest trading volume of 126 million in 1997. The exchange experienced low trading in year 2000 which was another election year. Despite the growth in volume traded in 2001 to 55.3 million, it fell to 4.12 million in 2002 and rose significantly by over 100% to 96.33 million by the end of 2003. Political risk (Country Risk) seems to have a great impact on the performance of capital markets, especially the emerging markets. This will be investigated further in a latter part of the research. It requires further research to determine the extent to which political risk affects the performance of capital markets, especially share price indices.

Time and space may not permit a detailed analysis of the performance of GSE in respect of each company listed in the Exchange over the 13 years of trading. Therefore a consideration is given to the performance of all listed companies in respect to volume traded for only one year, 2000. From Table 19 below, there were exchanges in respect of all equities of the exchange except that the volume and values varied widely. While the shares of SSB Bank and Guinness Ghana Ltd individually had about 8,000,000 traded during the year, forming about 56% of the total volume traded, Ashanti Goldfields shares traded were only 3,990, the least of all

due to concerns raised in the market that the company may eventually be taken over and may move its primary listing to London.

TABLE 19 - PROFILE OF LISTED COMPANIES, DECEMBER, 2000.

	Issued Share (millions)	Market Capitalisation ¢'billions	YEAR 2000 VOLUME TRADED	% Of Total Market %	% Of Issued Shares Traded %
Accra Brewery Company Limited	83.15	52.38	169,700	1.43	0.20
Ashanti Goldfields Company Ltd	112.89	2,099.75	3,990	57.45	0.00
Aluworks Limited	13.89	60.00	4,410,700	1.64	31.75
British American Tobacco Gh Ltd	69.13	27.65	249,300	0.76	0.36
CFAO Ghana Limited	56.00	2.86	590,800	0.08	1.06
Enterprise Insurance Company Ltd	5.00	13.50	304,200	0.37	6.08
Fan Milk Limited	19.78	16.81	277,900	0.46	1.40
Ghana Breweries Limited	28.92	39.04	9,400	1.07	0.03
Ghana Commercial Bank Limited	165.00	248.33	1,875,100	6.79	1.14
Guinness Ghana Limited	117.48	105.73	7,944,900	2.89	6.76
Home Finance Company Limited	57.01	54.27	149,300	1.48	0.26
Metalloplastica Ghana Limited	18.00	3.60	56,400	0.10	0.31
Mechanical Lloyd Company Ltd	40.08	5.41	2,851,500	0.15	7.11
Mobil Oil Ghana Limited	4.05	75.33	92,100	2.06	2.27
Pioneer Aluminium Factory Ltd	16.50	4.41	30,000	0.12	0.18
Produce Buying Company Limited	480.00	241.44	215,700	6.61	0.04
PZ Ghana Limited	28.00	11.20	81,000	0.31	0.29
Standard Chartered Bank Ghana Ltd	15.84	340.56	196,600	9.32	1.24
Super Paper Products Co. Ltd	16.20	4.21	288,400	0.12	1.78
SSB Bank Limited	71.25	145.35	8,978,300	3.98	12.60
Unilever Ghana Ltd	62.50	100.00	934,600	2.74	1.50
Camelot Ghana Limited	6.54	2.78	946,900	0.08	14.48
Total	1,487.21	3,654.61	30,656,790	100.00	

Source: Compiled from GSE Market Statistics (2001)

Of the total shares issued, Aluworks Limited had 31.75% traded in year 2000, being the greatest. In second place were the shares of SSB Bank Limited with 12.60% of its issued shares. Except Enterprise Insurance Company, Guinness Ghana Limited, and Mechanical Lloyd, which had between 6 and 7% of their issued shares traded in the Exchange during the year, all other equities had insignificant proportions of their issued shares traded in the Exchange during the 2000 (Tables 19 and 20 refers). Ashanti

Goldfields shares traded the least with 3,990 shares being 0.01% of the total market volume.

TABLE 20 - LISTED COMPANIES RANKED BY TRADED VOLUME, 2000			
COMPANY	RANKING	VOLUME TRADED	% OF TOTAL MARKET
SSB Bank Limited	1	8,978,300	29.29
Guinness Ghana Limited	2	7,944,900	25.92
Aluworks Limited	3	4,410,700	14.39
Mechanical Lloyd Company Ltd	4	2,851,500	9.30
Ghana Commercial Bank Limited	5	1,875,100	6.12
Camelot Ghana Limited	5	946,900	3.09
Unilever Ghana Ltd	6	934,600	3.05
CFAO Ghana Limited	8	590,800	1.93
Enterprise Insurance Company Limited	9	304,200	0.99
Super Paper Products Co. Ltd	10	288,400	0.94
Fan Milk Limited	11	277,900	0.91
British American Tobacco Ghana Ltd	12	249,300	0.81
Produce Buying Company Limited	13	215,700	0.70
Standard Chartered Bank Ghana Limited	14	196,600	0.64
Accra Brewery Company Limited	15	169,700	0.55
Home Finance Company Limited	16	149,300	0.49
Mobil Oil Ghana Limited	17	92,100	0.30
PZ Ghana Limited	18	81,000	0.26
Metalloplastica Ghana Limited	19	56,400	0.18
Pioneer Aluminium Factory Ltd	20	30,000	0.10
Ghana Breweries Limited	21	9,400	0.03
Ashanti Goldfields Company Ltd	22	3,990	0.01
		30,656,790.00	100.00

Source: Compiled from GSE Market Statistics (2001)

The overall performance in respect of volume traded in 2000 was 30.66 million shares out of the issued shares of 1,487.21 million, forming about 2%, which is indicative of low liquidity in the market. This could be interpreted to mean that the exchange is limited in its performance in respect to volume traded and thus its effectiveness in generating capital funds.

5.8. The Bond Market

There was only one listed bond traded in the Exchange between 1990 and 1995 and that was a five-year Government Commemorative Registered Bond of five billion cedis introduced into to Exchange in 1990, which matured in 1995. This happened to be the only Government Bond that was traded in the Exchange. From 1996, Home Finance Company introduced one corporate bond per year and at the close of year 2000, there were five corporate bonds being traded in the Exchange. Table 21 below gives details of these bonds.

Table 21 - Primary Bonds Issues

Type of Bond	Issuer	Offer Period	Securities Offered	Deno- mination	Maturity	Amount Raised	% of Target Realised
GSE Commemorative Registered Stock, 1995.	Gov. of Ghana	Oct.-Nov.'90	¢5.0 billion	¢100,000	5 yrs matured on Nov. 11, 1995	¢5.0 b	100.00
HFC Series A 7% Coupon Bond due in 2001 (HFC-A 7s01)	HFC Ltd	Sept.-Oct.'96	US\$2m as Series A of a US\$35m Aggregate Offering	US\$100	5 yrs to mature on Nov. 01, 2001	US\$2.55m	127.50
HFC Series B 7% Coupon Bond due in 2002 (HFC-B 7s02)	HFC Ltd	Sept.-Oct.'97	US\$2m as Series B of a US\$35m Aggregate Offering	US\$100	5 yrs to mature on Nov. 01, 2002	US\$2.25m	112.40
HFC Series C 8.25% Coupon Bond due in 2003 (HFC-B8.25s03)	HFC Ltd	Nov., 1998	US\$2m as Series C of a US\$35m Aggregate Offering	US\$100	5 yrs to mature on Nov, 2003	US\$2.00m	100.00
HFC Series D 8.25% Coupon Bond due in 2003 (HFC-D8.25s04)	HFC Ltd	July-Aug.'99	US\$2m as Series D of a US\$35m Aggregate Offering	US\$100	5 yrs to mature September, 2004	US\$2.70m	136.00
HFC Series E 8% Coupon Bond due In 2005 (HFC-E8s05)	HFC Ltd	Oct., 2000	US\$2m as Series E of a US\$35m Aggregate Offering	US\$100	5 yrs to mature on Nov. 01, 2005	US\$1.51m	100.78

Source: Research Department, Ghana Stock Exchange (2001).

Except the government bond, which was denominated in cedis (¢), all the corporate bonds traded in the exchange are denominated in US dollars and all have five years maturity period. The unit price of a corporate bond is

US\$100. Some economic factors such as inflation and exchange rate risks may be the reason for denominating these bonds in the dollar currency and giving them a maturity period of five years. It is an important observation that all the bonds offered in the GSE realized either 100% or above 100% of the targeted amounts. In 1999 for instance, the HFC Series D 8.25% Coupon Bond realized US\$2,70 million of its targeted US\$2.0 million, being 136%.

Bond prices have not seen any significant changes over the years of trading. The HFC Series A and B prices rose to US\$102 by close of 2000, while Series C price rose to US\$101.60. The prices of Series D and E remained unchanged at US\$100. The dollarization of the bonds partly accounts for this.

From the above analysis therefore, there is very thin trading in the Ghanaian Bond Market. A notable point is that out of the twenty-two companies on the GSE only one has bonds traded in the Market. This may suggest that companies use GSE primarily to raise equity capital and resort to banks for long-term debt.

5.9. Summary and Conclusions

The main issues concerning development of capital markets concentrate around the likely efficiency of these markets in mobilizing savings (both domestic and external) and in channelling them optimally to productive sectors; a situation that is essential for any sustained improvement in productivity and economic growth. The performance of the GSE primary market in terms of raising domestic and international capital is notable. Furthermore, active GSE secondary market performance distinguished the exchange as the best performing stock exchange among emerging capital markets in 1994 (IFC). The beginning of Ghana's capital market globalization is evident as a result of the cross listing of AGC in New York, London, Toronto, South Africa, and other international exchanges.

It is rather surprising that a good number of listed companies have not made use of the Exchange in terms of raising long-term capital. More surprisingly, there are no government bonds traded in the markets. Several reasons already could attribute to the lackadaisical attitude towards the GSE. Though all types of securities including foreign registered companies' securities can be listed in GSE, the criteria for listing, which includes capital adequacy, profitability, spread of shares, years of existence, and management efficiency, may be an obstacle to many companies.

The stock exchange's role in promoting capital market deepening was hampered by the government's divestiture programs, which emphasize privatization through strategic investor financing rather than through the Stock Exchange. Furthermore, the lack of automation of trading practices leads to inefficient trading and settlement practices. The number of listed companies is small and the businesses were not fully representative of the country's main economic activities. High-yielding government securities shifted resources from the securities markets to the government bill market. In Ghana, the fall in the gold and cocoa prices reduced funds available for investment. Poor macroeconomic indicators and the financial crisis at Ghana's biggest company (AGC) brought a sharp reversal in 1999 in the fortunes of the country's stock market.

The perception of decreasing risk in Ghana's market economies accounts for GSE improvement between 1994 and 2003. This is revealed in an increase in "breadth" as measured by new listings of 25 companies over 13 years. Furthermore, there was an increased size as measured by market capitalization and new issues. The aggregate amount of capital raised over the years indicates the exchange's performance while the value trading of shares within the market measures liquidity.

The total market capitalisation of GSE rose from £2.55bn in 1997 to £3.25bn in 1998, an increase of 27 per cent. By the end of 1999, total

market capitalisation had increased to ₵3.32bn (approximately US\$141m) and by 2003, it hit a historical height of ₵12,616.8 billion (approximately US\$14 billion). This rise in total market capitalisation mainly reflects increases in share prices and additional listing over the period. Turnover volume was actually down from 125.63 million shares in 1997 to 91.45 million (i.e. down by 27 per cent). Turnover value, however, increased by 44 per cent over that of 1997, i.e. from ₵93.36bn to ₵134.01bn in 1998. Turnover rate for 1998 was 4.25 per cent compared to 3.36 per cent in 1997. Offer and bid volumes for 1998 averaged 3.35 million respectively compared with 1.52 million and 7.74 million for 1997. The average rate of capital appreciation is 70 per cent since 1990, and this by far exceeded the annual inflation rate in Ghana's economy for the period.

Significant developments have taken place since the Exchange started its operations. The opening of the market to non-resident Ghanaians and foreigners in June 1993 gave a large boost to the development of the market. Exchange control permission was given to encourage foreigners and non-resident Ghanaians to invest through the Exchange without prior approval. This incentive has attracted a number of top-rated foreign institutional buyers.

In terms of index performance, the GSE was the sixth best performing emerging stock market with capital appreciation conservatively put at 116

per cent for 1993. In 1994, the Ghana Stock Exchange was adjudged the best index performing stock market among all the emerging markets, gaining 124.3 per cent in its index level. In 1995, however, the index increased by a mere 6.3 per cent due mainly to high levels of inflation rates prevailing in the country during the period. As indicated earlier in this chapter, the overall growth in the exchange between 1990 (date of inception) and 2000 was 1124.29%. In 2003 the GSE index was again one of the best performing indexes among the emerging stock markets with a growth of 154.67%; the highest in the history of the exchange.

By the end of 2003, GSE, Ghana's infant stock market has doubled its price index since it opened to foreigners in 1993. Miles Morland, chief executive of Blakeney Management in London says, "There's still value there and it's a well-governed country with a very promising future." For investors eager to take advantage of opportunities in Ghana and elsewhere on the continent, Dhar of Morgan Stanley says, "Countries like Ghana are doing all the right things to get their economies on track".

CHAPTER SIX

THE METHODOLOGY

6.1	<i>Introduction</i>	216
6.2	<i>Relevant Period</i>	217
6.3	<i>The Sample</i>	218
6.4	<i>Data Collection and Sources</i>	219
6.4.1	<i>The Secondary Data</i>	219
6.4.2	<i>The Primary Data</i>	221
6.4.2.1	<i>Interviews and Casual Conversations</i>	221
6.4.2.2	<i>Observation</i>	223
6.4.3	<i>The Personal Bias</i>	224
6.4.4	<i>The Funding</i>	224
6.5	<i>Assumptions and Ethical Considerations</i>	226
6.5.1	<i>Assumptions</i>	226
6.5.2	<i>Ethical Considerations</i>	228
6.6	<i>Research Tools</i>	229
6.7	<i>Methodology</i>	230
6.7.1	<i>Rational for Triangulation</i>	231
6.7.2	<i>Constraints to Triangulation</i>	236
6.8	<i>Quantitative Approach and Model</i>	237
6.8.1	<i>The Price Behaviour Model</i>	239
6.8.2	<i>Drawbacks to The Price Behaviour Model</i>	243
6.8.3	<i>Valuation Models and Regression Analysis</i>	246
6.8.3.1	<i>The Brennan and Schwartz Model</i>	250
6.8.3.2	<i>The Ohlson Model</i>	252
6.8.3.3	<i>The Linear Information Dynamic Model</i>	255
6.9	<i>Qualitative Approach</i>	259
6.10	<i>Summary and Conclusion</i>	262

6.1 Introduction

This study investigates whether accounting earnings and book values provide any information content for investors to price securities by examining the following hypotheses.

H₁ "The announcement (Publication) of accounting information has significant impact on share prices in the Ghana Stock Market".

H₂ There is significant relationship between accounting earnings and share prices in the Ghanaian Stock Market.

H₃ There is significant relationship between Book Values and share prices in the Ghanaian Capital Market.

A research hypothesis and the information that a researcher wants to gather often determined the approach to be used. One approach to conducting a study of the impact of accounting information on share prices is to gather quantitative data and draw from statistical analysis. Using two accounting information/variables; Earnings and Book Values, a quantitative study measuring the impact of accounting information on share prices could be undertaken. There is no empirical evidence of the information content of earnings and book values in the Ghana Stock Market.

A second approach is to interview investors. Through this qualitative methodology, the researcher can delve into depth regarding the other qualitative factors that affect the decision of investors. This study deploys both quantitative and qualitative methodology. This chapter on

methodology is split into the following sections: The Relevant Period and Sample; Data Collection and their Sources including any Assumptions and Ethical Considerations; the Methodology, detailing the rational for Triangulation; The Quantitative Approach; the Qualitative Approach; and finally the Summary and Conclusion for the chapter.

A brief review of quantitative approaches and models is embodied in the sections 6.7 and 6.8. This could have been conveniently captured in the literature review in Chapters 3 but it is suitable here as it forms the premise for the introduction of the researchers preferred models for this study.

6.2 Relevant Period – The determining factor of the relevant period for this study has been the availability of data. Though the Ghana Stock Exchange had been trading for about 14 years at the time of this study, the relevant period is restricted to 13 years, that is, 1991 to 2003. Considering that the stock market under review (The Ghana Stock Exchange) has been trading for only 14 years, there would be limited data available. The 13 years restricted period is the period within which published information is readily available. Notwithstanding this restriction, references would be made to more recent information of later years. Given this short period, monthly, quarterly, half yearly and annual data will be used to gain meaningful results. The first 2 months of trading is deliberately excluded from the period under review. During the first few months of trading, the

market was still trying to gain public confidence and so data from that period may not truly reflect the market activities.

6.3 The Sample - The total of 25 companies listed on the Ghana Stock Exchange all experienced increases in their share prices during the relevant period. Considering the limited relevant period and the availability of data for the research, it may be necessary to examine data from all 25 listed companies. All these companies cover most aspects of the Ghanaian economy; mining, manufacturing, banking, Insurance, and trading. This sample is expected to be representative enough but may be altered depending on the availability of data. The analysis uses weekly and monthly prices of stocks listed in the GSE during the 528-week and 122-month period from January 1991 of December of 2003.

During the relevant period, most Ghanaian firms had December as their fiscal year end and were required to disclose their annual reports with audited financial statements before or on the end of June following the fiscal year end. Virtually all the firms complied with this disclosure requirement. Therefore, the accounting numbers for year t were publicly available by the end of June following the fiscal year end. These numbers are used to define the variables to be tested for the subsequent 12 months until next year's accounting data is available.

6.4 Data Sources and Collection

6.4.1 *The Secondary Data*

For the purpose of analysing the information dissemination process around the announcement of accounting information, publication/announcement dates of all 25 listed companies were gathered for the 13 years from 1991 to 2003. There were various sources from which earnings announcement dates were collected. The major sources were the Ghanaian newspaper publications especially the ‘Ghanaian Daily Graphic’ and the ‘Ghanaian Times’. The African Economics Journal, Ghana Data Bank, and the Daily Bulletin of the GSE, also provided announcement dates. To ensure the accuracy of the data, the announcement dates from different sources were cross-checked with each other. In case of discrepancies between different sources, the researcher used the newspapers’ publication dates as the announcement dates. These dates were summarised on Table 22 in chapter 7. Within the 13 years, a total of 265 events of annual publication of financial statements dates are considered in the analysis. In 27 events, stocks with infrequent trading surrounding an annual announcement (publication) date were excluded from the analysis, which yielded a sample of 238 events.

The financial and stock market data used in this study were collected from several sources. Data on share prices and company fundamentals were also collected from Ghana Stock Exchange (GSE). These were gathered in a

machine-readable format (CD-ROM) by the Ghana Stock Exchange Public Relations department and sold to the researcher. The GSE database provided daily, monthly, quarterly and yearly price indices of all shares traded in the exchange since November 1990, when trading began on GSE floor.

The GSE database provided daily, monthly, quarterly and yearly price indices of all shares traded in the exchange since November 1990, when trading began on GSE floor. Annual Reports and financial statements of listed companies were obtained from GSE Factbook, individual companies and in some cases from stockbrokers. Other sources of the financial data used in this research include: IMF Reports and World Bank Reports, Standard & Poor's Emerging Market Data Base (EMDB), the Bank of Ghana data base and the Centre for Studies of Emerging Markets (University of Westminster, London).

6.4.2 The Primary Data

6.4.2.1 Interviews and Casual Conversations

Another major means of data collection is by interviews and casual conversations. The targeted interviewees included stockbrokers in the country, individual investors, managers of financial institutions and institutional investors as listed in Appendix 4. Most of the big investors in the Ghana Stock Exchange are institutions which have brokerage firms managing their investments and those of their customers. For instance, Cal Brokers Ltd, Ecobank Stockbrokers Ltd and Merban Stockbrokers Ltd representing Cal Bank, Ecobank, and Merchant Bank respectively. The researcher therefore concentrated on the licensed stockbrokers of the Exchange which provided extensive information about GSE and announcement dates. Interview questionnaires and note-taking forms were used and samples are shown in appendices 5 and 6. Interviews with stockbrokers were arranged through telephone and personal visits. Of all the thirteen stockbrokers that request for interviews were sent, and telephone calls made, 9 responded favourably and accepted to be interviewed. Face-to-face interviews were carried out and the reliability of answers was checked with further explanations. All interviews (except one which was held over lunch) were workplace interviews. At the end of each interview, a letter of appreciation was given, which also assured the confidentiality of the information provided. To guide against misdirection and lose of focus and to effectively assess the output of the interviews, a

number of self evaluation questions were considered at the close of each day. These self evaluation questions are outlined on appendix 7.

The study obtained data from stockbrokers as to which non-accounting information does impact the prices of shares in the Ghana stock market. Qualitative interviewing was therefore used to obtain the relevant information. Qualitative interviewing “recognizes that meaning emerges through interaction and is not standardized from place to place or from person to person,” Rubin and Rubin (1995). There could be several accounting and non-accounting sources of information that impact share prices in emerging markets, thus revealing that context is important. In this study the researcher gathered the perceptions and opinions of investors (through stockbrokers) regarding the use of accounting and non-accounting information in determining share prices. These views and opinions were framed from the context of each stockbroker’s function in the stock market. Furthermore, “qualitative interviewing is a way of finding out about the way others feel and think about their worlds”, Rubin and Rubin (1995). This approach has allowed the researcher to understand experiences and reconstruct events in which he did not participate. It has also allowed the researcher to find information and gather data necessary to analyze the hypotheses. The researcher guided his qualitative interviews by intentionally asking a limited number of questions and allowing the interviewee to explore these questions in depth.

In a small country like Ghana, personal knowledge of a few persons in top political/government positions opens doors to offices that would have otherwise been closed to the researcher. The researcher used his relationship with a few top government officials which was established during his years of work as an independent auditor. Furthermore, being a member of the professional body (Institute of Chartered Accountants (ICA), Ghana) gave an added advantage because most of the top finance positions of corporations were occupied by fellow chartered accountants. With the strong bond among the chartered accountants, they seek to assist each other when the need arises. Most of the financial analysts which were interviewed were introduced to the researcher by fellow members of ICA, Ghana.

6.4.2.2 Observation

The researcher also employed observation as a means of data collection. The researcher made a total of 47 personal visits to the trading floor of GSE over a two years period to observe for himself the trading activities. The period of each visit span between 30 minutes to 3 hours. These visits were spread without any specified pattern but covered all quarters of each year. The plan of the visits was based on the times the researcher could be available. It should be admitted that if researcher was resident in Ghana, a lot more observations could have been made in a more strategic manner.

6.4.3 The Personal Bias

The researcher played a very important role in the data collection process. He acted as the “primary instrument”, Creswell (2003) through which the data was collected, analyzed and reported. Although the researcher tried to remain objective throughout each interview process, experiences in working as a professional accountant/auditor and finance director, in addition to teaching experience, had potentially given him personal biases, which were inherently possessed. The researcher’s experiences enabled him to communicate more effectively with the interviewees. Throughout all the processes of interviews and interpretation of the data, the researcher was conscious of any personal biases and therefore guarded against such biases in order to prevent a misinterpretation of the results.

6.4.4 Funding

It is argued by Bryman (1995) that the practice of research is also governed by constraints other than those of theory. He indicated that there could be several factors that influence the decision to combine or not to combine qualitative and quantitative methods. The funding of the project, the available financial resources, and the skills of the researchers, the social organization and political orientations of the research person are all considerations that affect the choice of methodology. With respect to this project, there was no funding or support from any quarters. Though the GSE and other beneficiaries appreciated the valuable contribution this

research would make, corporate principles hindered them from giving any financial support. There were several costs associated with this project which include the following: a) Travel expenses – airfares between UK and Ghana, and local travel expenses within Ghana. This was mitigated with the use of the researcher's personal car in Ghana; b) Telephone Cost – all local and international phone calls in UK and Ghana; c) Stationary and Printing – these included cost of printed materials, newspapers, bulletins, magazines and photocopying; d) Purchases of Stock Market Information – in addition to the published information, the GSE data on share pieces and market capitalizations were acquired at a total cost of ₵6million (about US\$600). Other materials such as the GSE Fact Books were also paid for; e) Tips and incentives - it is not easy to get any simple job done in Ghana without having to pay some money. Secretaries to managers had to be given tips. Office clerks had to be paid to look out information. In some cases, non-monetary incentives, including token gifts such as packages of English tea and parker pens were used.

The researcher's dairy of all expenditure involved in data collection for this project summed to nearly US\$10,000 (about US\$9,860). All this cost was borne by the researcher himself which he funded from personal resources.

6.5 Assumptions and Ethical Considerations

6.5.1 Assumptions

According to Brannen (1995), research projects are influenced, though not necessarily completely determined, by theoretical assumptions about the nature of the data. Though this research was not wholly qualitative, there were several assumptions made, which were common to qualitative research methodologies. One of such assumptions was that the information gathered in this study was subject to the interpretation of the researcher. There was also the assumption that each interviewee in the study had different perceptions, which influenced their answers to the research questions and ultimately the information that they provided in this study. It was also obvious that the researcher possessed biases that influenced the interpretations. Each interviewee had an understanding and assumption that participation was voluntary and any information provided by him/her will remain confidential and their names would not be mentioned in the report. The research also applied a standard question protocol during the interviews, and each interview was conducted in a standard format, shown on appendix 5.

With the focus on the business environment brought on by the scandals at Enron, WorldCom Inc. and other large corporations, there is an increased awareness of management's competence, integrity, and the ability to lead companies. This led to the assumption that this study would prove helpful

to business and investment community by alerting them to the importance of using accounting information.

Another assumption made by the researcher during interviews was that the accounting information regarded as important by top senior managers is also the same information that the ordinary individual investor on the street also considers. Most individual Ghanaian investors are ignorant about the operations of stock markets. To this end, the researcher interviewed only top level managers regarding the accounting information used in investment decision making.

Though the use of accounting and financial terminologies may vary from person to person and even from company to company, the researcher made an assumption that the investors and stockbrokers who were interviewed not only buy the same stocks but also had similar organisational structures and use similar financial terminologies and measures.

6.5.2 Ethical Consideration.

Rubin and Rubin (1995) suggest that a researcher, in performing interviews for a qualitative research study must be guided by his personal and ethical obligations to the interviewees. To this end, the researcher in this study ensured that the information obtained was accurately reported and had no negative repercussions on anyone. At the end of each interview and/or discussion, he reported to the interviewees (participants) all that was recorded and requested for their confirmation or otherwise. Corrections were made in some cases to his recordings. He also pledged to all his participants to keep the information confidential in order to protect them. It was the researcher's resolve to main objectivity and honesty in reporting the information he obtained. The following ethical considerations were carefully thought of in conducting this study. i) A verbal explanation of the study was provided to each interviewee prior to the interview. ii) Interviewees were not forced to participate in the study. A verbal permission was obtained from each interviewee before commencement. iii) An assurance was given to each interviewee that all information provided during the interview shall be kept in utmost confidentially and the interviewees' names shall not be disclosed. iv) The report was written with integrity and objectivity. Samples of the Interview Guide and Questions, Note-taking Form, and Self Evaluation of Interviews are as shown in the appendices 5 to 7.

6.6 Research Tools

Several research tools including equipment, library facilities, computer hardwares and software packages and some basic stationary items were used to undertake this study. The equipment used included a portable laptop computer, a printer, and a mobile phone, all acquired at a cost. Access to the following libraries gave the researcher a wide range of materials for the research. The libraries visited included UCE Kenrick Library, UCE Business School Learning Information Technology Services, London School of Economics Library, British Library, London and the Ghana Stock Exchange Library. These libraries were sources of finding a lot of the research materials. There were not only serving as reference points but provided basic educational equipment such as photocopiers and internet facilities. In addition to materials, they also provided a conducive atmosphere and environment for studies. Computer software packages and internet services were of great assistance. The researcher also used two statistical analysis software packages namely MINITAB and SPSS (Statistical Package for the Social Sciences). Internet security, Anti Virus Software and Data Storage Devices, such as memory sticks, cards, and discs were also acquired and used.

6.7 The Methodology

It was gathered from the literature review in chapter 3 that the earlier researches in this area of study employed quantitative methodology; but Burgess (1984) suggest that researchers ought to be flexible and therefore ought to select a range of research methods that are appropriate to the research problem under investigation. In the case of the Ghanaian stock market, it was observed in chapter 5 that the thin trading coupled with short period of data availability and the evolving nature of the economy poses special challenges. To address this issue, the researcher proposed a multiple approach (triangulation), where the qualitative methodology would study the structure of the market, trading practices and provide an overview of the stock market as already done in the previous chapter (chapter 5). A review of the economic and political environments in Ghana, in relation to the development of the Ghana Stock market, this was undertaken earlier in chapter two. In chapter 7, a quantitative approach is employed to develop models to study the econometric relationship between the stock market prices and accounting information. This research is an innovative one in that the combination of quantitative and qualitative approaches has been little considered in previous studies and also the researcher felt that triangulation would provide a better understanding of the efficiency, experiences or perceptions of stakeholders in emerging markets like the GSE.

6.7.1 Rationale for Triangulation Approach

Bryman (1995) and Webb et al. (1966) said the notion of triangulation is drawn from the idea of ‘multiple operationism’ which suggests that the validity of findings and the degree of confidence in the theses will be enhanced by the deployment of more than one approach to data collection and analysis.

Depending on the nature of the hypothesis to be tested and also depending on the kind of information the researcher intends to collect; an appropriate methodological approach is chosen and applied. While some researchers may use a purely quantitative approach, some may argue for a qualitative methodology. A third group, which includes this researcher, may consider a blend of both methodologies because this approach enables the researcher to delve into depth regarding the factors that affect share prices in emerging markets. Denzin (1970), as cited in Brannen (1995), saw the combination of research strategies as a means of examining the same research problem and hence enhancing claims concerning the validity of the conclusions that could be reached about the data. An argument against quantitative methodology by Rubin and Rubin (1995), claim that a purely quantitative research reduces data to mere numbers and therefore loses some vital aspects of the research information. To this end, this research considers a test that goes beyond the numbers, thus a combination of methodologies is applied.

Triangulation is not uncommon in accounting and finance fields of research. An example of these research studies is the major study sponsored by the Institute of Management Accountants (IMA) in 1996. The study applied triangulation by combining both quantitative and qualitative methodologies. The quantitative aspect applied statistical models to analyze the data. The Institute, IMA (1996), after the research, commented on the qualitative aspect as follows: "The qualitative phase consisted of in-depth, in person interviews with management accountants of ten companies, most of which are holding significant portions of the market capitalization. These interviews, conducted in the environment where management accountants work, helped the researchers to more fully understand what people do, how the work is changing, and where the profession is heading".

The Institute of Management Accountants sponsored this study with the object of revealing the task and role of accountants in industry and understanding the required knowledge and skills of such accountants. Although the study by IMA may not be directly linked to accounting information and share prices, it is an example of a research study applying triangulation in the field of accounting and finance. Triangulation therefore does not merely involve methods and data but investigators and theories as well, Denzin (1970).

Though some may find it simplistic to make a distinction between researchers on epistemological grounds into positivists and interpretativists, such a distinction could explain the perspective from which data has been analyzed, interpreted and understood. Creswell (2003) argues that a distinction based on epistemological allegiances may not always be obvious since the researchers become deeply absorbed in the nitty-gritty practicalities of devising the research project. He concludes that triangulation when used according to this formulation is simply eclecticism. On the other hand, data are considered in close relation to the question and the theories which generate them, researchers will adopt the method most appropriate to these. As Cain and Finch (1981) cogently argue, there is no one truth; life is merely multi-faceted.

The empirical question on how far epistemological issues in practice help to determine methods still remain unresolved despite the dictat in methodology texts to match method to the conceptualization of the research problem. The converse question may be posed, namely whether the use of a particular method inevitably means that a particular epistemological position has been adopted. Most literature on methodology which suggests various methods of approaching research projects, epistemology and methods are depicted as intimately inter-related. According to Halfpenny (1999), positivist epistemology and quantitative methodologies are seen as having some kind of one-to-one

correspondence, while interpretative epistemology is associated with qualitative methods and are directed towards uncovering of meaning. Bryman (1988) persuasively argues that in theory triangulation (blending of methods) constitute a good advice to researchers, but the reality in practice is that researchers may consider some methods as most appropriate, giving consideration to a variety of technical and practical issues. The argument of Giddens (1976) is a further theoretical justification for combining qualitative and quantitative methods. He stresses that such combination is as a strategy which provides a solution to what sociological theorists term 'the duality of structure'. Considering the limited trading period of the GSE, and the limited data due to underdevelopment, quantitative approach may not necessarily give sufficient and adequate information about the share prices, hence the combination of methods.

The following three ways are suggested by Bryman (1995) which could be explored by researchers when considering the combination of both qualitative and quantitative methods: i) qualitative work as a facilitator of quantitative work, ii) quantitative work as a facilitator of qualitative work, iii) both approaches given equal emphasis. This project is basically approached using quantitative method. As indicated by Black (2002), "*The purpose of the qualitative fieldwork is to clarify and/or extend the survey findings*". Drawing on Bryman's classification, qualitative method plays a subsidiary role in the project and its work is used to *substantiate and*

extend the findings from quantitative work. Brannen (1995) indicates that situations where qualitative fieldwork postdates quantitative work include the emergence of small but interesting sub groups which require more detailed exploration. In this context, further to whatever impact accounting information may have on share prices, other strong influential factors of share prices in emerging markets include economic and political factors. The examination of these factors may further clarify the earlier findings from the use of quantitative methodology; hence their investigation using qualitative methods. With triangulation, the findings from the quantitative/rationalistic viewpoint can be checked against the findings deriving from the qualitative approach and vice versa. As already stated, the aim is generally *to enhance the validity of the findings.*

The combination of qualitative and quantitative also *provides a general picture*, especially in a case study of this kind which tries to paint a clear picture of the stock market activity in a developing country like Ghana.

So therefore, *the structure and process* of this research justifies the use of triangulation. While quantitative research is especially efficient at getting to the 'structural' features of social life, qualitative studies are usually stronger in terms of 'processual' aspects, Brennan (1995). The combination of these strengths in a single study like this could produce the best of results. Furthermore, this being a longitudinal study, quantitative and qualitative research is appropriate to different stages of the study.

Lastly but not the least, Creswell (2003) argues that *Qualitative Research may facilitate the interpretation of relationships between variables.*

Quantitative research readily allows the researcher to establish relationship among variables, but is often weak when it comes to exploring the reasons for those relationships. A qualitative study can be deployed to help explain the factors underlying the broad relationships that are established.

6.7.2. Practical Constraints upon triangulation

Though triangulation could be a widely supported notion, and is a convincing rationale for integrating quantitative and qualitative research, it could be problematic and contentious. Bryman (1995) has argued, the practice of social research is also governed by constraints other than those of theory. A large variety of considerations concerning the funding context and the available financial resources, the skills of the researchers, the social organization and political orientations of the research person or team, influence the decision to combine or not to combine qualitative and quantitative methods of approach. An important constraint upon choice of methods in this peculiar research is the funding context. There is no funding or support for this project. Beneficiaries are incapable and unwilling to fund the project. Notwithstanding the above practical constraints, the researcher still considers triangulation as the preferred methodological approach, subject to some assumptions and ethical considerations discussed latter in this chapter.

6.8. The Quantitative Approach and Models

Earlier studies in this area including, Ball & Brown (1968), Beaver (1968), Fama, Fisher, Jensen and Roll (1969), Benston (1967), (1971), Goncdes (1971) Forsgardh and Herten (1975), Easton and Harris (1991), Jones (1991), Ohlson and Shroff (1992) and Ali and Zarowin (1994) all use the quantitative approach. However, each researcher's model has been different and peculiar to the prevailing circumstances and conditions. For instance, influential papers by Ohlson (1995) and Feltham and Ohlson (1995, 1996) contain valuation models that provide structure for empirical work on the relation between equity values and (current) accounting numbers. In this research, a suitable statistical model will be adopted to test the relationship between the relevant variables in the Ghana stock market. The level of detail in handling statistical data in this research will very much depend on the availability of statistical information, bearing in mind the limited information in emerging markets.

The first aspect of quantitative analysis looks at the impact of accounting information announcement on share prices. Several models have been used by researchers to examine the relation between announcement dates and share prices. These include: the Traditional Event Studies, the Prospects Theory and the Price Behaviour Models.

The Traditional Event Study Methodology which was introduced by Ball and Brown (1968) and Fama et al (1969). Fama (1991) provides a summary review of the event studies mainly in relation to efficiency implications. Event studies are generally applicable in empirically analysis of the market efficiency of a semi-strong form of market. Event study methodology is a variant of the CAPM. It is used to jointly test the market efficiency and also in estimating abnormal returns. The traditional event studies are used to examine whether the announcement/publication of accounting information (the event), provides new important information to investors and other interested parties of the stock market. This type of study also tests the extent to which the new information is reflected on changes in price and volume of trade in and around the announcement period. Traditional event studies in this perspective, aims at checking the information content of accounting data and the speed at which such information is reflected on prices of shares within a period of time, (see Collins and Kothari, 1989, Ball and Kothari, 1991, Easton and Harris, 1991). In short, Event Studies are used to test the market reaction to the publication of new accounting information.

The Prospect Theory postulates that the prices of market shares should indicate a trend of diminishing sensitivity towards announcements. According to Kahneman and Tversky (1979), all of the alternatives that a person faces are reduced to a series of prospects that are evaluated independently on the basis of an S-shaped value function.

6.8.1 The Price Behaviour Model

The Price Behaviour Model was formulated by Amihud and Mendelson (1987), was developed further by Damodaran and Lim (1991) and Damodaran (1993). The model was developed to test the relationship between intrinsic value and observed price. Damodaran (1993) developed the following statistical equation for the said test.

$$P_{it} - P_{i(t-1)} = q_i(V_{it} - P_{i(t-1)}) + U_{it} \quad (1)$$

Where P_{it} is the observed price at time t ,

V_{it} is the intrinsic value of stock i

q_i is a price adjustment coefficient, and

U_{it} is the noise term due to the valuation and interpretational errors. U_{it} has been interpreted as white noise with zero mean and finite variance σ . The magnitude of the noise term U_{it} is determined by information-related factors and market structure-related factors. Given the above definitions the change in the observed price $P_{it} - P_{i(t-1)}$ to the change in the intrinsic value $(V_{it} - P_{i(t-1)})$ can be measured through the coefficient q_i . q_i which represents the price adjustment coefficient. Amihud and Mendelson (1986) decomposed observed return the variance into three components namely, i) the intrinsic value variance which arises due to heterogeneity in the valuation due to heterogeneous beliefs among investors, ii) the price adjustment component that captures the effect of an imperfect price adjustment process, and iii) the variance due to pure noise which arises due to irrational or unexplained behaviour. This Price Behaviour Model is

selected by the researcher in Part B of chapter six to analyse the behaviour of share prices around the announcement date of accounting information.

Damodaran (1993) expounded the observed variance of share prices

$(P_{it} - P_{i(t-1)})$ into three components:

1. V_i^2 which is the intrinsic variance of returns,
2. σ_i^2 is the variance of the noise term, and
3. $\{[(q_i/(2-q_i)) - 1] V_i^2 + [(2/(2-q_i)) - 2] \sigma_i^2\}$ is the price adjustment effect i.e. the variance portion of an imperfect price adjustment.

Putting the three components together, the observed return variance;

$$\text{Var}(r_{it}) = V_i^2 + 2 \sigma_i^2 + \{[(q_i/(2-q_i)) - 1] V_i^2 + [(2/(2-q_i)) - 2] \sigma_i^2\} \quad (2)$$

While the intrinsic variance, V_i^2 is variance attributed to the volatility of the underlying business, the second term (the noise term), is the component attributed to structure- and information-related noise. The price adjustment effect which is the third component reflects the adjustment of prices towards the value of the security. In a case where $q_i = 0$ it means there is no price reaction to changes in value, but where $0 < q_i < 1$, it represents a partial price adjustment. Also, unit-adjustment coefficient, $q_i = 1$, represents full price adjustment. When there is an overreaction in the market to new information which leads to higher observed return variance, then the price adjustment coefficient is greater than 1 ($q_i > 1$).

Damodaran and Lim (1991) made three basic assumptions to enable them formulate the price adjustment coefficient. The first assumption is that the intrinsic value (V_i^2) follows a random walk process. This is a common assumption in this area of research. Though it is difficult to justify stationarity in the process over long periods, the assumption is not

unreasonable for short intervals. Secondly, the noise term and the intrinsic value have no correlation. The processes of these two are assumed to be independent. This assumption is acceptable in the absence of an explicit model for the covariance between the two processes. The third and final assumption is that a constant k is introduced into the process and as the price adjustment coefficient q , approaches 1, the length of the interval over which returns are measured is extended to be equal to or greater than the constant k . Damodaran and Lim (1991) in this respect decided $k=10$. Their study revealed that the price adjustment coefficient for longer intervals rapidly approached one, even for very low or very high values of q_i .

The variances of different intervals are used to derive the measure of q_{ij} . The coefficient r_{ijt} is firm i 's return in time period t , where each return interval is of length j . Using Damodaran and Lim (1991) equation, the variance in the observed return time period t of returns of intervals j can be written (Damodaran and Lim, 1991) as:

$$\text{Var}(r_{ijt}) = \{[q_{ij}/(2-q_{ij})]jv_i^2 + [2/(2-q_{ij})]\sigma_i^2\} \quad (3)$$

Assuming that k is of sufficient length to allow $q_{ik} = 1$; and the noise variance component σ_i^2 is written as a function of the covariance and

$$\text{variance, then} \quad \sigma_i^2 = -\text{Cov}(r_{ikt}, r_{ik(t-1)}) \quad (4)$$

Furthermore, where the intrinsic variance component is also a function of the covariance and variance, then

$$v_i^2 = 1/k[\text{Var}(r_{ikt}) + 2\text{Cov}(r_{ikt}, r_{ik(t-1)})] \quad (5)$$

Based on equation (3), (4) and (5), the price adjustment factor q_{ijt} for return intervals $j=k-1$ can be estimated by the time series of unit-interval return data (Damodaran and Lim, 1991), i.e.:

$$q_{ij} = \frac{2 \{ \text{Var}(r_{ijt})/j + \text{Var}(r_{ikt}/k)(j-1) + \text{Cov}(r_{ikt}, r_{ik(t-1)})/j \}}{x \{ \text{Var}(r_{ijt})/j + \text{Var}(r_{ikt}/k)(2j-1) + [2\text{Cov}(r_{ikt}, r_{ik(t-1)})]/k \}} \quad (6)$$

To obtain price adjustment factors over different return intervals j for a given set of accounting data, the value of the constant k has to be estimated. Watt et al (1992) note that if $q_{ik}=1$, the series covariance, $\text{Cov}(r_{ikt}, r_{ik(t-1)})$, should not include any component arising out of an imperfect price adjustment; but if j is greater than the constant ($j < k$), then the $\text{Cov}(r_{ijt}, r_{ij(t-1)})$ may include a component arising from imperfect price adjustment. For the period of 10 trading days on either side of the earnings announcement date referred to as the pre- and post-announcement period respectively, the return variance of each share is calculated and the $\text{Cov}(r_{ikt}, r_{ik(t-1)})$ for different j is also calculated. At the point where the value of k is equal to the value of j ($k=j$) the covariance stabilizes to a constant value. With the Ghana Stock Market in consideration, the covariance stabilizes rapidly for return intervals approaching 10 days therefore, k is chosen as 10 trading days. Consequently the full price adjustment by this intervaling frequency is assumed. In order to estimate the components of the price variances, the excess return version of the market model is used. Excess return for stock i on day t is defined as: $r_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$ (7) Where R_{it} is the return on security i on day t and R_{mt} is the return on the

GSE value weighted market index on day t . The market model parameters α_i and β_i are estimated using daily returns from 20 trading days preceding the event window.

To study the impact of accounting information announcements on stock volatility and to analyse the information dissemination process around earnings announcements, the researcher adopts The Price Behaviour Model. This model provides a direction for empirically testing the effects of information dissemination in emerging capital markets.

6.8.2 Drawbacks with the Price Behaviour Model

Damodaran's (1993) measure has two major drawbacks. First, the assumption that price converges to its intrinsic value in 20 days. Considering a market where price never converges to their intrinsic value due to constant errors in the valuation process, there is every possibility to have such constant error in the valuation in the short-term due to information asymmetry as discussed above. Price overreaction due to investors' erratic behaviour could be a constant phenomenon in the short-term. Suppose some investors share private information or if at least the uninformed traders perceive that there is always a group of informed investors who have access to private information, then in the short-term there will be constant roller-coaster rides in the share prices making the price not to converge to its intrinsic value until a correction occurs. Such correction may not possibly occur in the 20 days time. And the chances of

not converging are more in emerging capital markets such as Ghana which are less efficient. Damodaran's (1993) measure by construction converges on the 20th day irrespective of the previous day's coefficient. In a situation like this, the model is no longer applicable to look for the real convergence.

The second major drawback is the inclusion of j on the right hand side of the price adjustment factor q_{ij} , equation in order to estimate the time series of unit-interval return data. Damodaran (1993) developed a statistical equation for the calculation of the price adjustment coefficients as a function of variances at different periods or intervals. Brisley and Theobald (1996) criticize Damodaran's estimation on the bases of possible error. Damodaran demonstrates a relationship between the constant k on one hand and the noise and intrinsic variances of the return process on the other. He shows that within a defined period k , when $q(k) = 1$, it is possible to estimate both the noise and intrinsic variances of the returns process. As demonstrated in the previous pages, the price adjustment coefficient is a function of the observable variance and the covariance terms expressed in the equation (Damodaran, 1993):

$$q_{ij} = \frac{2 \{ \text{Var}(r_{ijt})/j + \text{Var}(r_{ikt}/k)(j-1) + \text{Cov}(r_{ikt}, r_{ik(t-1)})/j \}}{x \{ \text{Var}(r_{ijt})/j + \text{Var}(r_{ikt}/k)(2j-1) + [2\text{Cov}(r_{ikt}, r_{ik(t-1)})]/k \}}$$

This shows that for a given series of return data, the value of k has to be estimated to obtain price adjustment factors over different return intervals

j. Brisley and Theobald (1996) disagree with the above relation and claim the above equation to be incorrect. They propose thier correct formulation to be (Brisley and Theobald, 1996):

$$q_{ij} = \frac{2\text{Var}\{R(j, t)/j + 2\text{Cov}\{R(k, t), R(k, t-1)\}/j}{\text{Var}\{R(j, t)/j + \text{Var}\{R(k, t)\}/k + 2\text{Cov}\{R(k, t), R(k, t-1)\}/k}$$

where var and cov are the variance and covariance operators, respectively.

The estimator developed in equation above differs from that in Damodaran (1993), equation by a $2(j - 1)\text{var}\{R(k, t)\}/k$ term in both the numerator and the denominator.

Based on the above error Brisley and Theobald (1996) suggest that the Damodaran estimator could be over or under estimated. Therefore, the Damodaran estimator formulation could be biased towards one, especially where the main empirical impact that derives from the error is at shorter differencing intervals. They further argue that by Damodaran estimator, the measured price reaction towards intrinsic values will be overstated when the actual price adjustment is incomplete even if a unit price adjustment coefficient is assumed. Notwithstanding the above criticize and proposed correction, even Brisley and Theobald, (1996) admit that there is no change the basic conclusion of Damodaran's work. The researcher therefore sticks to Damoradan (1993) approach in analyzing the market reaction around announcement dates of accounting information.

6.8.3 Valuation Models and Regression Analysis

The second empirical aspect of this research is generally concerned with establishing the relationships between variables as it examines the relationship between earnings and book values on one hand and share prices on the other. Various forms of analysis would be applied including Regression analysis, Descriptive Statistics, Tables and Graphs. The descriptive aspect of statistics which consists of graphical and numerical techniques, allows the researcher to summarise large quantities of data using measures that are easily understood by an observer. A cross-sectional regression could be used to regress changes in earnings and book values on changes in share prices in order to estimate the relationship between them. The use of the regression analysis is based on the following four assumptions:

- Error / residuals are normally distributed
- No multicollinearity, i.e. no relationship between the independent variables
- No Heteroskedasticity i.e. the variance of the error term must be constant
- No autocorrelation i.e. there is no relation between the error terms.

While autocorrelation as a mathematical tool is used in signal processing for analysing functions or series of values, such as time domain signals, Vector Autoregression (VAR) is an econometric model used to capture the evolution and the interdependencies between multiple time series,

generalizing the univariate autoregression (AR) models. Campbell and Shiller (1988) demonstrate that a realistic valuation of stocks may require that the coefficients of a vector autoregression (VAR) which involves the log dividend yield, interest rate, and the growth rate of dividends are restricted. This method facilitates the examination of the relation between share prices, dividends and accounting variables at both the individual firm and industry levels. Suppose that accounting numbers carry information about future dividends, any rational valuation may imply limitations on the relation between share prices and accounting variables. The importance of the assumption about the stochastic process for earnings was recognized by Beaver et al (1980). They did not consent to inter firm differences and are not unequivocal about the dependence of dividends on earnings. Kormendi and Lipe (1987) also employ a rational expectations framework to model the dependence of the earnings response coefficient on the stochastic process for earnings. Though the outcome did confirmed their prediction of a relation between the stochastic process for earnings and the share price response to earnings changes, the valuation model was rejected because of the assumption that the whole of each firm's earnings are paid out in the dividends.

The three most common accounting-based valuation models are the Earnings Capitalisation (EC) model, Book Value (BV) model, and the Residual Income (RI) model. Several studies in accounting and finance

area, including seminal studies by Ball & Brown (1968) and Beaver (1968) use the residual approach to assess the information content of earnings announcements. Some use the expectation model approach put forth by Benson (1967) and later refined by Gonedes (1971) and Forsgardh and Herten (1975). The main principle upon which these valuation models build is that a firm's market price is equal to investors' expected discounted future cash flows. The current period accounting data is used by the EC, BV and RI valuation models in place of the expected discounted future cash flows. Since the interest of this research lies in the relation between current period accounting variables and price, no further information is added neither are the reported accounting variables manipulated to enhance the performance of the models.

The Earnings Capitalisation (EC) Model is denoted with the equation (Ashbaugh and Olsson ,2002):

$P_i = \alpha_E + \beta_E E_i + \varepsilon_i$ while the Book Value (BV) model is defined as:

$P_i = \alpha_{BV} + \beta_{BV} BV_i + v_i$ and finally the Residual Income (RI) model is:

$$P_i = \alpha_{RI} + \beta_{RI} BV_i + \gamma_{RI} RI_i + \varepsilon_i$$

where P_i is market price per share of firm i , and E_i , BV_i and RI_i are firm i 's earnings, book value of stockholders' equity, and residual income per share, respectively.

Brennan (1991) criticizes earlier studies for not articulating the relation between earnings and dividends and for not distinguishing carefully enough between economic and accounting earnings concept. Indeed, most of the literature reviewed in chapter 3 pay no heed to the essential feature of accounting earnings that earnings not paid out in dividends increase the book value of equity. This accounting convention corresponds to the economic reality that an unexpected increase in earnings, if not matched by an increase in dividend, will increase the net assets available to generate future earnings and pay dividends, Brennan (1991). Therefore, to have a valuation model in which accounting earnings play a role, it may be necessary to consider the financial statements which include the balance sheet and the profit and loss account.

6.8.3.1 The Brennan and Schwartz Model

In evaluating the impact of accounting information on stock prices a vital valuation model worth examining is the Brennan and Schwartz (1982, 1984) model. The model was further expounded by Brennan (1991) when considering accounting information and stock prices. He proposed that the market value MV, of a firm's equity is the product of the book value BV, of the equity and the market to book ratio $m(x)$, which depends on only the return on equity (ROE).

$$MV(x, BV) = m(x)BV$$

The market to book ratio, $m(x)$, is a nonnegative increasing function of the ROE that depends on the precise terms on which the equity holders can declare bankruptcy. For the purpose of this study and in this model, accounting earning and economic earnings are not synonymous. Reference in this context is therefore made to only accounting earnings. The Brennan (1991) model further suggests that share price is not a linear function of earnings. Notwithstanding, accounting earnings together with the current book value are sufficient statistics for the value of the shares. A vital element of Brennan and Schwartz's valuation model is that the relation between the share price and the earnings depends on 1) the current rate of return on equity and 2) the assumed stochastic process for the return on equity, as well as a risk adjustment term and the dividend payout policy. The model shows a consistent relation between the accounting variables, x and BV, and the function relating the share price to the accounting variables, the $m(x)$ function.

Three basic assumptions to the model were analyzed by Brennan (1991) as follows:

1) The return on equity (x) follows a simple mean reverting process which is summarised in the following equation.

$$dx = a(m-x)dt + s dz$$

Where the dz represents the increment to a continuous-time stochastic process with independent increments commonly referred to a Gauss-Wiener process defined 17 on page 369. The variables m , a , and t refer to the long run mean return on equity, the speed of adjustment, and the calendar time respectively.

2) Brennan (1991) presupposes that the total dividend payout is a function of the book value of equity, BV , and the return on equity $D(x, BV)$. So if the payout ratio is $p(x)$, then $D(x, B) = p(x)B$.

3) The third assumption presupposes that under the “clean surplus” conditions of Ohlson (1989b), the rate of change in the value of book equity is equal to the difference between the current earnings rate $(x)BV$ and the payout rate $p(x)BV$: This is simplified in the equation

$$(d)BV = (x - p(x)) BV dt.$$

Ohlson (1989b) describes this as the “clean surplus” condition which does not allow for asset write-downs or increments to equity by stock sales.

Brennan (1991) describes this model as a simple model because of the simple characterization of the return on equity process.

6.8.3.2 The Ohlson Model

The Ohlson model (1995) provides a rigorous foundation for assessing the relation between share prices, earnings and book value in a dynamic uncertain environment (such as emerging markets like Ghana) that relies on the clean surplus assumption and the Miller and Modigliani (1961) propositions. From the literature review in chapter three, Ohlson's (1995) work is cited as the theoretical foundation for many recent studies of the relation between price, book value, and earnings. The model is based on variations of the following linear (price-levels) regression.

$$P_{it} = a_0 + a_1 E_{it} + a_2 B_{it} + e_{it}$$

Where P_{it} = the Price per share at time t ,

E_{it} = the accounting earnings,

B_{it} = the current book value of firm at time t .

This Ohlson (1995) approach does not only model the relation between share price and accounting variables but develops the work of Ohlson (1989b) by taking into account the role of dividends. Furthermore, the model incorporates the linear information dynamics model (LIM) of Garman and Ohlson (1980). Starting from Garman and Ohlson (1980) to Ohlson (1989b), Brennan (1991) presents the model by the following equation system:

$$E_{t+1} = a_{11} E_t + a_{12} B_t + a_{13} D_t + v_{1t} \quad (A-1)$$

$$B_{t+1} = a_{21} E_t + a_{22} B_t + a_{23} D_t + v_{2t} \quad (A-2)$$

$$D_{t+1} = a_{31} E_t + a_{32} B_t + a_{33} D_t + v_{3t} \quad (A-3)$$

$$P_{t+1} = cP_t + D_t + v_{1t} \quad (E)$$

(Cited from Brennan, 1991)

Brennan (1991) defines E_t , B_t , D_t and P_t as the Earnings, Book value, Dividends, and Price per share at time t . Also, V_{it} represent random errors.

Equations A-1 to A-3 simply describe the evolution of earnings, book values and dividends. The “clean surplus” condition of Ohlson (1989b) which insist that a change in book value must be equal to the retained earnings is incorporated in equation A-2. The equilibrium condition at which the expected rate of return on stocks is equal to the risk free interest rate is expressed in equation E. This is on the assumption that investors are risk neutral, so the risk-free interest rate is assumed to be constant.

In short, the Ohlson’s (1991) model shows a linear structure as described in the above equation system, where the share price P_t is expresses as a linear function of the current values, B_t , E_t , D_t . This is expressed in the equation:

$$P_t = b_1 E_t + b_2 B_t + b_3 D_t + V_{it}, \quad (B)$$

where the coefficients b_j are functions of the coefficients of the earlier equation systems A and E. Therefore, “*estimation of the equation system A, E and B taking account of the coefficient restrictions yields a test of the hypothesized relationship between accounting variables and share prices*”, Brennan (1991).

An important contribution of Ohlson's work is that it forms a framework for understanding the relationship between share prices and accounting data and a basis for interpreting estimates of the regression coefficients a_0 , a_1 , and a_2 . For instance, a) the model provides a valuation role for other information and dividends a nonzero intercept a_0 suggests that the average incremental explanatory power for prices (over book value and earnings) is nonzero; b) the coefficient a_1 on book value is negatively related to the persistence in abnormal earnings so that a higher coefficient on book value implies that these earnings are less persistent; and c) the coefficient a_2 on earnings is positively related to this persistence and negatively related to the expected rate of return.

Note, however, that Ohlson (1995) is only a starting point for the understanding of the relation between prices and accounting data. Other theoretical papers including Feltham and Ohlson (1995), Ohlson and Zhang (1998), Zhang (1999) provide critical additional insights. For example, Feltham and Ohlson (1995) form a framework for understanding the role of conservative accounting, while Zhang (1999) shows, inter alia, that with growth and conservative accounting, the coefficient on book value may, indeed, be negative.

a_1 = Price –earnings coefficient in a multiple regression a_2 = Price –book values coefficient in a multiple regression b_1 = Price –earnings coefficient in a simple regression c_1 = Price –book values coefficient in a simple regression
--

6.8.3.3 *The Linear Information Dynamics Model*

An extended version of the Ohlson (1995) valuation model includes a linear information dynamics Model (LIM). The LIM specifies the form of evolution of expected abnormal earnings and non-accounting information on expected abnormal earnings. A modified first-order autoregressive process is applied to the abnormal earnings (residual income) using the equation $X_{t+1} = \omega X_t + v_t = \varepsilon_{1,t+1}$. For the non-accounting information, Ohlson applies a simple first-order autoregressive process as follows:

$$v_{t+1} = yv_t + v_t = \varepsilon_{2,t+1}$$

where ω and y are fixed persistence parameters that are assumed to be known, non-negative and less than one. The variance v_t represents non-accounting information about expected future abnormal earnings that is observed at the end of period t but not yet recognised by the accounting system. The ε 's represent stochastic error terms assumed to be mean zero and uncorrelated over time. The finite valuation problem inherent in most traditional valuation models is resolved by Ohlson in the LIM. If the fixed persistence parameters ω and y are assumed to be less than one, then the convergence of abnormal earnings to zero implies eventual convergence between the firm's book and market value. Without applying the accounting conservatism concept, the assumption of ω and y being less than one makes some theoretical sense, because competition should eventually erase long-run firm-specific abnormal earnings.

With the LIM, it is implied that there is a perfect valuation relation for market value in terms of abnormal earnings, accounting book values and non-accounting information. This is formulated as (Ohlson, 1995):

$$P_t = BV_t + \alpha_1 X_t + \alpha_2 V_t$$

Where

$$\alpha_1 = \omega/(1+r-\omega) \quad \text{and} \quad \omega/\{(1+r-\omega)(1+r-y)\}$$

Ohlson in this formulation treats the value of shareholders' equity as the sum total of three components: (i) current book value (BV), (ii) capitalised current residual income (RI) and (iii) capitalised value implied by 'other information'.

The above review, arguments and comments on models used seem to suggest that the Ohlson (1989) model further developed in 1995 and popularly called Ohlson (1995) model is the most appropriate to be adopted for the determination of the relationship between share prices and accounting information such as Earnings and Book Values. The following is therefore adopted for detailed analysis of the impact of accounting data on share prices:

$$P_{it} = a_0 + a_1 E_{it} + a_2 BV_{it} + e_{it} \text{ (Ohlson, 1995).}$$

This is suitable for the project for the following reasons:

- due to the availability of data
- The interest of this research lies in the relation between current period accounting variables and price. It may not be necessary to

manipulate reported accounting variables in order to enhance the performance of the model.

- Since the accounting variables do not follow a martingale it is not synonymous with economic earnings and the share price is not a linear function of the earnings.
- It is not intended in this project to use quantitative methodology to analyse the relationship between non-accounting information and share prices. This is covered in Chapter 7 under the qualitative approach.

In sum, this study aims using the information of companies listed on the Ghana Stock Exchange to investigate the usefulness of accounting information particularly, book values and earnings in the valuation of equity. Statistical analysis is applied to evaluate the relevance of accounting information to investors and to determine the association between share prices and earnings and book values. As stated by Lev and Zarowin, (1999), the established association between these variables would reflect the consequences of investors' actions, hence could be a better useful measure to compare with other useful measures. Other measures used in this research include questionnaires and interviews which also reflect the opinions of the investors though they do not permit for the appraisal of the incremental value of accounting data in relation to other sources of market information.

In this study the Ohlson (1995) valuation model is applied to express price as a function of earnings and book values of equity. Yearly cross-sectional regression is estimated covering a 13-year period from 1991 to 2003 and using a primary metric R^2 to assess value relevance. For the purpose of this research in determining and comparing the explanatory power that earnings and book values have for prices, the researcher applies a technique developed by Theil (1971) and used by Easton (1985), Collins et al. (1997) and others. The combined explanatory power that earnings and book values is decompose into three basic components namely: the incremental information content of book values; the incremental information content of earnings; and the incremental information content common to both book values and earnings.

For further understanding and clarity on the association between earnings and book values and share prices, the listed companies were partitioned into sub-groups based on industry classification and the profitability of the firms. The results of this decomposition are then compared with those found in developed markets.

6.9 The Qualitative Approach

Considering the limitations of a purely quantitative research and the possibility of high-unexplained variables, a qualitative aspect is incorporated in the research. Looking beyond the numbers and figures, the researcher uses ethnography as the lenses to observe the non-quantifiable factors such as economic and political that do influence share prices. This approach is employed to ascertain the views of the stakeholders examine the market structure and review the economic and political environment as they relate to the progress of the Ghana stock market.

The research hypotheses to be investigated are partly geared towards a qualitative study since the findings to be discovered are presumably widespread and unknown. There is not a well-defined list of accounting information that is used exclusively by investors in making price decisions. When the researcher “wants information to emerge from the participants in the project”, a qualitative methodology is most appropriate, Creswell (2003). Creswell (2003) states, “qualitative research is exploratory and useful when the researcher does not know the important variables to examine”. A qualitative approach is also appropriate for this study since it will allow the researcher to search, discover and describe the various factors that impact share prices in emerging markets.

In many qualitative studies a theory base does not guide because those available are inadequate, incomplete, or simply missing, (Creswell, 1994). Rubin and Rubin (1995) state that in a qualitative interview, the researcher “taps the interviewee’s experiences---- allowing the interviewee the ability to elaborate, ---- share in the work of the interview,---- and be treated as partners rather than as objects of research”. Creswell states that a qualitative approach is useful when the “topic is new, has never been addressed with a certain sample or group of people, or existing theories do not apply with the particular sample or group under study”. Though there have been various studies on emerging markets, this type of study on Ghana’s emerging market is relatively new, the additional reason for the use of a qualitative approach. Virtually little or no research has explored the behaviour of share prices in emerging markets, particularly Ghana. This study is therefore innovative and original on its own merit.

The study elicits data from investors as to which non-accounting information does impact the prices of stocks in the Ghana stock market. Qualitative interviewing is therefore used to obtain the relevant information. Qualitative interviewing “recognizes that meaning emerges through interaction and is not standardized from place to place or from person to person” (Rubin and Rubin 1995). They also state the importance of understanding the overall text of the conversation and, more broadly, the importance of seeing meaning in context”. There are many accounting

and non-accounting information that impact share prices in emerging markets, thus revealing that context is important. In this study the researcher gathers the perceptions and opinions of numerous investors regarding the use of accounting and non-accounting sources of information in determining share prices. These perceptions and opinions are framed from the context of each investor role in the stock market. Furthermore, “Qualitative interviewing is a way of finding out about the way others feel and think about their worlds” (Rubin and Rubin 1995). This approach has allowed the researcher to understand experiences and reconstruct events in which he did not participate. It has also allowed the researcher to find stories and gather data necessary to analyze the hypotheses. Qualitative interviews are guided by the researcher, who intentionally asks a limited number of questions and requests the interviewee to explore these questions in depth. Samples of the researcher’s interview guide, note taking form and interview evaluation questionnaire are shown on appendices 5, 6 and 7.

The design of this study combines descriptive and interpretive types of qualitative research. The study is descriptive in the sense that the nature, structure, trading activities and performances of the Ghana stock market are gathered and described. This style of research is also used to study the trend and movement of share prices including the all-share index over the period under review. With a descriptive research methodology, “the

researchers simply collect data and interpret it (Ravid 2000). The gathered data in a descriptive research study does not attempt to test hypothesis or make predictions, Isaac and Michael (1995). The descriptive aspects of this research do not attempt to test any hypothesis.

This study goes beyond the scope of just description to interpretation, whereby interpretation of data gathered can be assimilated and theories can be developed and communicated to investors, interested parties of emerging equity markets, business and industry and accounting educators. As an interpretive researcher, he sought rich and thick descriptions of cultural and topical arenas of the Ghanaian Capital Market and tried to develop an empathetic understanding of the world of emerging markets, (and for that matter the Ghanaian capital market).

As indicated earlier in this chapter, the project is basically a quantitative project. This qualitative aspect plays a subsidiary role and is intended to substantiate the findings of the quantitative work.

6.10 Conclusion and Summary

The data-gathering methodologies applied by the researcher included interviews, questionnaires and observation. The researcher has used data collected from several sources including; Annual Reports and financial statements of listed companies, the GSE database, Ghanaian newspaper

publications, African Economics Journal, and Ghana Data Bank. Other sources of the financial data used in this research included: Data Stream, IMF and World Bank Reports, Standard & Poor's Emerging Market Data Base (EMDB) and the Centre for Studies of Emerging Markets (University of Westminster, London). The researcher also employed observation as a means of data collection and made a total of 47 personal visits to the trading floor of GSE. Another major means of data collection was by interviews and casual conversations with stockbrokers, individuals, managers of financial institutions and institutional investors.

The approach adopted by the researcher in order to adequately test all the hypotheses is summarised as follows: The researcher uses descriptive and interpretive statistics to tell a story and paint a picture for a clear and explicit understanding of the Ghana Stock Exchange.

To test hypothesis H_1 , "*The announcement (Publication) of accounting information has significant impact on share prices in the Ghana Stock Market*", the researcher uses the Price Behaviour Model to analyze the link between announcement dates and share prices. In order to analyze the relationship between accounting earnings and share prices and also book values and share prices, the researcher adopts the Ohlson (1995) Model to test hypotheses H_2 and H_3 . All these analyses are undertaken in the next chapter – chapter 7.

CHAPTER SEVEN

DATA ANALYSIS

7.1 Introduction – Findings from Interviews, Questionnaires and Observations

7.2 PART A-Descriptive Statistics and analysis of the GSE All Share Index

7.2.1 Introduction

7.2.2 A Review of Share Price Movements

7.2.3 Analysis of the GSE All-Share Index

7.2.4 Other Descriptive Statistics

7.3 PART B - Analysis of announcement dates and prices using the Price Behaviour Model

7.3.1 Introduction

7.3.2 The Data

7.3.3 Empirical Analysis and Results

7.3.3.1 The Total Risk Analysis

7.3.3.2 The decomposition of the observed variance reduction

7.3.4 Conclusions

7.4 PART C - Analysis of Earnings and Book Values Relation to Share prices Using the Ohlson Model

7.4.1 Introduction

7.4.2 The Relation between Earnings and Stock Returns

7.4.3 Linking Accounting Data and Share prices

7.4.4 Analysing the Relations between Earnings, Book Values and Prices

7.4.5 Cross-sectional Regression of Prices on Earnings and Book Values

7.4.6 The Decomposition of the Coefficients of Variation

7.4.7 Regression Results Based on Profit Classification (P&L Firms)

7.4.8 Regression Results Based on the Industry Classification

7.4.9 Summary and Conclusions

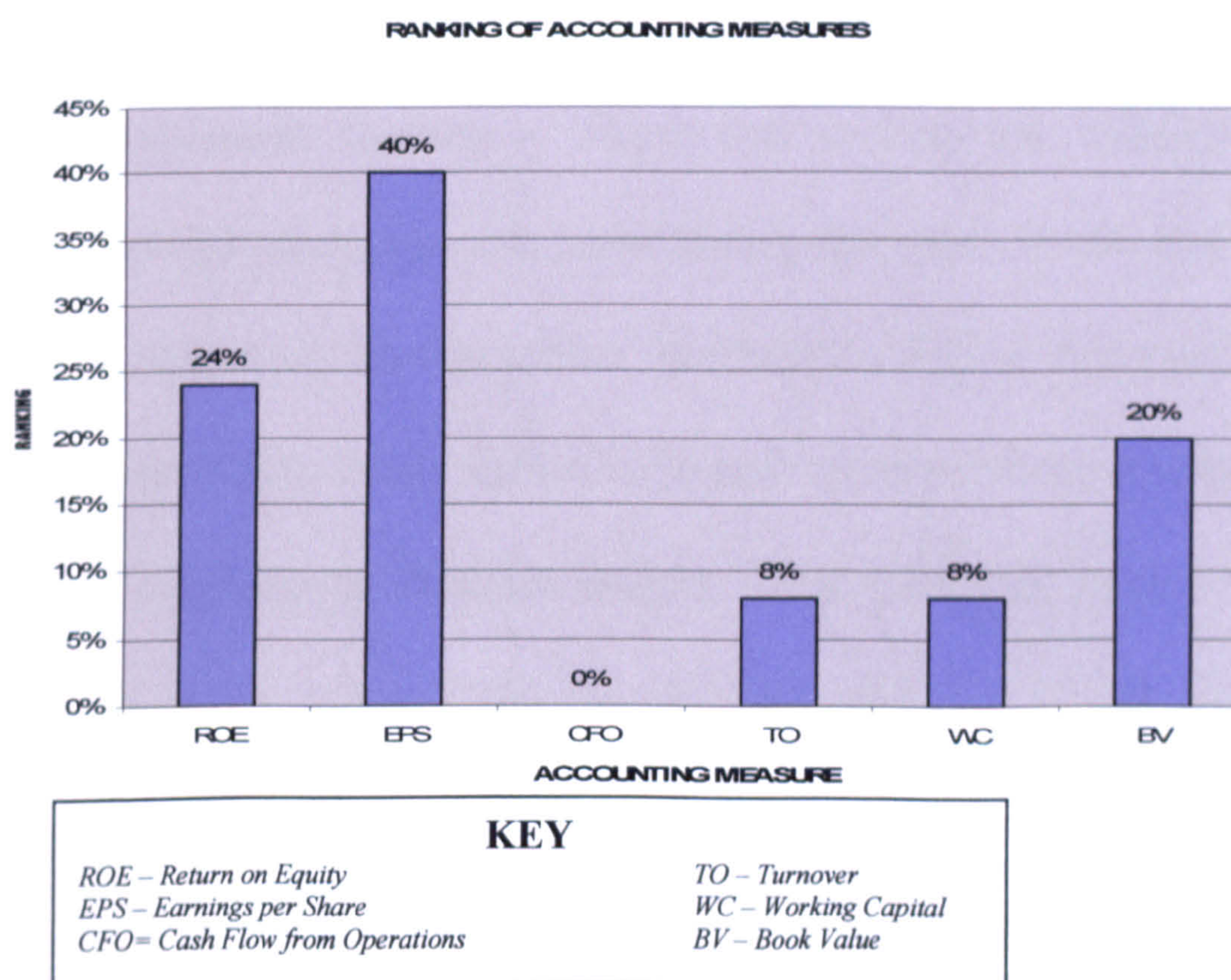
7.1 Introduction - Findings from Interviews, Questionnaires and Observations

Interviews undertaken with licensed stockbrokers revealed that all the stockbrokers have specialised staff who critically analysis the financial statements of listed companies in the light of their performance and they try to predict the future movements in share prices. On the contrary, the information gathered from the interviews revealed that most individuals and potential investors in Ghana have little or no understanding of the published financial statements. The financial statements of listed companies, though often published, are hardly read by the public. Most of the interviewees proposed that the understanding of such accounting information is the professional task of some selected individuals, probably the stockbrokers. Most of those who make attempt to read such publications are those with shares in such companies and their only area of interest is the dividend declared.

The professional and technical manner in which financial statements are prepared and presented to the public make it difficult for any ordinary investor on the streets of Ghana to comprehend the information in these financial statements not even to assess the usefulness of the various accounting measures. From the foregoing, the ranking of the importance of the various accounting measures could be done only by the few (thirteen) stockbrokers in the GSE. This ranking of importance is summarised on Appendix 8.

The information gathered from the interviews and questionnaires do underscore the great significance (and influential power) of accounting variables in the Ghanaian capital market. In this context, the EPS is found to be the accounting measure mostly considered by investors with a highest ranking of 40%; followed by the ROE with 24% and then Book Values, Turnover, Working Capital and Cash Flow from operations in that order with rankings of 20%, 8%, 8% and 0% respectively as shown in figure 10 below.

Figure 10



Most Ghanaian investors have little or no understanding of the term ‘Cash Flow from Operations’ and its significance as an accounting measure. They are more familiar with terminologies like ROE, EPS, Book Values, and Turnover.

Data gathered from interviews and questionnaires reveal that several non-accounting information also influence investors decisions in the Ghanaian capital market. These include:

- **Politics** – The political atmosphere, the type of government in power (military or democratic), the ruling party, and the popularity of the president and/or leaders do influence the GSE. The relative peace within Ghana as compared to others countries in the sub region and the absence of tribal and ethnic conflicts have attracted external investors into Ghana, thus promoting the Ghanaian capital market.
- **Economic Factors** – These also include the inflationary trend, the foreign exchange rate (considering the value of the cedi against major currencies), foreign direct investments (FDIs), the movements in local commodity prices such as gold and cocoa and interest rates.
- **International Finance Bodies** – The influential powers of international financial bodies such as the IMF and the World Bank has strong implications.
- **Cultural Factors** – The traditional and cultural values of the Ghanaian people do not in any way promote investments in the capital market. The effects of poverty which draws people to prefer short term returns turns them away from the capital markets. The wealth and societal status of a Ghanaian is not measured by the investments he has in the capital market

but by the liquid assets he has. The wisdom of long term capital investment is a remote ideas among most Ghanaians.

- **Illiteracy** – Lack of education and understanding of the essence of the capital market is found to be a strong factor. A quick survey conducted on the streets of Accra (The capital city where the GSE is located) revealed that less than 8% of Ghanaians have a clear understanding of the operations of the Ghana Stock Exchange. This ratio could even be lower if the survey is extended to other parts of the country where illiteracy is higher and the activities of the GSE have not been extended to.

Detailed analysis of each of the above accounting and non-accounting measures may be an unending project. Considering the cost and time and to stay focus on the research objectives, only two of the accounting measures (i.e. Earnings and Book Values) are discussed in this study. For the purpose of testing the stated hypotheses, the remainder of this chapter considers the statistical (quantitative) analysis.

This chapter presents empirical analysis, undertakes various investigations to test the hypotheses outline in the previous chapter, and draws conclusions from the empirical results. For the purpose of clarity, the chapter is divided into three major parts as follows:

PART A deals with descriptive statistics and analysis of the GSE Share prices and the All Share Index (ASI)

PART B tests hypothesis H_1 *“The announcement (Publication) of accounting information has significant impact on share prices in the Ghana Stock Market”*.

An analysis of announcement dates and prices using the Price Behaviour Model is undertaken. The empirical results from these analyses are drawn.

PART C tests hypotheses H_2 and H_3 which suggest a relationship between accounting Earnings and Book Values and share prices. An analysis of Accounting Earnings and Book Values Relation to Share prices is undertaken using the Ohlson (1995) Abnormal Earnings Models widely known as the Edwards-Bells-Ohlson (EBO) Model.

7.2 PART A

Descriptive Statistics and Analysis of GSE Share Prices and All Share Index (ASI)

7.2.1 Introduction

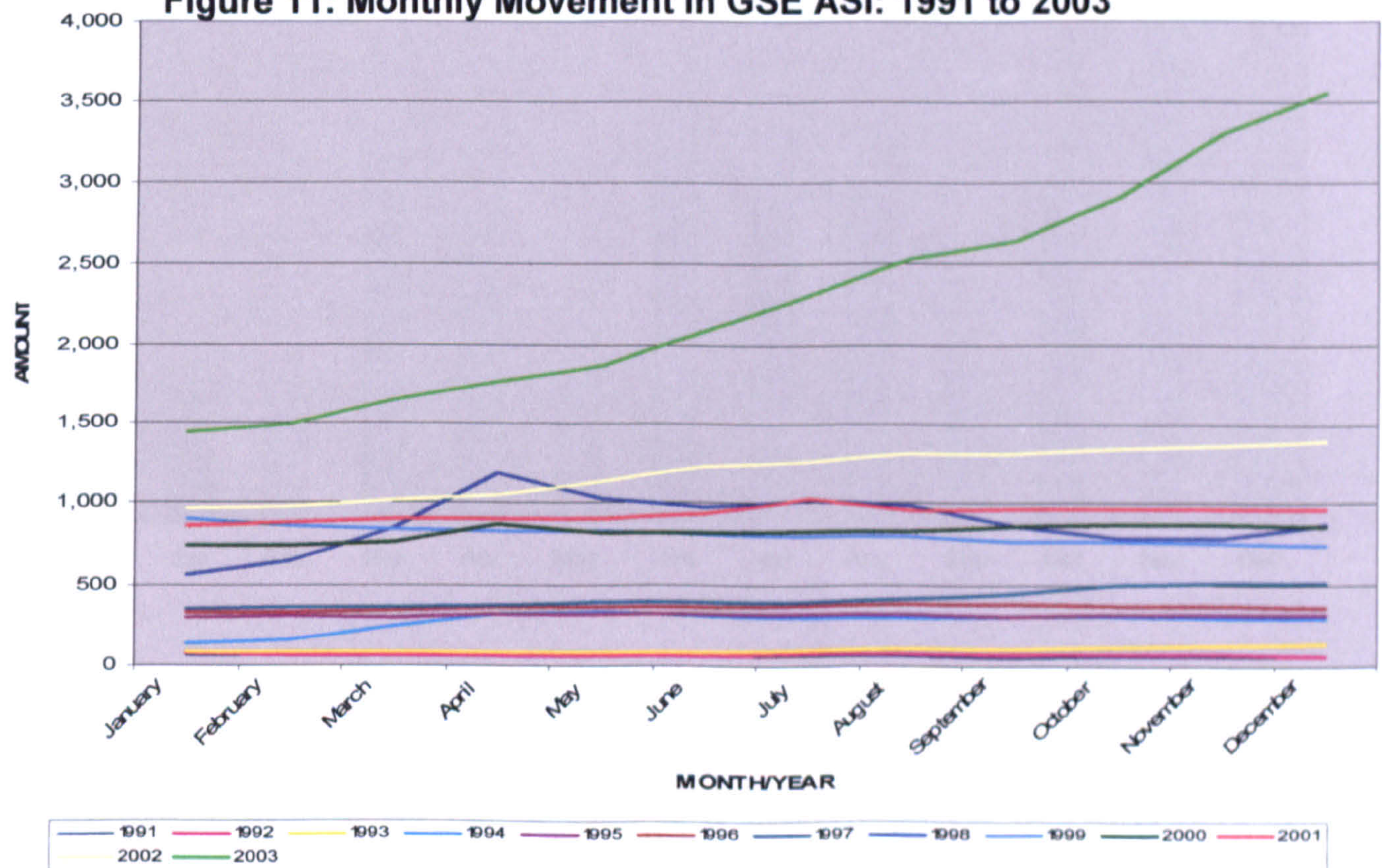
This section analyses in detail the GSE share prices and the All Share Index over the 13 years from 1991 - 2003. First, a review of the movements in share prices of all listed companies is undertaken. Descriptive statistics and analysis of the GSE All-Share Index (ASI) is also undertaken. Other descriptive statistics are deployed to shed more light on the behaviour of share prices in the exchange. Table 22 shows the trend in share prices of all equities from 1991-2003.

Table 22 - Trend In Share Prices 1991-2003

	COMPANY	1st Trading											% Change			
			1991	1992	1993	1994	1995	1996	1997	1998	1999	2000		2001	2002	2003
1	Accra Brewery Company Limited	135	130	135	323	301	240	576	745	850	458	630	320	410	552	309
2	Ashanti Goldfields Company Ltd	21,500	-	-	-	21,000	24,400	22,500	17,000	18,000	18,700	18,600	18,800	27,000	28,650	33
3	Aluworks Limited	1,410	-	-	-	-	-	1,415	2,500	2,500	2,489	4,350	4,300	3,700	4,000	184
4	British American Tobacco Gh Ltd	750	91	54	70	76	127	133	364	400	469	400	627	1,001	5,200	593
5	CFAO Ghana Limited	20	-	16	29	49	28	20	38	50	38	51	60	67	75	275
6	Enterprise Insurance Co. Ltd	130	119	105	223	600	465	430	957	2,400	1,880	2,700	3,050	4,600	10,500	7,977
7	Fan Milk Limited	25	145	88	171	290	330	404	488	1,100	916	850	950	1,785	3,800	15,100
8	Ghana Breweries Limited	90*	93*	91*	236*	590*	605*	660*	3,000	2,050	1,450	1,350	1,000	500	1,460	1,470
9	Ghana Commercial Bank Limited	539	-	-	-	-	-	701	800	1,300	760	1,505	1,570	3,516	8,170	1,416
10	Guinness Ghana Limited	83	47	34	46	191	218	275	650	800	950	900	901	1,050	5,650	6,707
11	Home Finance Company Limited	102	-	-	-	-	117	136	235	750	750	952	952	955	4,000	3,822
12	Metalloplastica Ghana Limited	35	53	52	55	140	130	150	160	200	200	200	241	254	275	686
13	Mechanical Uiyod Company Ltd	52	-	-	-	35	49	53	194	200	151	135	145	270	700	1,246
14	Mobil Oil Ghana Limited	400	380	610	2,340	4,100	4,800	5,900	8,230	17,000	13,800	18,600	18,500	19,730	35,001	8,650
15	Pioneer Aluminium Factory Ltd	120	-	-	-	-	136	171	179	400	300	267	800	750	740	517
16	Produce Buying Company Ltd	515	-	-	-	-	-	-	-	-	-	503	450	390	1,300	152
17	PZ Ghana Limited	105	78	60	85	290	430	370	325	900	800	400	1,010	2,005	2,700	2,471
18	Standard Chartered Bank Gh Ltd	200	419	540	2,017	5,830	5,800	5,000	8,100	24,000	19,000	21,500	20,500	28,700	61,001	30,401
19	Super Paper Products Co. Ltd	160	-	161	150	95	104	105	158	251	150	260	341	387	390	144
20	SSB Bank Limited	820	-	-	-	-	804	1,057	1,700	2,250	1,984	2,040	2,200	3,966	21,000	2,461
21	Unilever Ghana Ltd	1,800	1,240	272	455	809	840	800	1,100	1,600	1,850	1,600	2,300	4,805	14,041	680
22	Camelot Ghana Limited	420	-	-	-	-	-	-	-	-	420	425	430	460	550	31

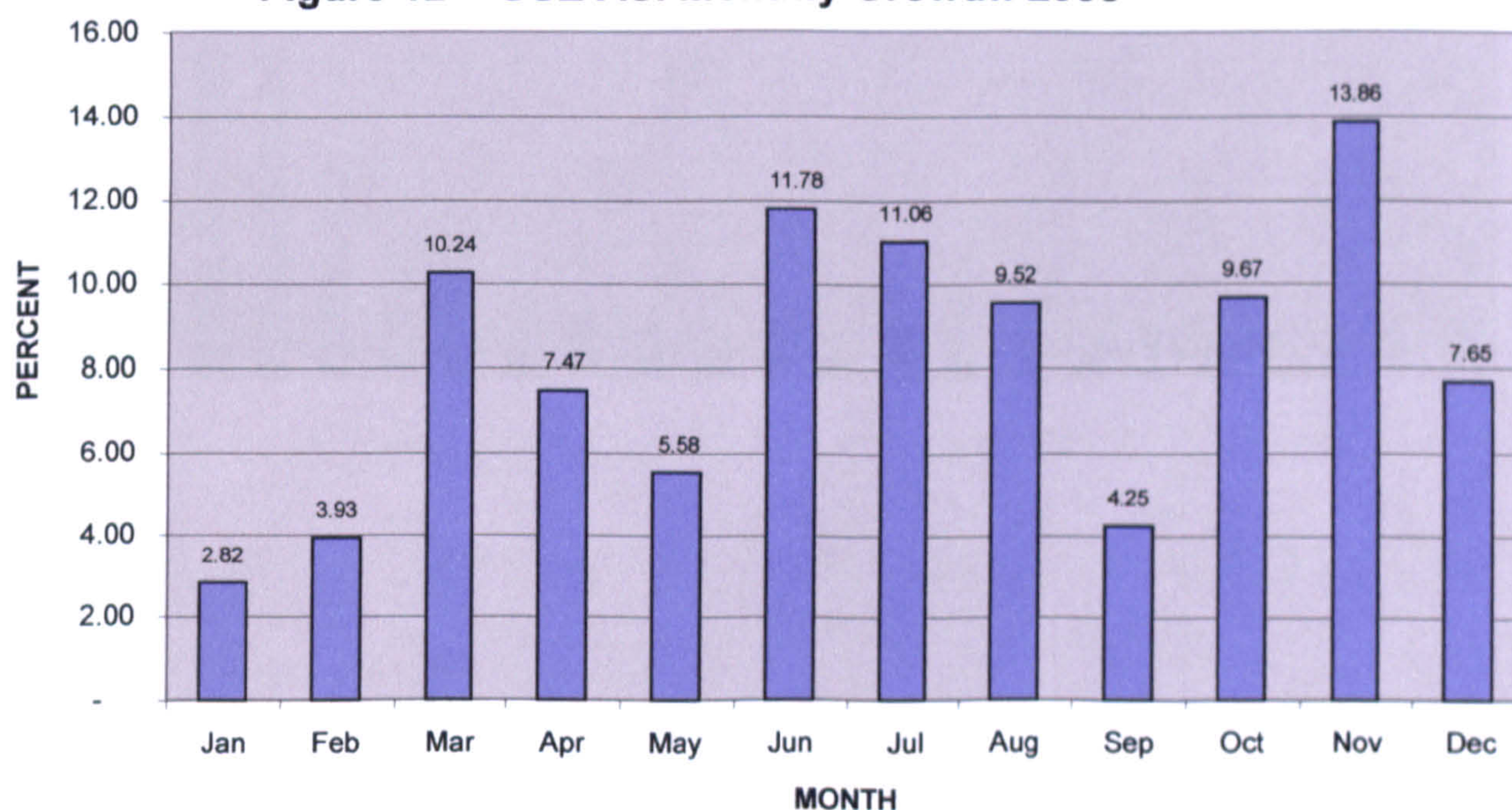
Table 24 - GSE All-Share Index Growth 1991 -2003 (%)

Initial Month													
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Jan	-5.61	7.5	32.81	5.83	0.37	1.71	-3.91	9.98	2.89	0.75	-0.09	0.15	2.82
Feb	-1.13	-4.07	-3.15	13.08	0.72	2.46	3.55	15.23	-4.11	-0.28	2.21	1.31	3.93
Mar	-4.43	- 1.41	3.98	55.75	-1.64	0.73	1.12	30.94	-3.28	3.16	2.63	4.96	10.24
Apr	-2.66	- 3.93	0.04	25.86	6.22	7.45	2.15	39.5	-0.93	13.77	-0.15	2.26	7.47
May	-2.15	- 3.08	0.58	5.41	0.41	0.31	3.95	-13.17	-0.21	-6.41	-0.37	8.8	5.58
Jun	0.54	- 0.34	6.59	-8.25	-1.50	1.47	0.04	-5.67	-1.59	0.64	4.24	8.03	11.78
Jul	-0.95	13.26	7.58	-2.63	0.19	1.13	1.27	4.33	-2.27	0.5	9.85	2.73	11.06
Aug	0.25	3.34	4.56	-0.07	-0.11	3.23	5.77	-3.16	0.12	0.02	-7.3	4.19	9.52
Sep	-2.91	1.60	6.64	2.89	-0.51	0.96	8.16	-12.85	-3.66	4.07	0.68	0.07	4.25
Oct	5.48	- 1.55	4.15	0.14	3.23	- 4.24	9.86	8.18	-0.07	0.97	0.52	2.22	9.67
Nov	4.11	0.27	15.73	-1.58	-0.12	- 0.24	2.18	1.03	-1.58	0.28	-0.26	1.71	13.86
Dec	1.82	- 12.98	3.07	0.20	-0.84	- 1.53	2.05	11.85	-1.52	-0.95	-0.27	2.40	7.65

Figure 11: Monthly Movement In GSE ASI: 1991 to 2003

A closer examination of the ASI percentage growth on monthly basis for the latest year 2003 supports all that has been discussed so far: that the GSE ASI grows steadily between January and June, except May 1998 when there was a negative growth of 13%. The picture of ASI growth in 2003 is presented as in figure 12 below. The year started with an index of 1,434.71 and rose by 2.82% by the end of January. In March the index grew by 10.24%. The index continued to progress from 1,643.71 in March to 2,084.72 by the end of June, though the percentage growth in April and May was less than March. November saw the greatest growth for the year with 13.86%. The overall growth for the year of 155% marked the greatest in the history of the market.

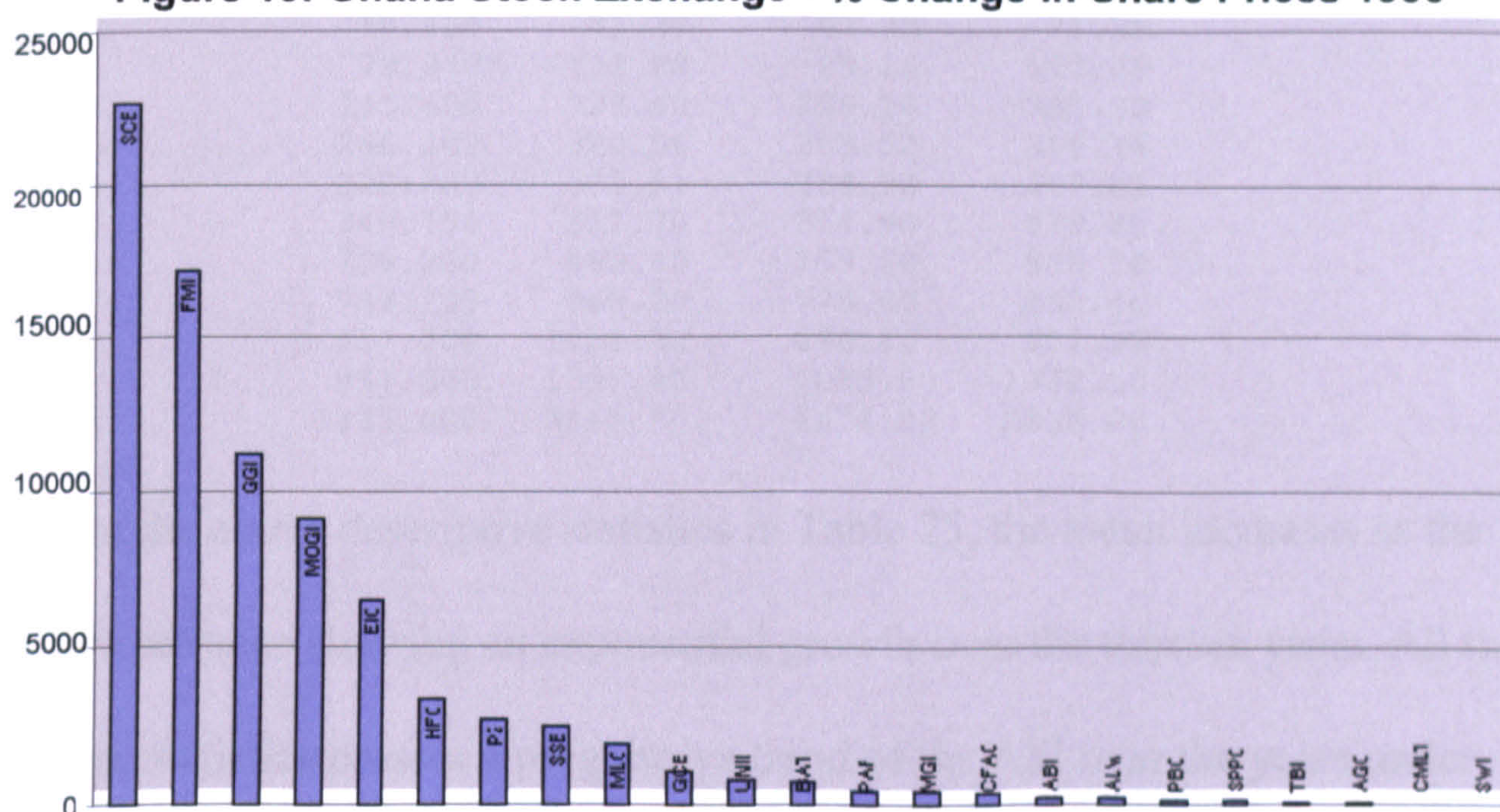
Figure 12 - GSE ASI Monthly Growth: 2003



To relate this analysis to the hypothesis being tested, it calls for a closer and detailed examination of the individual equity prices over the 13 years, 1991 to 2003. All listed equities in the exchange have experienced changes in share

prices in almost every year and month. The overall picture in figure 13 shows a positive growth in all equity prices. The equity with the greatest growth being Standard Chartered Bank Ltd, followed by Fan Milk Ltd, Guinness Ghana Ltd, Mobil Oil and Enterprise Insurance Company in that order. Surprisingly, the share price of Ashanti Goldfields did not experience any significant growth over the years.

Figure 13: Ghana Stock Exchange - % Change in Share Prices 1990



constant, the expected stock return/price is predictable. The linear trend model

$$Y_t = 375.270 / 154.972 * t$$

shows a co-linearity in share prices over the 13-years period. The early years of trading (1991-1993) did not experience any growth and a trend could not be established in those years. From 1994 to 2002, a trend is established between time and price. In 2003, there was an exceptional growth which falls outside the trend pattern. An exponential trend model reveals a similar pattern as shown in figure 14b below.

FIGURE 14 (a)

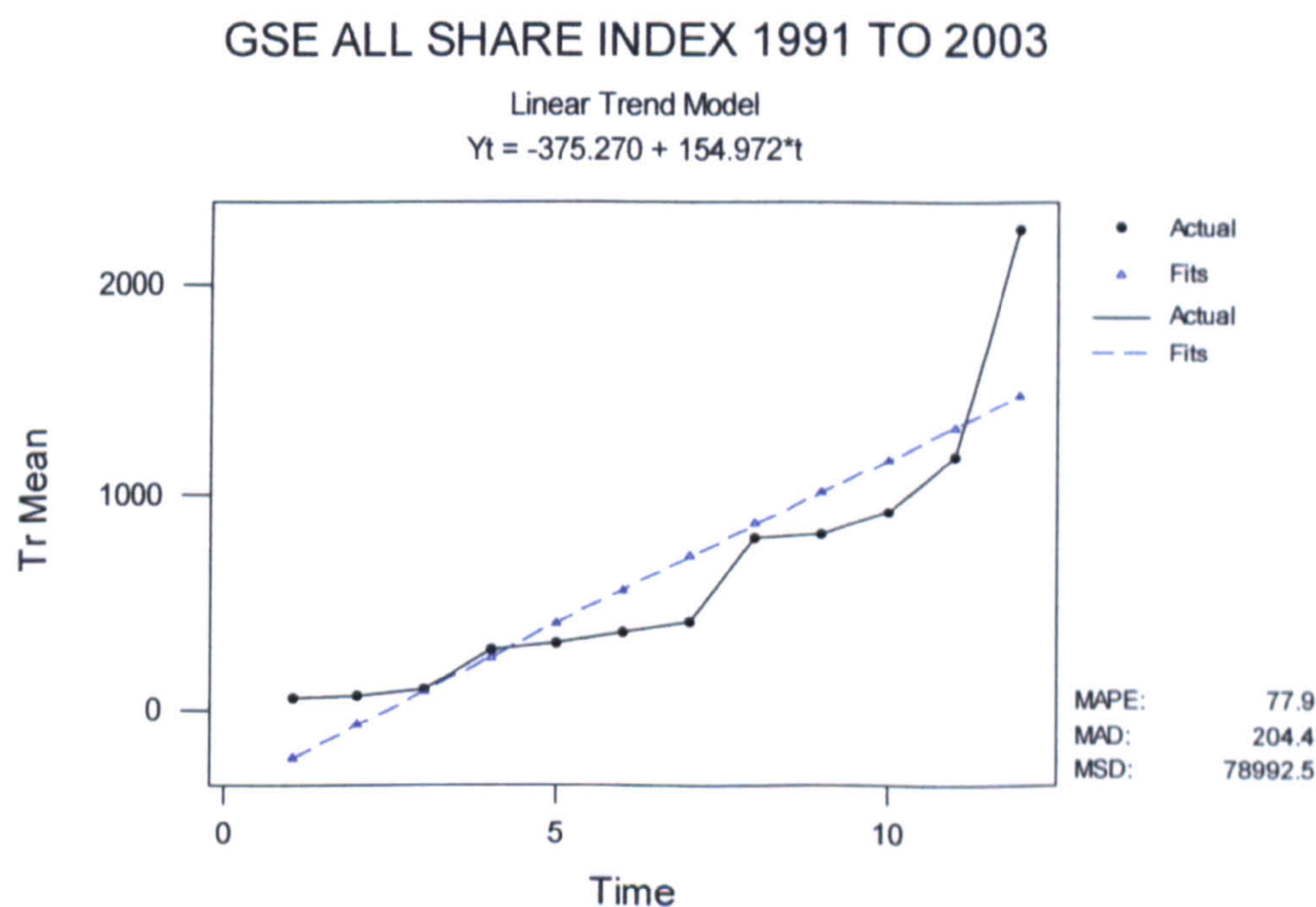
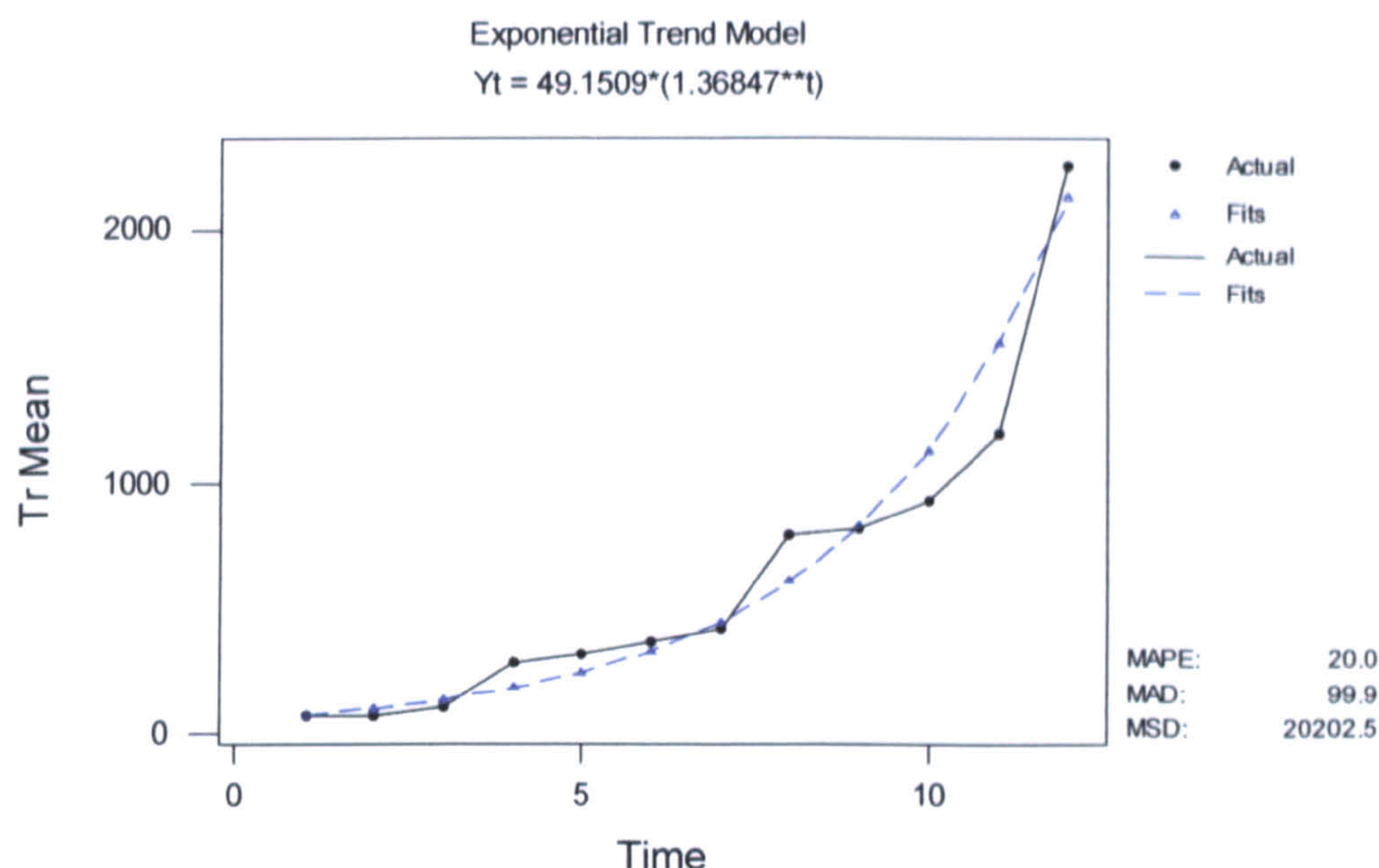


FIGURE 14 (b)**GSE ALL SHARE INDEX 1991 TO 2003**

The exponential trend model reveals a slow start at the early years of trading. The undulating upward trend indicates a remarkable increase in share prices over the years but with some uncertain behaviour in the exchange. The complex curvilinear trends present a market that may not be easily read into or predicted by an ordinary investor. It may require qualified statistician and professionally experienced broker to determine the next move of the exchanges share prices. It is suggestive that the GSE could be inefficient. Several statistical and qualitative factors could account for this trend of behaviour in Ghana's emerging stock market. These factors are investigated in the subsequent sections of this chapter on data analysis. Regression analysis can be a useful explanatory tool in understanding and interpreting the structure, nature and trend of equity prices in the Ghana Stock Exchange.

TABLE 26 - ANNOUNCEMENT DATES 1991-2003

COMPANY														
		1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
		DAY	DAY	DAY	DAY	DAY	DAY	DAY	DAY	DAY	DAY	DAY	DAY	DAY
1	Accra Brewery Company Limited	14-May	29-May	16-Apr	15-Mar	03-Apr	03-Apr	17-Mar	17-Apr	23-Apr	03-May	30-Apr	02-Apr	30-Apr
2	Ashanti Goldfields Company Ltd	-	-	-	-	03-Apr	18-Mar	26-Mar	20-Apr	29-Mar	31-Mar	30-Mar	27-Mar	31-Mar
3	Aluworks Limited	-	-	-	-	-	-	02-May	22-Apr	21-Apr	26-Apr	07-Mar	22-Apr	17-Mar
4	British American Tobacco Gh Ltd	14-May	19-May	21-May	05-Apr	19-May	24-May	19-May	04-May	17-May	29-May	18-Apr	10-May	07-May
5	CFAO Ghana Limited	-	04-May	08-Jun	24-Apr	21-Apr	22-Apr	02-Jun	06-May	03-May	10-May	21-Mar	03-May	07-Apr
6	Enterprise Insurance Co. Ltd	08-Mar	24-Mar	13-Apr	05-Apr	10-Apr	04-Apr	02-Apr	14-Apr	06-Apr	03-Apr	19-Mar	10-Apr	03-Mar
7	Fan Milk Limited	01-Mar	03-Mar	02-Apr	01-Mar	05-Apr	01-Apr	03-Apr	02-Mar	22-Mar	28-Mar	16-Mar	02-Apr	07-Apr
8	Ghana Breweries Limited	-	-	-	-	-	-	-	-	-	10-Mar	02-Mar	04-Mar	04-Apr
9	Ghana Commercial Bank Limited	-	-	-	-	-	-	24-Mar	27-Mar	12-Mar	28-Mar	14-Mar	11-Mar	10-Mar
10	Guinness Ghana Limited	14-May	19-May	16-Mar	06-May	12-May	02-May	19-May	18-Mar	24-Mar	20-Mar	21-Mar	27-Mar	19-Mar
11	Home Finance Company Limited	-	-	-	-	-	22-Mar	16-May	04-May	21-Apr	07-Apr	25-Apr	17-Apr	25-Apr
12	Metaloplastica Ghana Limited	-	16-Mar	09-Mar	25-Mar	20-Mar	09-Apr	19-May	08-May	23-Apr	03-May	18-Apr	22-May	04-Apr
13	Mechanical Llyod Company Ltd	-	-	-	-	24-Mar	29-Mar	16-Apr	17-Apr	12-Apr	12-Jun	04-Jun	22-May	11-Apr
14	Mobil Oil Ghana Limited	-	02-May	27-Apr	26-Apr	03-Apr	03-Apr	09-Apr	14-Apr	12-May	22-May	14-May	27-Mar	25-Apr
15	Pioneer Aluminium Factory Ltd	-	-	-	-	-	-	03-Mar	01-Apr	07-Apr	26-Apr	18-Jun	05-Jun	16-Jun
16	Produce Buying Company Ltd	-	-	-	-	-	-	-	-	-	-	02-Apr	25-Mar	06-Jun
17	PZ Ghana Limited	12-Apr	19-May	16-Apr	22-Apr	10-Apr	22-Apr	21-May	04-Jun	14-Jun	02-Jun	08-Jun	31-May	16-Apr
18	Standard Chartered Bank Gh Ltd	26-Apr	20-Mar	02-Mar	18-Mar	22-Mar	29-Apr	02-Apr	30-Mar	26-Apr	12-Apr	28-Mar	26-Jun	19-May
19	Super Paper Products Co. Ltd	-	-	04-May	25-Mar	24-Mar	22-Mar	26-Mar	20-Mar	31-Mar	28-Mar	30-Mar	27-Mar	31-Mar
20	SSB Bank Limited	-	-	-	-	-	-	19-Mar	16-Mar	31-Mar	20-Mar	02-Apr	18-Mar	07-Mar
21	Unilever Ghana Ltd	01-Mar	03-Apr	02-Mar	08-Apr	31-Mar	22-Apr	14-Mar	27-Mar	05-Mar	07-Apr	19-Mar	22-Mar	02-Apr
22	Camelot Ghana Limited	-	-	-	-	-	-	-	-	-	10-Apr	04-Apr	15-Apr	02-Apr
23	Cocoa Processing Company	-	-	-	-	-	-	-	-	-	-	-	-	31-Mar

7.2.2 A Review Of Share Price Movements

A general overview of the trend of share prices for the listed equities reveal a general upward trend as shown on Table 22 above. All equities experienced significant increases in prices over the 13-year period. It is rather surprising that except Camelot with a 31% increase in its share prices over the 4 years period of trading, Ashanti Goldfields Company experienced the lowest growth in share price of only 33% over 9 years of trading. The price of Standard Chartered Bank shares rose from ₵200 to ₵61,000 recording over 30,000% growth over the 13 years period, being the highest. Others such as Fan Milk Ghana Ltd, Enterprise Insurance Company and Social Security Bank, reached growth heights of 15,000%, 7,900% and 2,460% respectively. The upward trend of these share prices over the 13-year period is indicative of growth in the stock market.

A further analysis of the trend in share prices could be undertaken on the industry level. Figure 9 on page 205, shows that the Banking and Finance Sector made the highest growth of 13,705% over the years under review; while Extraction and Manufacturing, Food and Drinks, and Retail and General grew by 11,365%, 2,426% and 1,091% respectively. With share prices of Standard Chartered Bank soaring from ₵419 in 1991 to ₵61,000 by the close of 2003; Home Finance Company from ₵117 in 1995 to ₵4,000 in 2003 and Social Security Bank from ₵804 in 1995 to ₵21,000 in 2003; the

Banking and Finance industry made a great boom. Other equities of other industries managed some slight increases; the most shocking of all is Ashanti Goldfields of the extraction industry, whose share price increased by only 33% from ₵21,000 in 1994 to ₵28,650 in 2003. The Retail sector saw share prices of British American Tobacco Company and PZ Ghana Ltd increase from ₵91 to ₵5,200 and ₵78 to ₵2,700 respectively over the 13 years period. These analyses are clearly depicted in figure 9 in chapter 5. It is revealed from the chart that equity prices of all the industry sectors started off slowing from 1991 to 1993, picked up steadily from 1994 and continued to improve till December 1999 when all sectors experienced a sharp fall. Several reasons could account for this fall but the main suspected one is political. A change in government after 19 years of military/democratic rule, coupled with suspected threats of military interruption, slowed down trading in the exchange, pulling down almost all the share prices in the exchange. More detailed discussion on the effect of political factors on share prices is considered in the next chapter.

The overall picture of sector price performance reveals that for most of the years from 1991 to 2003, the extraction and manufacturing industry was above all the other sectors except in 2003 when it was overtaken by the banking and finance sector. The equity prices of these two sectors have always proven to be performing better than the others.

7.2.3 Analysis of The GSE All-Share Index (ASI)

Analysis of GSE All-Share Index (ASI) over the 13 years shows a progressive growth from year to year as shown in Table 17 on page 201. Except in 1999 which shows the ASI drop by 15.22% from 868.35 to 736.16 all the other years experienced significant increases. In 1994, GSE ASI was adjudged the best performing index in all emerging markets, yet the performance of 2003 exceeded that of 1994. In 2003 the ASI grew by 155% as against 124% in 1994. Table 17 and Figure 8 on pages 201 and 202 respectively, reveal these increases.

An examination of the GSE ASI summary from 1990 to 2003 shows that in each calendar year, the exchange's ASI grew progressively from January to December. The lowest ASI in most years has been in January whilst the highest has been in either December or the last quarter of the year. There are only two instances where the ASI hit its highest in May; i.e. 1994 and 1998. Table 23 on the next page refers.

Table 23: GSE All Share Index Summary 1990 - 2003						
YEAR	HIGH	DATE	LOW	DATE	END OF YEAR	% CHANGE
1990	77.65	Nov-12	70.08	Dec-21	70.08	-
1991	69.77	Jan-04	55.49	May-17	64.51	-7.63
1992	72.90	Oct-06	60.15	Jun-23	62.17	-3.63
1993	132.88	Dec-30	63.29	Jan-05	132.88	113.74
1994	334.02	May-17	132.91	Jan-04	298.10	124.34
1995	322.11	Oct-25	296.32	Mar-22	316.97	6.33
1996	385.80	Sep-13	307.42	Jan-12	360.76	13.82
1997	524.21	Dec-08	346.66	Jan-31	511.74	41.85
1998	1,201.08	May-06	511.66	Jan-07	868.35	69.69
1999	903.17	Feb-05	735.39	Dec-22	736.16	-15.22
2000	873.35	Sep-22	737.16	Jan-03	857.98	16.55
2001	1,025.78	Aug-01	856.00	Feb-07	955.95	11.42
2002	1,395.31	Dec-30	955.95	Jan-02	1,395.31	45.96
2003	3,553.42	Dec-31	1,395.36	Jan-02	3,553.42	154.67

A consideration of the month by month ASI growth during the 13 years under review seem to suggest that announcement of accounting information has impact on share prices in the Ghana Stock Exchange. For most of the years the greatest changes in ASI growth has been within the first half of the year. For instance 1994, 1995, 1996, 1998, 2000 and 2003 saw the greatest growth (changes) in ASI of 56%, 6%, 7%, 40%, 14% and 12% respectively between the months of March and June. Table 24 below refers. These analyses are further confirmed in Figure 11 on the next page.

7.2.4 Other Descriptive statistics

Table 25: Descriptive Statistics Of the GSE All Share Index

Variable	N	Mean	Median	TrMean	StDev	SE Mean
1991	12	61.618	60.85	61.56	2.72	0.79
1992	12	66.980	67.73	67.06	4.35	1.26
1993	12	98.170	92.55	96.52	18.41	5.31
1994	12	273.00	297.80	280.60	60.50	17.50
1995	12	310.80	311.81	311.32	7.87	2.27
1996	12	357.60	362.33	358.53	19.31	5.57
1997	12	413.70	388.00	410.60	59.10	17.10
1999	12	800.40	797.40	797.50	46.70	13.50
2000	12	819.20	822.00	822.30	47.60	13.80
2001	12	930.20	941.00	928.10	46.60	13.40
2002	12	1193.20	1240.40	1196.50	161.40	46.60
2003	12	2294.00	2200.00	2254.00	704.00	203.00
Variable		Minimum	Maximum	Q1	Q3	
1991		57.700	66.15	59.46	64.22	
1992		60.860	72.37	62.38	71.25	
1993		79.970	132.88	83.16	110.29	
1994		140.600	328.60	259.10	302.10	
1995		296.400	320.06	303.52	316.76	
1996		322.380	383.51	338.92	367.82	
1997		346.700	511.70	364.90	479.80	
1999		736.200	893.40	759.50	826.70	
2000		739.700	868.20	775.50	862.40	
2001		857.200	1024.30	895.40	957.90	
2002		957.300	1395.30	1023.80	1332.50	
2003		1435.000	3553.00	1674.00	2835.00	

From the above descriptive statistics in Table 25, the mean increases as the years advance showing an exponential growth over the thirteen years. All the above statistics present a progressive trend of the ASI over the years under review. The mean index grew from 61.6 in 1991 to 2294 in 2003, while the True Mean and the SE Mean also grew from 61.6 to 2254 and 0.78 to 203 respectively over the same period.

Figure 14a shows a linear relationship over the years in the trend of the GSE all share index. The linear trend is suggestive that if all other factors remain

PART B**7.3 Analysis of announcement dates and prices using the Price Behaviour Model****7.3.1 Introduction**

The review of prior literature on stock markets and announcements of accounting information reveal that the major focus of previous studies have been on the information content and timeliness – measured by changes in the characteristics of the stock return distribution and trading volume. Other empirical studies give much attention to the association between earnings announcements and the variance of the stock return distribution; typically find that the price variance is significantly larger during the announcement period than the average variance in the non-announcement period. These studies include Beaver (1968), May (1971), Hagerman (1973), Morse (1981), McNichols and Manegold (1983), and Patell and Wolfson (1981), (1984). The findings of others like Brookfield and Morris (1992) and Pope and Inyangete (1992); using US and UK data, are consistent with the claim that accounting information conveys new information to the capital market.

As indicated by Lev (1989), this research is motivated by the fact that, there is usually an intensive flow of earnings-related information to the market as the date for publication (announcement) of accounting information approaches. As the announcement date approaches, and there is a flow of earnings related information, investors and would be investors continuously revise their

expectations. These revisions are the result of the endogenous acquisitions of information regarding the forthcoming earnings announcement, Demski and Feltham (1994). Further theoretical insights into how public announcements of accounting information affect price changes due to varying precision of private information prior to disclosure, are provided by Diamond and Verrecchia (1981, 1991); Grundy and McNichols (1989), Holthausen and Verrecchia (1990), Kim and Verrecchia (1991, 1994), Dontoh and Ronen (1993), and McNichols and Trueman (1994).

In order to test the hypothesis that *'the publication/announcement of accounting information has a significant effect on share prices in the Ghana stock market'*, the researcher allocates this section to analyse announcement dates and prices, using the Price Behaviour Model. The model has been explained in chapter 6. The salient points of this model are recapped in section 7.3.3 later in this chapter.

Share price behaviour and corporate announcements reveals the time pattern of the resolution of uncertainty about its impact on its share prices as well as the importance of the financial/accounting information. Events that are expected to provide cash-flow; relevant information to the market, such as earnings announcements are usually correlated with abnormal returns around the public announcement date. Thus, if accounting information provide new information

to the market, and paints a brighter (gloomier) picture with the company's future, this should be correlated with increase (decrease) in share prices.

To effectively analyze the effect of accounting information on share prices in the GSE, the announcement dates of all the 25 listed companies over the 13 years under review (1991 – 2003) are summed up in table 26 on the next page. The table summarises the announcements dates of the financial statements. These dates are picked from various sources including publications in newspapers, board of directors' meetings, announcements at general meetings of shareholders and interviews with stockbrokers via questionnaires used as specimen shown on appendix 5-7.

An examination of these announcement dates reveals that most listed companies do publish their annual financial statements between the months of February and June. This is in compliance to the statutory requirement for every company to submit accounts to the Registrar of Companies not later than six months after the end of the financial year and almost all the listed companies have their financial year ending 31 December. Because of this, the announcement dates for most companies has been between the months of March and June. This may be the cause of high volatility of share prices during the first half of most calendar years, though there could be other causes.

7.3.2 The Data

To analyse the information dissemination process around the announcement of accounting information, a data sample consisting of all the 25 companies listed in the GSE with annual publications of financial statements made between 1991 and 2003 is considered as shown on Table 26 above. For the purpose of analysing the differential impact of accounting information announcements across companies, the sample is split into two categories by size: the small (13) by the large (12) companies, evaluated by market value. Companies with less than 2% of the Market Capitalisation are considered in the category of small companies. Table 27 below shows the listing and categorisation of all 25 listed companies as at close of year 2003.

Within the 13 years, a total of 265 events of annual publication of financial statements dates are considered in the analysis. In 27 events, stocks with infrequent trading surrounding an annual announcement (publication) date are excluded from the analysis, which yields a sample of 238 events.

Daily share prices and the value-weighted market index are provided from the GSE data base. All prices are adjusted for stocks and dividends. Logarithmic returns, i.e. $r_t = \ln(P_t) - \ln(P_{t-1})$, where P_t is the adjusted share price at time t . Financial statement publication (announcement) dates have been collected from the Daily Bulletin of the GSE.

Table 27 - Listed Companies Included in the Analysis

	COMPANY	Market	Percent
		Capitalisation	%
	Category A: Small Companies	¢	
1	Camelot Ghana Limited	3.60	0.03
2	Metalloplastica Ghana Limited	4.95	0.04
3	Sam Woode Ltd	6.29	0.05
4	Super Paper Products Co. Ltd	7.58	0.06
5	Pioneer Aluminium Factory Ltd	12.21	0.10
6	CFAO Ghana Limited	16.80	0.13
7	Mechanical Llyod Company Ltd	28.06	0.22
8	Enterprise Insurance Co. Ltd	52.50	0.42
9	Fan Milk Limited	75.16	0.60
10	PZ Ghana Limited	75.60	0.60
11	Accra Brewery Company Limited	91.80	0.73
12	Mobil Oil Ghana Limited	141.75	1.12
13	Aluworks Limited	166.71	1.32
	Category B: Large Companies		
1	Trust Bank Ltd	292.5	2.32
2	British American Tobacco Gh Ltd	359.49	2.85
3	Home Finance Company Limited	400.64	3.18
4	Ghana Breweries Limited	487.97	3.87
5	Cocoa Processing Company	542.73	4.31
6	Produce Buying Company Ltd	624.00	4.95
7	Guinness Ghana Limited	663.76	5.27
8	Unilever Ghana Ltd	877.56	6.96
9	Standard Chartered Bank Gh Ltd	1,073.38	8.52
10	Ghana Commercial Bank Limited	1,348.05	10.70
11	SSB Bank Limited	1,496.25	11.87
12	Ashanti Goldfields Company Ltd	3,754.48	29.79
		12,616.82	100.00

7.3.3 The Empirical Analysis and Results

In the application of the Price Behaviour Model as explained in chapter 6, Amihud and Mendelson (1987) distinguish between the intrinsic or fundamental value of a security and its observed price. The price behaviour is described by both market structure-related noise and information-related noise, as well as imperfect price adjustment to value changes:

$$P_{it} - P_{i(t-1)} = q_i(V_{it} - P_{i(t-1)}) + U_{it} \quad (1)$$

Where P_{it} and V_{it} are logarithms of the observed price and the intrinsic value of stock i respectively, q_i is a price adjustment coefficient, and U_{it} is the noise term. U_{it} has been interpreted as white noise with zero mean and finite variance σ . The noise term comes from two main sources:

- i) information-related factors (noise trading) which refers to misinterpretation and wrong analysis of trade related information resulting in errors and mispricing, and
- ii) market structure-related factors, e.g. Bid-Ask spreads, discreteness of the share prices,

As explained in chapter 6, the observed variance of share prices ($P_{it} - P_{i(t-1)}$) is divided into three parts according to Damodaran and Lim (1991):

$$\text{Var}(r_{it}) = V_i^2 + 2 \sigma_i^2 + \{[(q_i/(2-q_i)) - 1] V_i^2 + [(2/(2-q_i)) - 2] \sigma_i^2\} \quad (2)$$

Where V_i^2 is the intrinsic variance of returns,

σ_i^2 is the variance of the noise term, and $\{[(q_i/(2-q_i)) - 1] V_i^2 + [(2/(2-q_i)) - 2] \sigma_i^2\}$ is the contribution to variance from an imperfect price adjustment.

The variances in different return intervals are utilised to derive the measure of q_i . The coefficient r_{ijt} is firm i 's return in time period t , where each return interval is of length j . Following the formula of Damodaran and Lim (1991), the variance is calculated as follows:

$$\text{Var}(r_{ijt}) = \{[q_{ij}/(2-q_{ij})]jv_i^2 + [2/(2-q_{ij})]\sigma_i^2\} \quad (3)$$

where $q_{ik} = 1$ implies:

The noise variance component is measured by the serial covariance in return intervals of length k as: $\sigma_i^2 = -\text{Cov}(r_{ikt}, r_{ik(t-1)})$ (4)

The intrinsic variance factor is $v_i^2 = 1/k[\text{Var}(r_{ikt}) + 2\text{Cov}(r_{ikt}, r_{ik(t-1)})]$ (5)

Based on equation (3), (4) and (5), the price adjustment factor q_{ijt} for return intervals $j \leq k-1$ can be estimated by the time series of unit-interval return data, Damodaran and Lim (1991), i.e.:

$$q_{ij} = 2 \{ \text{Var}(r_{ijt})/j + \text{Var}(r_{ikt}/k)(j-1) + \text{Cov}(r_{ikt}, r_{ik(t-1)})/j \} \\ \times \{ \text{Var}(r_{ijt})/j + \text{Var}(r_{ikt}/k)(2j-1) + [2\text{Cov}(r_{ikt}, r_{ik(t-1)})]/k \}^{-1} \quad (6)$$

All these equations have been explained in detail in chapter 6.

In order to estimate the components of the price variances, the excess return version of the market model is used. Excess return for stock i on day t is defined as: $r_{it} = R_{it} - (\alpha_i + \beta_i R_{mt})$ (7)

Where R_{it} = the return on security i on day t and

R_{mt} = the return on the Ghana Stock exchange value weighted market index on day t . The parameters α_i and β_i are estimated using daily returns from 20 trading days preceding the event window

7.3.3.1 The Total Risk Analysis

To test the effects of accounting information announcement on stock volatility, the abnormal return variances of each stock is first calculated. A variance ratio (VR) is computed for each event or observation, by dividing the variance of the post-announcement period by the corresponding variance of the pre-announcement period, i.e. $VR = \text{Var}(r)_{(\text{post})} / \text{Var}(r)_{(\text{pre})}$. Any variance ratio (VR) which is less than one ($VR < 1$) indicates that the volatility of the stock returns is higher in the pre-announcement period than in the post-announcement period. On the other hand, if the VR is greater than one ($VR > 1$) then, the reverse holds through. The significance of each individual variance ratio is tested with the application of an F-test.

Differences in total risk between the pre- and post- announcement periods are tested by estimating the volatility version of the market model over the two sub periods. The approach used by Schwert (1989, 1990) and Schwert and Seguin (1990) account for any time variation in volatility by including lagged stock and market return variances. Their approach is utilized here. Furthermore, the earnings announcement is included as a dummy variable, D_i , equal to zero in the pre-announcement period and to unity in the post-announcement period, and e_t is the error term (Eilifsen et al, 2001):

$$r_{it}^2 = a_i + b_i r_{i(t-1)}^2 + c_i r_{i(t-2)}^2 + d_i r_{m(t)}^2 + e_i r_{m(t-1)}^2 + f_i r_{m(t-2)}^2 + g_i D_i + e_t \quad (8)$$

This regression model is estimated for each individual stock. In this respect, the null hypothesis is that the total sum of the firm-specific dummy variable coefficients is zero. The test statistic is chi-square distributed.

The differential impact of announcement of accounting information across companies is analysed by testing the hypothesis, for both the small and the large companies. Table 28 on next page shows the results of the test. It is learned from Panel A that the variance ratio is significantly <1 for 184 observations and significantly >1 for 25 observations (at the 5% level). The median variance ratio is significantly <1 for both the small and the large companies. Panel B shows a highly significant decrease in the average g_i value for both the small and the large companies. A significantly lower share price volatility in the post-announcement period than in the pre-announcement period is consistent with the hypothesis that earnings announcements reduce the informational asymmetry among investors.

Table 28: Excess Return Variances Before and After Announcements

Panel A: Variance Ratio (VR) of excess returns

	Small Companies	Large Companies	All Companies
Mean VR	0.8257	1.0045	0.9146
Median VR	0.6542	0.6507	0.6565
No. of VR significantly >1 *	13	12	25
No. of VR significantly <1 *	95	89	184
Wilcoxon test p-value for the hypothesis that Median VR = 1	0.010	0.003	0.000

Panel B: Market Model in volatility, with Announcements as a dummy variable
 $(r^2=a_i+b_1r^2_{i(t-1)}+c_1r^2_{i(t-2)}+ d_1r^2_{m(t)}+e_1r^2_{m(t-1)}+f_1r^2_{m(t-2)}+g_iD_i+e_t)$

	Small Companies	Large Companies	All Companies
Mean g _i -value	-0.00135	-0.00021	0.00076
X ² test p-value for the hypothesis that the sum of g _i - value is 0	0.000	0.000	0.000

*Significance at 5% level

7.3.3.2 The decomposition of the observed variance reduction

The Price Behaviour Model developed by Amihud and Mendelson (1987), decomposes the observed return variance into three components as already stated earlier in chapter 6. In this section, potential explanations for the overall decline in return variances after the release of accounting information is explained. Equations (4), (5), and (6) on page 289 are used to estimate the noise term, the intrinsic component and the price adjustment coefficient of the observed return variance respectively. The results of these estimations are summarised on Table 29 on page 295.

The intrinsic variance portion, which is the first component of the observed stock return variance, can be attributed to the volatility of the underlying business. Accounting data per se are not likely to influence the fundamental business risk. However, if the publication of accounting data is accompanied by value-relevant information, the market's perception about the intrinsic variance would change after the announcement date. The degree of influence depends on the precision of public information with respect to the future underlying value of the firm, and the extent to which disclosed information is already reflected in current market prices. The statistical analysis reveal results which prove that there are no significant changes in the intrinsic variances for both large and small companies after the accounts publication date (at the 5% level). These findings also suggest that the announcement of

accounting information per se does not carry information which changes the perception of the underlying risk.

As discussed earlier in Chapter 6, the methodology chapter, the price adjustment coefficient reflects the adjustment of prices towards the underlying value of the stocks. A unit-adjustment coefficient, where $q_i=1$, represents full, though noisy, price adjustment to new information. An examination of the results on Table 29 shows that the majority of the price adjustment coefficients are greater than one both before and after the information announcements. This in general, is consistent with an overreaction to new information. When the value fluctuations are exaggerated or amplified by traders overreacting to new information, then the overall observed return variance becomes greater than the underlying variance. Consequently, the high volatility in the Ghanaian stock market relative to larger and more mature stock markets is consistent with traders generally overreacting to information.

Table 29 Components of Observed Excess Return Variances

		Small Companies			Large Companies			All Companies					
		Before	After	Change	p-value	Before	After	Change	p-value	Before	After	Change	p-value
a)	Intrinsic Variance: $V^2_i = 1/k[\text{Var}(\text{rik}_t) + 2\text{Cov}(\text{rik}_t, \text{rik}(t-1))]$	0.0013	0.0023	0.0010	0.45	0.0005	0.0007	0.0002	0.35	0.00090	0.0015	0.0006	0.35
b)	Noise : $\sigma^2_i = -\text{Cov}(r_{it}, r_{it-Q})$	0.0004	0.0025	0.0021	0.13	0.0014	0.0001	-0.0013	0.04*	0.0009	0.0013	0.0004	0.60
c)	Price Adjustment Coefficients: $Q_0 = 2 \{ \text{Var}(r_{0t})/j + \text{Var}(r_{1t}/k)(j-1) + \text{Cov}(r_{1t}, r_{1t-Q})/j \}$ $\times \{ \text{Var}(r_{0t})/j + \text{Var}(r_{1t}/k)(2j-1) + [2\text{Cov}(r_{1t}, r_{1t-Q})]/k \}^{-1}$ <div>1 Day 2 Days 3 Days 4 Days 5 Days 6 Days 7 Days 8 Days 9 Days 10 Days</div>	0.02 6.25 1.48 1.69 1.54 1.23 1.96 1.39 1.53 1.43	1.74 11.78 2.84 14.62 2.97 1.50 3.41 1.38 1.40 1.48	1.72 5.53 1.36 12.93 1.43 0.27 1.45 -0.01 -0.13 0.05	0.61 0.64 0.22 0.32 0.46 0.44 0.22 0.79 0.32 0.36	-5.20 19.40 -1.70 2.38 1.36 1.42 1.77 1.26 1.20 1.20	5.08 3.02 8.02 1.33 1.54 1.15 1.72 0.97 1.08 1.14	10.28 -16.38 9.72 -1.05 0.18 -0.27 -0.05 -0.29 -0.12 -0.06	0.70 0.22 0.15 0.08 0.21 0.46 0.70 0.33 0.21 0.05	2.60 12.80 -0.12 2.02 1.45 1.33 1.88 1.31 1.37 1.32	3.40 7.38 5.42 7.98 2.26 1.35 2.60 1.20 1.24 1.32	0.80 -5.42 5.54 5.96 0.81 0.03 0.72 -0.11 -0.13 0.01	0.66 0.40 0.12 0.36 0.38 0.83 0.23 0.32 0.11 0.13

It is expected that the adjustment coefficients would be different between the period before and the period after announcement of accounting information if the markets are accompanied by different reaction patterns during these two periods. The researcher recognises a difference in the market reaction patterns between small and large companies. With the small companies, there is a tendency for information to be used more intensively (increasing coefficients) after the information disclosure. On the contrary, in the case of large companies, the tendency is for information to be used more intensively (decreasing coefficients) before the announcement. However, the data do not reveal any significant change (at the 5% level) in the price adjustment factors between the pre- and post-announcement periods. Therefore, there is not enough evidence that announcement of corporate accounting data per se increases the likelihood of the Ghanaian capital market inadequately reacting to new accounting information.

The procedure for estimation is based on the assumption that there exists a constant k such that the adjustment coefficient becomes equal to one if the length of the interval over which returns are measured is greater than or equal to k . From the empirical analysis above, the stabilisation tests of the covariance suggest that a value of $k=10$ is appropriate, and it is seen that q_i stabilises rapidly for return intervals approaching 10 days. Observing from

Table 29, it can be learnt that q_{10} is greater than one, possibly indicating that the selected value of k is too small. To increase the likelihood of q_{10} converging to unity, the return intervaling frequency must be increased. However, the length of the observation period is compensated with the number of return intervals available. An increase in the number of return intervals will significantly reduce the number of available observations for the analysis. Conversely, the number of observations could have been raised thus widening the event window. Both of these alternatives are therefore considered by the researcher to be unsatisfactory. The Price adjustment coefficients have been estimated based on a return interval of 10 days.

The reason for any difference between the underlying value of a security and its observed price could be attributable to noise. The noise component can be explained to be the result of pure noise trading which has arisen due to irrational reaction in the market and the impact of the trading mechanism by which prices are set in the market. Black (1986) and Schleifer and Summers (1990) explain this noise term to be caused by factors such as errors in investors' analyses and interpretation of information about forthcoming company events. With reference to the GSE, there is clear evidence suggesting a significant decline in the noise term for the large companies in the post-announcement period. This explains that there would be less

concentration of trades because a more efficient dissemination of information makes it harder for privately informed traders to exploit their informational advantage. In the case of small companies, the finding is on the contrary; there is an insignificant tendency towards increased noise term. These findings are consistent with those of Kyle (1985) and suggest that liquidity traders batch their trades in the post-announcement period to avoid being exploited by well informed traders.

7.3.4 Conclusions

The empirical analysis finds a significant reduction in share price volatility in the post-announcement period relative to the pre-announcement period. The decrease in share price volatility is significant for both the large and small companies. The decomposition of the observed return variance procedure reveals no significant changes in either the intrinsic variance component or the price adjustment coefficients. Nonetheless, there is evidence of a significant decline in the noise term for the largest companies after the announcement of accounting information. In the case of the small companies, there is no tendency for any significant increase in the noise term. There are several possible explanations for these noise effects. The findings of this research are consistent with discretionary noise traders timing their trades, Admati and Pfleiderer (1988). In large company stocks, the stock market may be efficient due to the high number of analysts following them. With little

private information in the Ghana Stock Market, the bid-ask spread and the price volatility is reduced therefore causing the noise traders' impact on the market after announcement to reduce significantly. The noise traders are expected to benefit significantly in small company shares. They benefit by timing their trades to the period of least information asymmetry which is the period after public announcements. Since the amount of noise trading increases in the post-disclosure period, the impact of noise in the share price would increase, but would be balanced by the simultaneous reduction of the bid-spread. This trade-off may explain my significant finding of the noise term for the small category of companies. Accordingly, my findings are consistent with the hypothesis that the stock market for small companies is less informationally efficient than the stock market for large companies.

Further findings from the above analysis indicate that there is usually an intensive flow of accounting-related information to the market as the date for publication of accounting data approaches. As the announcement date approaches, the expectations of investors are consequently revised. The formal announcement reduces informational asymmetry, as investors would immediately adjust to public information. Consequently, it is expected that share price volatility would decrease in the post-announcement period relative to the pre-announcement period. Evidence from the above analysis of the

GSE data clearly supports this hypothesis by reporting a significant decrease in share price volatility in the post-announcement period relative to pre-announcement period for both small and large companies.

In conclusion, the observed return variance was decomposed into three components in order to test the potential explanations for the change in share prices: the volatility of the underlying business, the volatility caused by the speed at which information is incorporated into share prices, and the volatility caused by noise in the price process. The results from the empirical analysis document that that announcement of accounting information per se seems to have no effect on the intrinsic variance. Also, the price adjustment coefficients are generally higher than unity, which is consistent with the claim that Ghanaian stock market is generally overreacting to new information. However, there is no significant change in the price adjustment factors between the pre-and post-announcement periods for any of the estimated coefficients. Lastly, there is evidence of significant decline in the noise term after announcement of accounting information for large companies. These empirical results are consistent with the hypothesis that the publication/announcement of accounting information has an effect on share prices in the Ghana stock market.

PART C***7.4 Analysis of Earnings and Book Values Relation to Share prices using the Ohlson Model*****7.4.1 Introduction**

From the capital market perspective, the measure of a firm's bottom line performance over any period of time is the firm's stock return which equals the change in the firm's market value over the same period plus any dividends paid to shareholders. From the accounting perspective, accounting earnings or net income is the most significant accounting measure and represents the bottom line accounting measure of firm performance. Accountants explain the net income of a firm as an accrual accounting measure of the firm's profit or loss from business activities and events during the period the accounts cover. Apart from the payment of dividends and the issue of shares to ordinary shareholders, the firm's accounting earnings for any period explains the change in the accounting book value of the firm to shareholders over that period. Nicholas and Wahlen (2004) in their review of classical accounting research pose these very important questions: "How do these "bottom lines" relate? How do accounting earnings numbers relate to stock returns?"

These questions are equally important to both accountants and capital markets participants alike. As expected, the answers to these questions provide unfathomable insights into the economic relevance of financial accounting and reporting as a source of information about firm performance

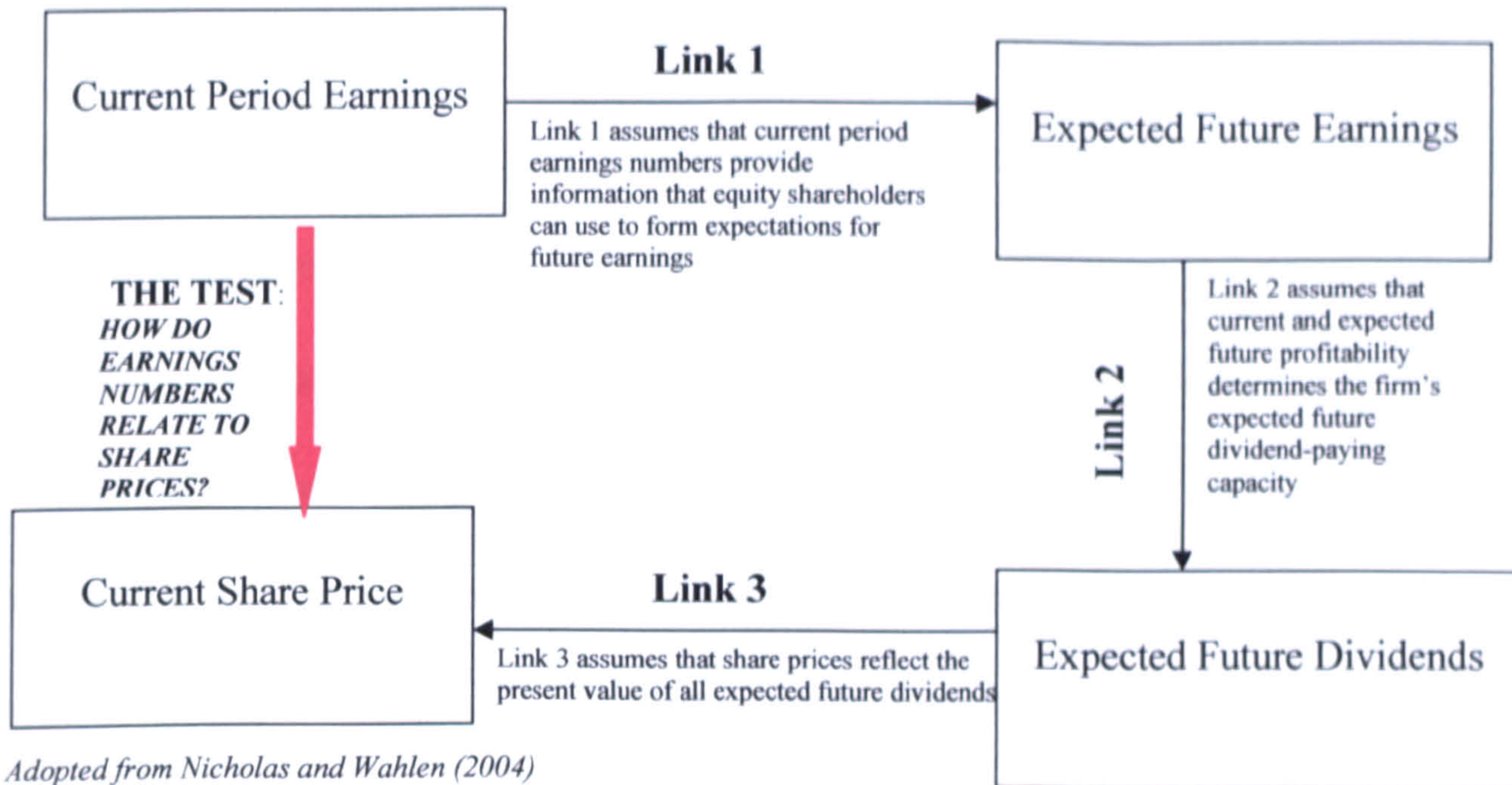
and value. From the early research of Ball and Brown (1968), academics in the field of accounting have pursued the answers to these questions. A significant shift in the accounting research paradigm was triggered by the study of Ball and Brown's (1968) on the association between accounting income numbers and changes in share prices in the capital markets. Thereafter, a large body of theory and a wealth of empirical evidence on the relation between earnings and stock returns have been developed by accounting academics. The remainder of this chapter is structured as follows: 1) The relation between earnings and stock returns; 2) The evidence linking accounting data and share prices; 3) Analysing the Relations between earnings, book values and prices; 4) The empirical analysis and results: Cross-sectional Regression Results, Regression Results based on Profit Classification of companies and Regression Results based on Industry Classification; and 5) Summary and Conclusions. These analyses are aimed at testing hypotheses H_2 and H_3 which are stated below:

H_2 There is significant relationship between accounting earnings and share prices in the Ghanaian Stock Market.

H_3 There is significant relationship between Book Values and share prices in emerging markets.

7.4.2 The Relation Between Earnings And Stock Returns

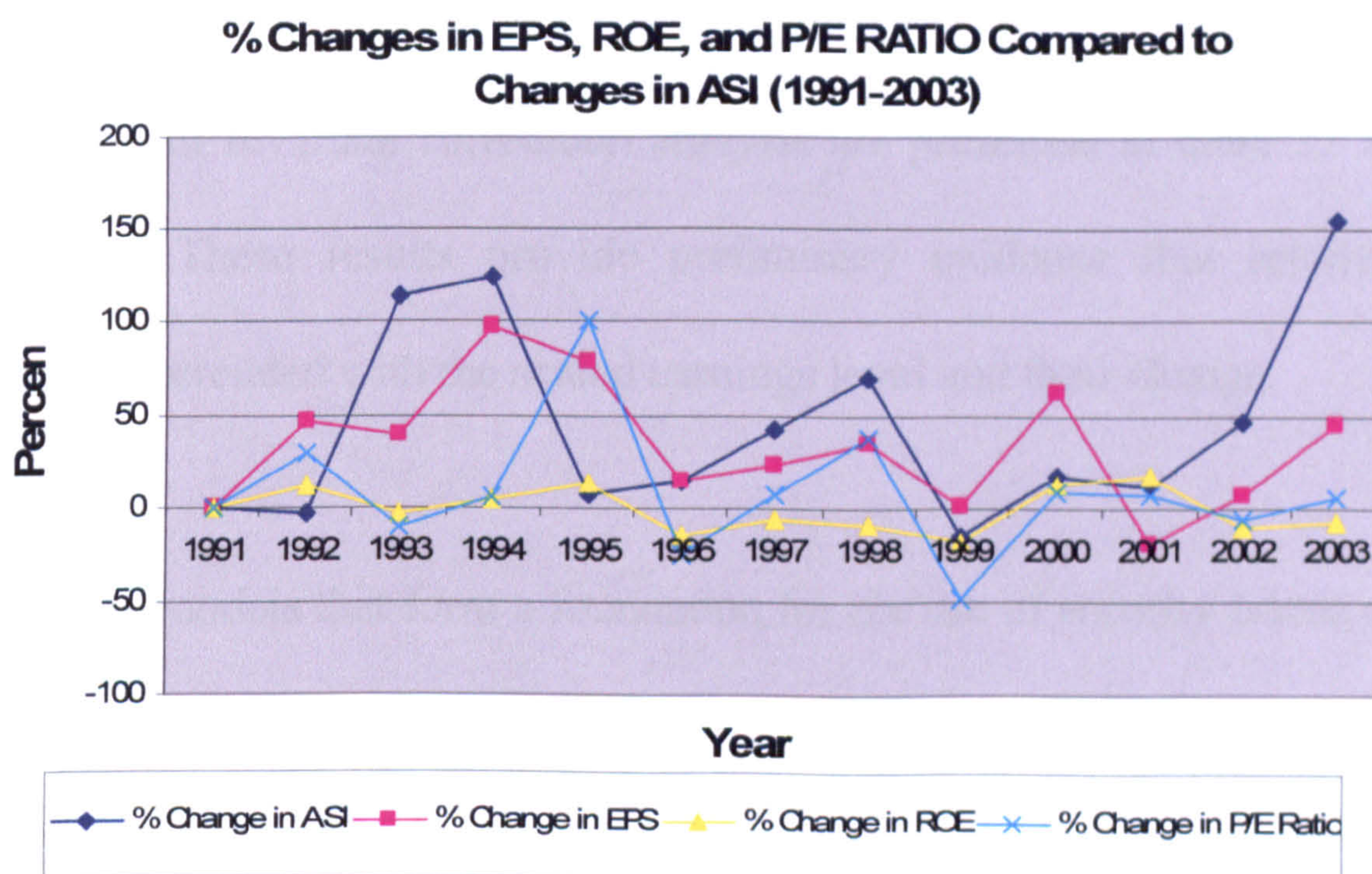
According to Nicholas and Wahlen (2004), the theory linking the firm's earnings numbers to changes in the firm's market value (i.e., stock returns) depends on three assumptions about the information contained in earnings and share prices. The first assumption is that accounting earnings provides new information to equity shareholders about current and expected future profitability. The theory makes a second assumption that current and expected future profitability provides shareholders with information about the firm's current and expected future dividends. The theory finally assumes the present value of expected future dividends to the shareholder is equal to the share price. The implications of these links imply that new accounting earnings information that generates a change in investors' expectations for future dividends should match up with a change in the market value of the firm. Researchers try to test these theories with empirical data by examining the associations between accounting earnings numbers and share prices. Figure 15 on the next page depicts these three theoretical links, each of which is described in more detail below.

Figure 15: The Three Links Relating Earnings to Stock Returns

The first link (Link 1) in the three-links framework is based on the assumption that a current period earnings number provides two important pieces of information useful for developing dividends expectations: (a) information about wealth creation in the current period and (2) information about future earnings. First, firms measure earnings using accrual accounting policies, which measure the effects of transactions and events on shareholders' equity (apart from capital transactions with shareholders). In this respect, the wealth created by the firm for equity shareholders during the period is summarised in the current period earnings figures. Secondly, the information provided by the current period earnings and related financial statement data may be used to predict future earnings. For instance, firms' income statements commonly distinguish between operating income, which captures the results

scored the highest rise of over 14,000% over the years (from ¢419 in 1991 to ¢61,001 in 2003). On the other hand, it was not all rosy for all listed companies. A company like Super Paper Products Ltd made negative returns in the last four years of performance. An examination of the EPS revealed that Standard Chartered Bank (SCB) scored the highest EPS in 2003, followed by Mobil Oil Ghana Ltd. In terms of growth, SCB's EPS grew from ¢340.42 in 1993 to ¢10,015 in 2003, about 2845% increase. Similar growths were recorded by Social Security Bank and Unilever Ghana Ltd.

Figure 16



The summary statistics for the variables being considered are provided in Table 31 below. The test statistics for normality indicate that the data do not depart, to any significant degree, from the normal distribution. The Table 31 provides descriptive statistics for the annual and quarterly data samples. The

of the firm's ongoing business operations that will likely recur in the future, and special items, which are not part of ongoing operations and therefore are less likely to affect the firm's performance in future periods. The source of credible information about the ability of firms to generate future wealth for shareholders is the financial statements. The conceptual framework of the Financial Accounting Standards Board, FASB (1977), states that an important objective of financial accounting is to provide information useful for assessing the amounts, timing, and uncertainty of future dividends and cash flows.

Link 2 in the three-links framework is also based on the assumption that current and future profitability determine wealth created by the firm that will ultimately be distributed to equity shareholders through dividends. To this end, current earnings and forecasts of future earnings are indicative of future dividend-paying ability, which shareholders can use to determine their expectations of dividends in the future.

Link 3, which assumes that share prices reflect the present value of all expected future dividends, represents the classical approach to equity valuation, which views share value as the present value of the future dividends the shareholder expects to receive over the remaining life of the

firm. The accounting information relating to the current period, specifically the current earnings, provides shareholders with vital information to aid in developing expectations for future earnings, which also aid in developing expectations of future dividends and ultimately form the basis for share value.

These three links discussed above (from current earnings → future earnings → future dividends → share value) does not only provide an intuitive framework for understanding the relation between earnings and share value, but also help answer the research question of how accounting earnings numbers relate to share prices.

Furthermore, these links also implicitly underlie why investors commonly use earnings-based valuation ratios, such as price-earnings ratios. In addition, these links further emphasize the great importance of accounting information and the reason why so many capital market participants focus so much attention on them. It also explains the extent of financial press interest in covering daily announcements of accounting information. Press conferences are held by firms to announce accounting information. Accounting figures are used by directors to establish earnings-based bonus systems, a means to reward and punish managers. Directors subscribe to the accrual accounting earnings because of the relative informativeness of earnings numbers.

Figure 15 on page 304 depicts the three link framework and provides a useful tool for analyzing the valuation the valuation implications of earnings information. This framework shows that the present value of expected future dividends which are determined by current and expected future earnings. Share prices generally react to the earnings announcement when the earnings being announced are unexpectedly different from the market expectations. In general terms, if the disclosed earnings beat the expectations of the market participants, share prices will increase and on the other hand, if earnings fall short of expectations, share prices fall. Several factors determine the magnitude of the rise or fall due to earnings disclosure, but a prominent factor is the persistence of the unexpected earnings. The announcement of an unexpected change in earnings that is not likely to persist, then share prices will likely change by the amount of the one-time earnings change. Alternatively, the announcement of an unexpected change in earnings that will likely persist in the future, there will generally be an up or down movement in share prices by a larger amount due to the link between current and future earnings-persistence. Therefore, when there is an announcement of unexpected earnings or earnings that differ from expectations, a set of steps are provided by the three-links framework that one can follow to analyze the implications of an unexpected change in earnings for future earnings (persistence), future dividends, and share value.

7.4.3 Linking Accounting Data and Share prices

Empirical market-based accounting research seeks evidence of the value relevance of accounting data via analysis of the relation between these data and various market variables. The decade of the 1990s witnessed an increasing use of price per share and market rate of return as the market variables of interest. The focus of this research is on regressions of price per share for individual companies (or the ASI for all the listed companies) on the levels of various financial statement data.

The forgoing analyses use accounting data to explain differences in firms' stock returns. As discussed earlier, to isolate firm-specific abnormal returns that might be attributable to the firm's unexpected earnings, the market-wide systematic-risk factors that affect firms' returns is controlled. Banz (1981); Fama and French (1992), all show that the size of a firm size or market capitalization is a systematic risk factor with significant explanatory power for returns.

Table 30 below provides descriptive statistics of some summarised accounting and market data for all listed companies in the GSE during the 13 year-period 1991 to 2003.

**Table 30: Summary of Accounting and Market Data
1991–2003 (The GSE)**

Year	Market Capitalisation	ASI	EPS	ROE	P/E RATIO
	₦'billion		₦		
1991	23.5	64.51	39.57	0.2246	3.40
1992	43.8	62.17	57.76	0.2511	4.36
1993	95.7	132.88	80.64	0.2417	3.90
1994	2968.4	298.1	158.78	0.2527	4.13
1995	2399.0	316.97	282.93	0.2833	8.25
1996	2597.2	360.76	321.23	0.2412	6.21
1997	2552.8	511.74	393.56	0.2250	6.62
1998	3245.6	868.35	532.42	0.2055	9.12
1999	3205.4	736.16	536.25	0.1683	4.71
2000	3655.0	857.98	873.15	0.1892	5.13
2001	3904.0	955.95	703.20	0.2206	6.88
2002	6183.8	1395.31	749.43	0.1976	6.44
2003	12616.8	3553.42	1087.32	0.1817	6.80

Annual averages of EPS, ROE and P/E Ratios are compared with some market statistics as market capitalisation and prices (ASI). The market capitalisation, All Share Index (ASI) and EPS all show progressive increases over the years. In general terms the increments in EPS corresponds with increments in the All Share Index (ASI) and thus the market capitalization. The ROE does not seem to follow any trend nor does it relate to the share prices in any pattern. The proportionate increments in these variables may explain the trend and the relation between share price on one hand and accounting data such as earnings on the other hand. These descriptive statistics indicate that during most of the sample period, most firms were

profitable (in terms of earnings and earnings changes) and increasing in market capitalization (in terms of returns and abnormal returns). These trends are depicted in Figure 16 on next page. The first few years of trading in the market reveal uncorrelated relation between accounting data and share prices. From 1994, the companies' performances as revealed by accounting data seem to directly impact on GSE and this is reflected on the ASI.

From the Table 30 above, the GSE market has experienced growth over the 13 years. The market capitalisation grew from ₦23.5million in 1991 to ₦12,616.8 million in 2003. Several factors including the enlisting of Ashanti Goldfields could have accounted for this growth. But the key factor worth noting in the perspective of this study is the investors' interest in the significant capital gains which resulted from the rise in the share index. For instance, the price of Accra Brewery Company shares and that of Guinness Ghana Ltd rose from ₦240 and ₦218 in 1995 to ₦552 and ₦5650 respectively in 2003. The trend of the market capitalisation and the ASI also suggest that the GSE is growing. This picture is also seen with an examination of the EPS which grew from ₦39.57 in 1991 to ₦1,087.52 in 2003 i.e. 2648% increase. Return on Capital Employed (ROE) has been consistently maintained over the years. On individual company basis, Standard Chartered Bank scored the highest ROE with 43.26% in 2003. The Standard Chartered Bank shares

distributional statistics for market capitalization and accounting ratios suggest all the companies in the GSE used for this analysis represent a wide range of firms of different sizes, from the relatively small to the very large.

Table 31 : Descriptive Statistics 1991 - 2003

Variable	N	Mean	Median	TrMean	StDev	SE Mean
Mkt Capitalisation	13	3345.00	2968.0	2805.00	3281.00	910.00
ASI	13	778.00	512.0	591.00	925.00	256.00
EPS	13	447.40	393.6	426.30	334.70	92.80
ROE	13	0.2217	0.22460	0.22099	0.03262	0.00905
P/E RATIO	13	6.073	6.21	6.039	1.95	0.541

Variable	Minimum	Maximum	Q1	Q3
Mkt Capitalisation	24.000	12617	1247.00	3780.00
ASI	62.000	3553	215.00	912.00
EPS	39.600	1087.3	119.70	726.30
ROE	0.16830	0.28330	0.19340	0.24640
P/E RATIO	3.400	9.120	4.245	7.845

The results of bivariate correlation analysis are presented in table 32 in the next page. These results provide preliminary evidence that returns are positively correlated with the scaled earnings level and their change.

Theoretical models that form a foundation for the use of security prices as the market metric is used in the next section to assess the levels of correlation between accounting variables and share prices. The use of price as the dependent variable in any regression analysis has potential serious scale problems. Reliance on the returns specification is an obvious means of overcoming the scale problem.

Table 32: Bivariate Correlations (Pearson) Matrix

	Correlation (Pearson) Coefficients			
	Mkt Capi	ASI	EPS	ROE
ASI	0.977 0.000			
EPS	0.856 0.000	0.844 0.000		
ROE	-0.545 0.054	-0.597 0.031	-0.724 0.005	
P/E RATIO	0.638 0.019	0.604 0.029	0.614 0.025	-0.147 0.632

Cell Contents: Correlation
P-Value

ASI, is the GSE All Share Index at the end of year t
Market Capitalisation is number of share outstanding times market price per share as of the end of the fiscal year
EPS is the reported EPS of firm j in fiscal year t
ROE is the reported Return on Equity of firm j in fiscal year t
P/E Ratio is the reported P/E Ratio of firm j in fiscal year t

The P/E Ratio is probably the single most consistent red flag to excessive optimism and over-investment. It is regarded as a marker of business problems and opportunities. A technique, by which one can analyze the market's valuation of a company's shares relative to the wealth the company is actually creating, is to relate the company's share price to its earnings per share. There are several uses of the P/E ration, but one common reason for calculating P/Es is for investors to compare and contrast the values of stocks, one stock with another; though some form of comparisons such as between industries, between countries, and between time periods could be misleading. The safest mode of comparison is to compare the P/Es of comparable shares.

7.4.4 Analysing the Relations between Earnings, Book Values and Prices

As already discussed in chapters 3 and 6, various valuation models are used by previous researchers but the most commonly used valuation models in valuing equity fall into three classes: (1) asset-based valuation models; (2) discounted cash flow models; and (3) the abnormal earnings model. In this study, the abnormal earnings model which is developed by Edwards and Bell (1961) and Ohlson (1991, 1995) and popularly known as Edwards-Bell-Ohlson (EBO) model is applied in analysing the relation between accounting earnings and book values on one hand and share prices on the other. With the EBO model, the dividends discount model is transformed into a model which is based on abnormal earnings and the accounting book value of equity. Most of the practical difficulties of the earlier models are overcome with the EBO so it is therefore preferred. Furthermore, the model (The EBO model) uses book value and discounted expected abnormal earnings to express the value of the firm. In this model, abnormal earnings are defined as excess earnings higher and above the expected return on equity capital.

In this study, the selected sample includes all the Ghanaian listed firms on the GSE in which book values, earnings and share prices are available for the period of the study, 1991-2003. A small proportion of 0.5% of either book value –to-market value or earnings-to-price is removed in order to control for

the effect of the extreme values. The sample is finally made up of about 14 to 25 listed companies per year which contains all listed companies with available accounting information. This process eventually yielded a total of 265 firm-year observations. Tables 33 A & B presents descriptive statistics and correlation among variables for the sample.

Table 33: Panel A: Descriptive Statistics for Firm-year Observation
for Years 1991-2003

Variable	N	Mean	Median	Standard Deviation	Min.	Max.
P	265	0.337	0.251	0.285	0.020	2.000
E	265	0.022	0.018	0.033	-0.058	0.325
BV	265	0.188	0.155	0.107	0.022	1.184

Panel B: Correlation among Dependent and Independent Variables *

Variable	P	E	BV
P	1	0.847	0.781
E	-	1.000	0.826
BV	-	-	1.000

P = share price of firm i at the end of year t,
E = earnings per share of firm i for year t,
BV = book value per share of firm i at year-end t,

* Significant at the 5% level

From the above statistics, there is a high level correlation among all three variables i.e. Price (P), EPS and BV, the highest of these being that of P and EPS, followed by BV and EPS and finally P and BV. This suggests that accounting earnings as announced in financial statements have an impact on share prices.

7.4.5 Cross-sectional Regression of Prices on Earnings and Book Values

In this section, the abnormal earnings model is adopted for the purpose of analysing the association between accounting earnings, books values and share prices. This is the model which is popularly referred to as the Ohlson (1995) model. As already stated earlier, the Ohlson model uses book value and discounted expected abnormal earnings to express the value of the firm in the following formula as cited in Mostafa and Metwally, (2005):

$$P_{it} = a_0 + a_1 E_{it} + a_2 BV_{it} + e_{it} \quad (1)$$

Where:

P_{it} = firm i's share price at the end of year t.

E_{it} = reported earnings per share for firm i during period t.

BV_{it} = book value per share for firm i at the end of period t.

e_{it} = other value-relevant information of firm i for period t orthogonal to earnings and book values, Mostafa and Metwally, (2005)

As stated in Chapter 6, the above model expresses price as a function of both earnings and book value of equity. The use of the coefficient R^2 is applied as a measure of the value-relevance. The methodology of Collins et al. (1997) is applied in this research to examine the explanatory power that accounting earnings and book values have for prices of shares in the Ghana Stock Exchange. The combined explanatory power of book value and earnings as

measured by the coefficient of determination in the above equation is then decomposed into three components:

- (1) the incremental explanatory power of book values,
- (2) the incremental explanatory power of earnings, and
- (3) the explanatory power common to both earnings and book values.

For the purpose of calculating the components, the two equations below are used to estimate the coefficients of determination (Collins et al, 1997):

$$P_{it} = b_0 + b_1 E_{it} + e_{it} \quad (2)$$

$$P_{it} = c_0 + c_1 BV_{it} + e_{it} \quad (3)$$

(Mostafa and Metwally, 2005)

$R^2_{(1)}$, $R^2_{(2)}$ and $R^2_{(3)}$ represent the coefficients for determination for equations 1-3 respectively. While $R^2_{(1)}$ is the coefficient of variation for Earnings and Book Values Combined; $R^2_{(2)}$ is the coefficient of variation for Earnings alone and $R^2_{(3)}$ is the coefficient for variation for Book Values alone. The empirical results of the cross-sectional regression for the total sample using equations 1, 2, and 3 above for each year from 1991 to 2003 are summarised in figure 34 below which reveals the coefficients and t-statistics for each year and for all years combined.

a_1 = Price –earnings coefficient in a multiple regression
 a_2 = Price –book values coefficient in a multiple regression
 b_1 = Price –earnings coefficient in a simple regression
 c_1 = Price –book values coefficient in a simple regression
 R^2 = Co-efficient of variation, R^2

Table 34: The Results of Cross-sectional Regression of Prices on Earnings and Book Values and the Decomposition of the Coefficients of Variation

Panel A: The Models

$$P_{it} = a_0 + a_1E_{it} + a_2BV_{it} + e_{it}$$
$$P_{it} = b_0 + b_1E_{it} + e_{it}$$
$$P_{it} = c_0 + c_1BV_{it} + e_{it}$$

(1)
(2)
(3)

Year	N	a ₁	a ₂	R ² ₍₁₎	b ₁	R ² ₍₂₎	c ₁	R ² ₍₃₎
1991	14	0.325 (2.258)	0.503 (3.413)	0.553	0.126 (4.262)	0.401	0.715 (5.820)	0.497
1992	15	0.548 (4.713)	0.335 (2.884)	0.641	0.111 (4.143)	0.572	0.669 (5.690)	0.450
1993	15	0.719 (12.354)	0.300 (5.213)	0.920	0.051 (3.802)	0.859	0.743 (6.955)	0.570
1994	16	0.770 (8.659)	0.153 (1.942)	0.983	0.086 (5.715)	0.976	0.810 (9.731)	0.781
1995	21	0.311 (3.370)	0.600 (6.294)	0.765	0.182 (8.137)	0.733	0.775 (9.339)	0.602
1996	22	0.814 (7.534)	0.020 (1.284)	0.734	0.208 (7.913)	0.738	0.690 (7.979)	0.496
1997	22	0.518 (6.187)	0.401 (4.581)	0.764	0.180 (10.502)	0.700	0.785 (11.135)	0.605
1998	22	0.757 (6.587)	0.359 (4.268)	0.888	0.115 (7.652)	0.762	0.839 (14.300)	0.756
1999	23	0.475 (4.654)	0.428 (4.183)	0.977	0.094 (6.004)	0.881	0.863 (16.050)	0.783
2000	23	0.438 (3.081)	0.434 (3.033)	0.782	0.131 (6.095)	0.772	0.854 (14.793)	0.729
2001	23	0.567 (6.393)	0.447 (4.233)	0.739	0.182 (9.832)	0.723	0.795 (12.355)	0.603
2002	24	0.457 (6.307)	0.287 (4.060)	0.801	0.091 (6.802)	0.769	0.872 (14.889)	0.751
2003	25	0.638 (6.533)	0.464 (4.367)	0.872	0.103 (6.034)	0.791	0.875 (14.957)	0.801
All Years	265	0.608 (17.160)	0.265 (7.266)	0.735	0.830 (28.03)	0.718	0.752 (29.165)	0.603

* Significant at the 5% level

The behaviour of R^2 as obtained from the outcomes of the above equation, particularly equation, reveals a close relation between earnings plus book values and share prices. The coefficient for the pooled cross-sectional time-series regression (the adjusted $R^2_{(1)}$) shows that earning and book value together account for about 73.5% of the cross-sectional variation in share prices. In the first year of trading (1991) the combined coefficient of variation for both Earnings and Book Values ($R^2_{(1)}$) explained about 55.3% of the variation in share prices. The explanatory power of both Earning and Book Values ($R^2_{(1)}$) rose to 64.1% in the second year (1992) and consistently to 98.3% in 1998. Up to 1994, shares of only 16 listed companies were traded on the exchange floor. The low volume of trading (thin trading) could be the account for this huge coefficient of variation. It is therefore suggestive that Earnings and Book Values could collectively be the key determinants of share prices in the early years of trading in the Ghana Stock Market. This supports the results of the qualitative research (the interviews) that investors attach a high level of importance to accounting information, especially Earnings and Book Values. Rational investors used both Earnings and Book Values to evaluate the progress of listed companies, thus making accounting information a great measure of the value-relevance and the explanatory power for the behaviour of share prices in the Ghana Stock Exchange. Furthermore, $R^2_{(1)}$ was at its lowest only in the first year of trading (55.3%) and thereafter

was above 80% even to 98.3%, with an overall combined explanatory power of 73.5%.

Table 34 above also gives an analysis of the explanatory power of Earnings and Book Values on individual basis for the variation in share prices over the 13 years of trading in the GSE. For the first year of trading, Earnings explained about 40.1% while Book Value explained about 49.7% of the variation in share prices. From these analyses there was an increase in the explanatory power of both Book Value and Earnings over the 13 years. The regression analysis revealed that Earnings explained about 57.2% of share price variations in 1992, 70% in 1997, 88.1% in 1999 and 79.1% in 2003. On the other hand, Book Values also explained about 45%, 78.3% and 80.1% in the same years. For all the years combined, the variation in share prices are explained with the coefficients of earnings and book value are explained 71.8% and 60.3% respectively over the years.

It is also notable from the above analysis that for most of the years and for all the years combined, the explanatory power of Earnings was higher than that of Book Values. For all the years combined the coefficient of variation for Earnings ($R^2_{(2)}$) was 71.8% while that of Book Values ($R^2_{(3)}$) was 60.3%. It is a clear indication from equations 2 and 3 results (as found on Table 34 above) that the individual explanatory power of earnings and book values for share

prices is significant in each year and for all years combined. The adjusted coefficient of determination $R^2_{(2)}$, as indicated in the above analysis shows that book values alone account for about 60.3% of the cross-sectional variation in share prices, while earnings alone also account for about 71.8%. i.e. $R^2_{(3)}$. This is also supported from the qualitative aspect of this research as shown in section 7.1 in early part of this chapter.

7.4.6 The Decomposition of the Coefficients of Variation (R²)

The difference between R²₍₁₎ and R²₍₃₎ is used to measure the incremental explanatory power provided by earnings (Incr. E). The incremental explanatory power generated by book value (Incr. BV) is measured by the difference between R²₍₁₎ and R²₍₂₎. The explanatory power common to both book values and earnings which is denoted as Incr. Com is measured by R²₍₁₎ - Incr. E - Incr. BV.

Table 34 Panel B: The Decomposition of R²:

Incr. E = R²₍₁₎ – R²₍₃₎
Incr. BV = R²₍₁₎ – R²₍₂₎
Incr. Com = R²₍₁₎ - Incr. E - Incr. BV

Year	R ² ₍₁₎	R ² ₍₂₎	R ² ₍₃₎	Incr. E	Incr. BV	Incr. Com
1991	0.553	0.401	0.497	0.056	0.152	0.345
1992	0.641	0.572	0.450	0.191	0.069	0.381
1993	0.920	0.859	0.570	0.350	0.061	0.509
1994	0.983	0.976	0.781	0.202	0.007	0.774
1995	0.765	0.733	0.602	0.163	0.032	0.570
1996	0.734	0.738	0.496	0.238	-0.004	0.500
1997	0.764	0.700	0.605	0.159	0.064	0.541
1998	0.888	0.762	0.756	0.132	0.126	0.630
1999	0.977	0.881	0.783	0.194	0.096	0.687
2000	0.782	0.772	0.729	0.053	0.010	0.719
2001	0.739	0.723	0.603	0.136	0.016	0.587
2002	0.801	0.769	0.751	0.050	0.032	0.719
2003	0.872	0.791	0.801	0.071	0.081	0.720
All Years	0.735	0.718	0.603	0.132	0.017	0.586

* Significant at the 5% level

The results of the decomposition of adjusted R^2 's are shown in Panel B of Table 34 above. These results show a higher contribution of earnings to the combined explanatory power than book values. For all these years, except 1991 and 2003, the incremental explanatory power of earnings was always higher than that of book value. While earnings incremental explanatory power (Incr. E) for 1992, 1999 and 2001 were 19.1%, 19.4% and 13.6%; those of book value (Incr. BV) were 6.9%, 9.6% and 1.6% for the same years. The combined incremental explanatory power (Incr. Com) fluctuated over the years with 34.5%, 68.7% and 72% for the year 1991, 1999 and 2003. For all the years combined, the incremental explanatory power of earnings, Incr. E, is relatively high at 13.2%. On the other hand, the incremental explanatory power of book values, Incr. BV, is just 1.7%. The incremental information content of both earnings and book value, Incr. Com, is 58.6%. The decomposition of the coefficient of variation R^2 reveals that the explanatory power common to both earnings and book values is of great significance and relevance.

7.4.7 Regression Results Based on Profit Classification of Firms

To obtain a better understanding of the association between share prices and earnings and book values, the total sample is divided into sub samples on the bases of profitability and the industrial sector that each firm belongs. On the bases of firm’s profitability, the sample is divided into two main categories: 1) those companies with profits termed the Profit Companies and 2) those firms making losses also termed Loss Companies. The total number of observations gathered from the sample of Profit Companies made up of 237 observation and those of the Loss companies is 28 observations.

Table 35: The Results of Regression of Price on Earnings and Book Values and the Incremental Explanatory Power of Earnings and Book Values for Positive and Negative Earnings

Panel A: Cross-sectional Regression of Prices on Earnings and Book Values Models:

$$P_{it} = a_0 + a_1E_{it} + a_2BV_{it} + e_{it}$$
$$P_{it} = b_0 + b_1E_{it} + e_{it}$$
$$P_{it} = c_0 + c_1BV_{it} + e_{it}$$

(1)
(2)
(3)

Category	a ₁	a ₂	Adj. R ² ₍₁₎	b ₁	Adj. R ² ₍₂₎	c ₁	Adj. R ² ₍₃₎
Profit Comp.	0.675 (17.598)	0.188 (5.257)	0.745	0.845 (38.636)	0.740	0.760 (28.556)	0.600
Loss Comp.	-0.022 (-0.162)	0.523 (3.925)	0.223	-0.037 (-0.255)	0.006	0.235 (4.015)	0.239

Panel B: Incremental Explanatory Power of Earnings and Book Values

$$\text{Incr. E} = R^2_{(1)} - R^2_{(3)}$$
$$\text{Incr. BV} = R^2_{(1)} - R^2_{(2)}$$
$$\text{Incr. Com} = R^2_{(1)} - \text{Incr. E} - \text{Incr. BV}$$

Category Companies	Incr. E	Incr. BV	Incr. Com
Profit Companies	0.145	0.005	0.595
Loss Companies	-0.016	0.217	0.038

The results of the regression analysis of share prices on earnings and book values are shown on Table 35. The Table also presents the results of the decomposition of the coefficient of variation for both profit and loss firms. Panel A of table 35 shows that the coefficient of both earnings and book values for the profit firms are of significance at a 1% level. The application of multiple and simple regression models reveal the strong association between earnings and share prices with coefficients of 0.675 (t-statistics of 17.598) and 0.845 (t-statistics of 38.636) respectively. As compared to the total sample which has coefficients of 0.735 and 0.718, the individual coefficients of Profit Firms of 0.745 and 0.740 are slightly higher as shown in Table 35 Panel A.

Table 35 Panel B also shows that earnings for profit firms account more to the combined explanatory power of the model than book values. This is evidenced by earnings showing higher incremental information content with a relatively higher 14.5% Incr. E as compared to 0.05% in respect to the incremental information content of book values, Incr. BV. The combined explanatory power for both earnings and book value, Incr. Com, is 59.5%. In

the case of the loss firms, there is no association between share prices and earnings; instead, there is an insignificant negative relationship. The results obtained show coefficients of variation of 0.223 and 0.006 for the multiple and the simple regressions respectively. These are much lower than those of the profit firms. Table 35 Panel B shows that there is no value added to the overall explanatory power for earnings from loss firms. Whereas, the common explanatory power of earnings and book value, Incr. Com, is particularly low at 3.8 %, the incremental information content of book values is relatively high at 21.7%.

The results obtained from the above analysis are consistent with those obtained by Hayn (1995); Basu (1997); Jan & Ou (1995) Gornik-Tomaszewski & Jermakowicz (2001); and Collins et al. (1999); in their examinations of the American and other Western developed markets. The study by Hayn (1995) provides several reasons why firms reporting losses have lower price-earnings coefficient and coefficient of variation (R^2) than firms reporting profits. The key reason being that losses are not expected to perpetuate because of the shareholders' liquidation option; therefore the transitory nature of losses will result in a lower coefficient estimate. Applying simple pooled cross-section and time-series regressions of accounting earnings on stock returns, Basu (1997) observes that bad news are reported more quickly than good news because of conservatism effect in accounting.

7.4.8 Regression Results Based on Industry Classification

The researcher adopts the GSE industry classification basis, where listed companies are grouped under four major sectors: Banking and Finance, Extraction and Manufacturing, Food and Drinks, and Retail and General. The banking and finance industry includes financial houses, insurance and all commercial banks. For the reason of similarity in structure, the researcher combines the banking and insurance companies in the finance sector. The food and drink sectors are also combined in one industry for the same reason. The extraction and manufacturing sector include mining, contracting, refinery, metal, and farming.

Table 36:The Results of Regression of Price on Earnings and Book Values and the Incremental Explanatory Power of Earnings and Book Values for Different Industrial Sectors

Panel A: Cross-sectional Regression of Prices on Earnings and Book Values Models:

$$P_{it} = a_0 + a_1E_{it} + a_2BV_{it} + e_{it}$$
$$P_{it} = b_0 + b_1E_{it} + e_{it}$$
$$P_{it} = c_0 + c_1BV_{it} + e_{it}$$

(1)
(2)
(3)

Sector	N	a ₁	a ₂	Adj. R ² ₍₁₎	b ₁	Adj. R ² ₍₂₎	c ₁	Adj. R ² ₍₃₎
Banking & Finance	62	0.705 (11.318)	0.153 (2.535)	0.715	0.825 (17.360)	0.702	0.650 (9.650)	0.415
Extraction & Manufacturing	73	0.435 (5.397)	0.405 (4.970)	0.513	0.613 (7.103)	0.355	0.596 (6.718)	0.345
Food & Drink	52	0.303 (4.520)	0.611 (8.675)	0.813	0.830 (20.018)	0.715	0.878 (24.110)	0.770
Retail & Gen	78	0.713 (8.288)	0.178 (2.168)	0.780	0.878 (18.920)	0.770	0.800 (13.345)	0.635

Panel B: The Incremental Explanatory Power of Earnings and Book

Values:

$$\text{Incr. E} = R^2_{(1)} - R^2_{(3)}$$
$$\text{Incr. BV} = R^2_{(1)} - R^2_{(2)}$$
$$\text{Incr. Com} = R^2_{(1)} - \text{Incr. E} - \text{Incr. BV}$$

Sector	Incr. E	Incr. BV	Incr. Com
Banking & Finance	0.300	0.013	0.402
Extraction & Manufacturing	0.168	0.158	0.187
Food & Drink	0.043	0.098	0.672
Retail & General	0.145	0.010	0.625

The results of the regression analysis of share prices on accounting earnings and book values are presented on Table 36 (A & B) above. These tables also show the incremental information content of earnings and book values for the various industrial groupings. From Panel A above, the results indicate significant variations among the four different economic sectors with particular reference to how appropriate the information is to the model and the relative significance of earnings and book values. The Food and Drink sector produced the best fit followed by Retail and General and then Banking and Finance with book values and earnings accounting for 81%, 78% and 71,5% respectively for the changes in share prices. With earnings and book values accounting for only 51.3% of the coefficient of variation in share prices, the Extraction and Manufacturing sector obtained the lowest fit. The

results of the decomposition of the coefficient of variation (R^2) in respect of the various industrial groupings, is presented in Panel B of table 36. This analysis shows that in the Banking and Finance sector as well as the Retail and Extraction and Manufacturing sectors, earnings accounted for more of the overall explanatory power than book value for the valuation model (Incr. Com). On the other hand, the Food and Drink sector shows that book values add more to the overall explanatory power.

7.4.9 Summary And Conclusions

The focus of this study has been to examine the extent to which accounting information, particularly book values and earnings, provide relevant information to investors at the end of each financial year and how such information impact share prices in the Ghanaian Capital Market. Yearly Financial Statements of listed companies, which are prepared under the Ghanaian and International Accounting Standards, form the major source of accounting variables picked and analysed. As indicated earlier, the Ohlson (1995) valuation model is adopted in this study, as it expresses share price as a function of both book values of equity and earnings. It facilitates the assessment of the usefulness and relevance of financial information. The principal statistical measure of the information content of accounting information in this part of the study has been the coefficient of variation (R^2)

which is used to determine the association between earnings and book values and share prices. The study makes a comparison of the incremental information content of earnings and book values and also investigates the circumstances under which book values or earnings would account for a comparatively higher percentage of the difference of share prices.

The following are indications from the findings of the cross-sectional regression analysis for the 13 years from 1991 to 2003: (1) Over the 13 year period, there is a positive and significant relationship between earnings, book values (jointly and individually) on one hand and share prices on the other; (2) accounting earnings show a greater incremental information content than book values; (3) As to which variable adds more to the overall explanatory power of the model, it is ascertained that earnings for profit firms add more than book values. While the book value of the loss firms adds just a marginally significant explanatory variable of firm value; the earnings for loss firms add no value at all to the overall explanatory of the model; (4) Food and Drink sector offered the best fit for the model, followed by Retail and General and then Banking and financial institutions; and (5) in the Banking and Finance, Retail and General, and Extraction and Manufacturing sectors, earnings add more to the overall explanatory of the valuation model than book values, while book values had superiority over earnings only for the Food and Drink sector.

The findings provide evidence that accounting data reported according to the Ghanaian and International accounting Standards, are useful to investors in equity valuation and in general terms are also consistent with findings from developed markets like the U.S. The results for the information content of book values and earnings and for the relative usefulness of book values for loss firms are also consistent with other results. Unlike other researches, this study finds that earnings have greater incremental information content than book values. The findings of this study are also similar to those found by Easton and Harris (1991), who tested the association between accounting earnings and stock returns in developed and sophisticated U.S. capital market. The explanatory power of earnings for returns measured by the magnitude of R^2 is similar to the findings of Easton and Harris (1991), though their coefficients are consistently higher, indicating a stronger influence of earnings on prices. These can be interpreted as evidence that accounting data reported under the disclosure requirements of the Ghana Accounting Standards perform a valuation role similar to those in advanced markets. The correlation between accounting information and share prices is therefore indicative that accounting information do influence/impact the performance of share prices in the Ghanaian capital market.

Future Research on the information content of accounting data in the Ghanaian capital market can be undertaken from various angles and

perspectives. Applying a time series approach, the value relevance of accounting data could be examined, comparing accounting variables obtained before the adoption of the International Accounting Standards and those after and investigating the reasons for any changes. Secondly, the information content of financial statements prepared under the Ghana accounting system can be compared with the information content of financial statements prepared under other accounting systems in other Sub Saharan African countries. Other studies could also examine the information content of accounting data, controlling for specific events that might trigger trades driven purely by investor psychology. Finally, a test can be conducted on the extent to which other accounting variables such as cash flows could be of value relevance to investors.

The study analyzed the relationship between accounting data and share prices over a long annual window. Further research, including event studies, is necessary to determine the efficiency of the Ghanaian capital market. Moreover, an integration and interaction of GSE with other capital markets in the Sub Saharan Africa should also be of great interest.

CHAPTER EIGHT
SUMMARY AND CONCLUSIONS

	Page
<i>8.1 Introduction</i>	<i>334</i>
<i>8.2 Summary of Methodological Approach</i>	<i>336</i>
<i>8.3 Summary of Ghana Stock Markets Performance</i>	<i>338</i>
<i>8.4 Summary of Research Findings and Conclusions</i>	<i>341</i>
<i>8.4.1 The Trend of GSE All-Share Index (ASI)</i>	<i>341</i>
<i>8.4.2 The Announcement Effects</i>	<i>343</i>
<i>8.4.3 Linking GSE ASI to Earnings and Book Values</i>	<i>346</i>
<i>8.5 Recommendations</i>	<i>354</i>
<i>8.6 Limitations and Suggestions for Further Future Research</i>	<i>359</i>

8.1 Introduction

Over the past thirty-five years capital markets-based accounting research has evolved into a central topic of accounting research. Although there have been various areas of research in this topic, the focus has always been to acknowledge the fact that financial statements contain timely and relevant information for the participants of the stock markets. This study offers a review of some of the major studies that examine the usefulness of financial statement information for capital markets. Most of the accounting research in capital markets has tested for market efficiency and event studies, the role of accounting contracts and disclosure regulation. The empirical evidence relates mainly on the informational perspective of accounting data and holds that accounting data are relevant for valuation purposes if they reflect information that influences share prices or if they provide incremental information that affects investors' perception of the firms' future prospects. In this research, it sorts to explore the relation between accounting data and share prices.

The impact of accounting information on stock market prices has been a subject of considerable empirical investigation in the US, UK and other advanced economies with well developed markets. In this study we extend the empirical evidence to Ghana, an emerging market with distinguished characteristics. The purpose of this research is to investigate the characteristics and distinguished features of Ghana's emerging stock market

and to determine the impact of accounting information (accounting earnings and book values) on share prices.

The literature on emerging equity markets indicates the apparent heterogeneity of these markets. Past research efforts focus on these markets as if they are homogeneous. In spite of the differences in their characteristics, studies by Errunza, (1994), Gill and Tropper, (1988) indicate that emerging markets still provide international money managers opportunities to diversify risk and seek higher returns. The focus of this research is on Ghana's emerging market. The research focuses mainly on the impact of accounting information on share prices in the Ghana stock exchange. The rest of this final chapter is organised into the following parts: 1) Summary of Ghana's Economic and Political Environment, 2) Summary of research methodology, 3) interpretation and conclusions drawn from the empirical and theoretical analysis, 4) recommendations, 5) limitations of the study and 6) suggestions for future research.

8.2 Summary of The Methodological Approach

To examine the impact of accounting information announcements on share prices and to analyze the information dissemination process around earnings announcements, the researcher uses *The Price Behaviour Model*. This model provides a direction for empirically testing the effects of information dissemination in emerging capital markets. It analyzes announcement dates and prices in order to test the hypothesis H_1 that; *'the publication and/or announcement of accounting information has a significant effect on share prices in the Ghana stock market'*.

The second part of the analysis examined the following: 1) the relation between earnings and stock returns; 2) the linkage of accounting data and share prices; 3) the Relations between earnings, book values and share prices; and 4) cross-sectional regression based on profit classification of companies and on industry classification. The object of these analyses are to test the following hypotheses:

H_2 There is significant relationship between accounting earnings and share prices in the Ghanaian Stock Market.

H_3 There is significant relationship between Book Values and share prices in emerging markets.

The researcher undertook brief analyses of the relationship between share prices and economic and political variables in Ghana with implications on efficiency of Ghanaian stock market. These are major research areas but suffice it for now to briefly examine them in this project.

The researcher has used data collected from several sources including; Annual Reports and financial statements of listed companies, the GSE database, Ghanaian newspaper publications, African Economics Journal, and Ghana Data Bank. Other sources of the financial data used in this research included: Data Stream, IMF and World Bank Reports, Standard & Poor's Emerging Market Data Base (EMDB) and the Centre for Studies of Emerging Markets (University of Westminster, London). The researcher also implored *observation* as a means of data collection and made a total of 47 personal visits to the trading floor of GSE. Another major means of data collection was by *interviews* and *casual conversations* with stockbrokers, individuals, managers of financial institutions and institutional investors.

8.3 Summary of Ghana Stock Markets Performance

Despite the threats of macro instability – evidenced by high yielding riskless financial assets such as treasury bills, persistent high inflation rates and continuous depreciation of the cedi, the **Ghana Stock Exchange (GSE)** is one of the premier stock exchanges in Africa and has demonstrated sound performance since trading commenced in 1990. Under the Financial Structural Adjustment Programme (FINSAP), Ghana's capital market was established in 1989. The Ghana Stock Exchange (GSE) began full operation in November 1990 with 12 listed companies and one Government bond. Market capitalisation within the first two years of operation increased from ₵30 billion in 1991 to ₵43 billion in 1992 while the listed companies increased to 15. In 1993, the total market capitalisation went up by about 120% to ₵95 billion. By the end of 1993, the GSE had made total gains amounting to 123% and thus established itself as a profitable investment venture for the Ghanaian economy. The perception of decreasing risk in Ghana's market economies accounts for GSE improvement between 1994 and 2003. This is revealed in an increase in "breadth" as measured by new listings of 25 companies over 13 years. Furthermore, there was an increased size as measured by market capitalization and new issues.

A phenomenal performance of the GSE occurred in 1994 with the divestiture of Ashanti Goldfields (AGC) – Ghana’s most lucrative gold mine. The listing of the AGC on the GSE (as well as on the London and New York Stock Exchanges) created an unusual awareness of the Stock Exchange not only to the Ghanaian public but to the world at large. Due to the size and value of AGC, the sale of its shares substantially increased the market capitalization from ₵43 billion in 1992 to ₵1,968.43 billion equivalent to about 39% of the country’s GDP at the end of 1994. The total market capitalization attained after AGC’s listing on the GSE exceeded that of most other sub-Saharan African countries thus ranking the GSE as the third largest stock market in the region in a 1994 survey.

The total market capitalization of GSE increased by 27% from ₵2.55bn in 1997 to ₵3.25bn in 1998. It rose further to ₵3.32bn (approx. US\$141m) in 1999 and finally hit a historical height of ₵12,616.8 billion (approx. US\$14 billion) by the close of December 2003. This rise in total market capitalization mainly reflects increases in share prices and additional listing over the period. Turnover volume was actually down from 125.63 million shares in 1997 to 91.45 million (i.e. down by 27 per cent). Turnover value, however, increased by 44 per cent over that of 1997, i.e. from ₵93.36bn to ₵134.01bn in 1998.

The average rate of capital appreciation is 70 per cent since 1990, and this by far exceeded the annual inflation rate in Ghana's economy for the period.

Notwithstanding these remarkable developments in the GSE, it is rather surprising that a good number of listed companies have not made use of the Exchange in terms of raising long-term capital. More surprisingly, there are no government bonds traded in the markets. Several reasons could attribute to the lackadaisical attitude towards the GSE. Though all types of securities including foreign registered companies' securities can be listed in GSE, the criteria for listing, which includes capital adequacy, profitability, spread of shares, years of existence, and management efficiency, may be an obstacle to many companies.

A review of the Ghana emerging stock market shows that it is small and illiquid. The availability of quality stocks is limited. Shares are mostly tightly-held by major investors such as pension funds and insurance companies. This means foreign investors wishing to acquire large blocks of shares may have to pay a hefty premium. The best opportunities arise during new share flotations and in privatisation (which attracts offshore investors).

8.4 Summary Of Research Findings and Conclusions

8.4.1 The Trend of GSE ASI

A general overview of the trend of share prices for the listed equities reveal a general upward trend. All equities experienced significant increases in prices over the 13-year period with Standard Chartered Bank shares recording the highest with over 30,000% increase from ₵200 to ₵61,000. Others such as Fan Milk Ghana Ltd, Enterprise Insurance Company and Social Security Bank, reached growth heights of 15,000%, 7,900% and 2,460% respectively. The upward trend of these share prices over the 13-year period is indicative of growth in the stock market.

An industrial sector analysis of the share prices that the Banking and Finance Sector made the highest growth of 13,705% over the years under review; while Extraction and Manufacturing, Food and Drinks, and Retail and General grew by 11,365%, 2,426% and 1,091% respectively. Equities of other industries managed some slight increases. The most shocking of all is Ashanti Goldfields of the extraction industry, whose share price increased by only 33% from ₵21,000 in 1994 to ₵28,650 in 2003. The overall picture of sector price performance reveals that for most of the years from 1991 to 2003, the extraction and manufacturing industry was above all the other sectors except in 2003 when it was overtaken by the banking and finance sector.

In terms of index performance, the GSE was the sixth best performing emerging stock market with capital appreciation conservatively put at 116% for 1993. With a gain of 124.3% in its index level in 1994, the GSE was the best index performing stock market among all emerging markets in that year. In 1995, however, the index increased by a mere 6.3% partly due to high levels of inflation and interest rates prevailing in the country during the year. In that year, inflation rate more than doubled over the previous year, from 34.2% in 1994 to 70.8% in 1995. Between 1996 and 1998, the GSE All-share index experienced a steady growth from 360.76 in 1996 through 511.74 in 1997 to 868.35 in 1998. Growth of the Index for 1996 was 13.82%, 1997 41.85% and at the end of 1998 it was 868.35, a growth of almost 70%.

It is relevant to note that between 1990 and 2000, the overall growth in the exchange was 1,124.29% from 70.08 to 857.98. In 2003 GSE again was among the best index performing emerging stock markets with a growth of 154.67%; the highest in the history of the exchange, hitting its maximum of 4970.52. The extent to which accounting data impacted these movements in the share index was the main subject of further analysis in this research.

An examination of the GSE ASI for the 13 years, reveal that announcement of accounting information impacted share prices. For most of the years the

greatest changes in ASI was within the first half of the year. For instance 1994, 1995, 1996, 1998, 2000 and 2003 saw the greatest growth (changes) in ASI of 56%, 6%, 7%, 40%, 14% and 12% respectively between the months of March and June, the period within which most corporations publish their financial statements.

8.4.2 Announcements Effects

Theoretical insights into how public announcements of accounting information affect price changes are provided by Diamond and Verrecchia (1981, 1991); Grundy and McNichols (1989), Holthausen and Verrecchia (1990), Kim and Verrecchia (1991, 1994), Dontoh and Ronen (1993), and McNichols and Trueman (1994).

This research analyzed announcement dates and prices using the Price Behaviour Model. Within the 13 years, a total of 265 events of annual publication of financial statements dates are considered in the analysis. The empirical analysis finds a significant reduction in share price volatility in the post-announcement period relative to the pre-announcement period. The decrease in share price volatility is significant for both the large and small companies. The decomposition of the observed return variance procedure reveals no significant changes in either the intrinsic variance component or

the price adjustment coefficients. However, there is evidence of significant decline in the noise term for the large companies after disclosures of accounting information. The findings in this research are consistent with discretionary noise traders timing their trades, Admati and Pfleiderer (1988).

The results for the Ghana stock market are suggestive of a slight presence of January effect. The possible rationale for this situation is the joint listing of Ashanti Goldfields Company (AGC) on the Ghana Stock Exchange and other advanced exchanges like the London International Stock Exchange, the New York Stock Exchange, Toronto Stock Exchange and the Zimbabwe Stock Exchange. The presence of January effect in this is not unconnected to trading activities in AGC stock by international investors.

There is usually an intensive flow of accounting-related information to the market as the date for publication of accounting data approaches. As the announcement date approaches, the expectations of investors are consequently revised. The formal announcement reduces informational asymmetry, as investors would immediately adjust to public information. Consequently, it is expected that share price volatility would decrease in the post-announcement period relative to the pre-announcement period. Evidence from the above analysis of the GSE data clearly supports this hypothesis by

reporting a significant decrease in share price volatility in the post-announcement period relative to pre-announcement period for both small and large companies.

In conclusion, the observed return variance was decomposed into three components in order to test the potential explanations for the change in share prices: the volatility of the underlying business, the volatility caused by the speed at which information is incorporated into share prices, and the volatility caused by noise in the price process. The results from the empirical analysis document that that announcement of accounting information per se seems to have no effect on the intrinsic variance. Also, the price adjustment coefficients are generally higher than unity, which is consistent with the claim that Ghanaian stock market is generally overreacting to new information. However, there is no significant change in the price adjustment factors between the pre-and post-announcement periods for any of the estimated coefficients. Lastly, there is evidence of significant decline in the noise term after announcement of accounting information for large companies. These empirical results are consistent with the hypothesis that the publication/announcement of accounting information has an effect on share prices in the Ghana stock market.

8.4.3 Linking GSE ASI to Accounting Earnings and Book Values

In examining the relationship between accounting earnings numbers and share prices, the researcher established three link relating accounting earnings to stock returns as depicted in figure 15. While Link 1 assumes that current period earnings numbers provide information that equity shareholders can use to form expectations for future earnings, Link 2 assumes that current and expected future profitability determines the firm's expected future dividend-paying capacity and Link 3 also assumes that share prices reflect the present value of all expected dividends. The relation between earning numbers and share prices was the focus of analysis. The three-links framework provided a useful structure for the analyses of the valuation implications of earnings information. Under this framework, share value reflects the present value of expected future dividends, which are determined by current and expected future earnings. When firms announce earnings that unexpectedly differ from the market's expectations, share prices generally react to the "earnings news." Generally speaking, if earnings beat expectations, share prices increase, and likewise, if earnings fall short of expectations, share prices fall.

The results from descriptive statistics and analysis of correlation between share price (P) and earnings per share (EPS) and book value per share (BV) reveals a close relation between earnings plus book values and share prices. The coefficient for the pooled cross-sectional time-series regression (the

adjusted $R^2_{(1)}$) shows that earning and book value together account for about 73.5% of the cross-sectional variation in share prices

The focus of this study has been to examine the extent to which accounting information, particularly book values and earnings, provide relevant information to investors at the end of each financial year and how such information impact share prices in the Ghanaian Capital Market. As indicated earlier, the Ohlson (1995) valuation model is adopted in this study, as it expresses share price as a function of both book values of equity and earnings. The principal statistical measure of the information content of accounting information in this part of the study has been the coefficient of variation (R^2) which is used to determine the association between earnings and book values and share prices. The study investigates the circumstances under which book values or earnings would account for a comparatively higher percentage of the difference of share prices and then compares the incremental explanatory power of earnings and book values.

The Cross-sectional Regression analysis of Prices on Earnings and Book Values showed that the individual explanatory power of book value and earnings for share price variation is significant in each year and for all years combined. The adjusted coefficient of determination $R^2_{(2)}$, as indicated in the analysis shows that book values alone account for about 60.3% of the cross-

sectional variation in share prices, while earnings alone also account for about 71.8%.

The results of the decomposition of adjusted R^2 's show a higher contribution of earnings to the combined explanatory power than book values. For each of the years covered in this study, the incremental explanatory power of earnings was always higher than that of book value. For all the years combined, the incremental explanatory power of earnings, Incr. E, is relatively high at 13.2%, while the incremental explanatory power of book values, Incr. BV, is just 1.7%. The study discovered that the combined explanatory power of earnings and book value is 58.6%.

The Results of the Cross-sectional Regression of Prices on Earnings and Book Values for Positive and Negative Earnings shows that the coefficient of both earnings and book values for the profit firms are of significance at the 1% level. The application of both multiple and simple regression models reveal a strong association between earnings and share prices with coefficients of 0.675 (t-statistics of 17.598) and 0.845 (t-statistics of 38.636) respectively. As compared to the total sample which has coefficients of 0.735 and 0.718, the individual coefficients of Profit Firms of 0.745 and 0.740 are slightly higher

The findings of the cross-sectional regression analysis of prices on book values and earnings shows that earnings for profit firms account more to the

combined explanatory power of the model than book values. This is evidenced by earnings showing higher incremental information content with a relatively higher 14.5% Incr. E as compared to 0.05% in respect to the incremental information content of book values, Incr. BV. The combined explanatory power for both earnings and book value, Incr. Com, is 59.5%. In the case of the loss firms, there is no association between share prices and earnings; instead, there is an insignificant negative relationship. The results obtained show coefficients of variation of 0.223 and 0.006 for the multiple and the simple regressions respectively. These are much lower than those of the profit firms. Also, there is no value added to the overall explanatory power for earnings from loss firms. Whereas, the common explanatory power of earnings and book value, Incr. Com, is particularly low at 3.8 %, the incremental information content of book values is relatively high at 21.7%. The results obtained from this study are consistent with those obtained by Hayn (1995); Basu (1997); Jan & Ou (1995) Gornik-Tomaszewski & Jermakowicz (2001); and Collins et al. (1999); in their examinations of the American and other Western developed markets.

The Results of a Cross-sectional Regression of Price on Earnings and Book Values for different industrial sectors show significant differences among the four different industrial sectors with particular reference to how appropriate the information is to the model and the relative significance of earnings and

book values. The Food and Drink sector produced the best fit followed by Retail and General and then Banking and Finance with book values and earnings accounting for 81%, 78% and 71.5% respectively for the changes in share prices. With earnings and book values accounting for only 51.3% of the coefficient of variation in share prices, the Extraction and Manufacturing sector obtained the lowest fit.

Over the 13 year period, there is a positive and significant relationship between earnings, book values (jointly and individually) on one hand and share prices on the other; (2) accounting earnings show a greater incremental information content than book values; (3) As to which variable adds more to the overall explanatory power of the model, it is ascertained that earnings for profit firms add more than book values. While the book value of the loss firms adds just a marginally significant explanatory variable of firm value; the earnings for loss firms add no value at all to the overall explanatory of the model; (4) Food and Drink sector offered the best fit for the model; and (5) in the Banking and Finance, Retail and General, and Extraction and Manufacturing sectors, earnings add more to the overall explanatory of the valuation model than book values, while book values had superiority over earnings only for the Food and Drink sector.

This research provides evidence that accounting data reported according to the Ghanaian and International accounting Standards are useful to investors in equity valuation and in general terms are also consistent with findings from advanced capital markets. The results for the information content of book values and earnings and for the relative usefulness of book values for loss firms are also consistent with other results. Unlike other researches, this study finds that earnings have greater incremental information content than book values. This finding, though contrary to other studies is similar to those of Easton and Harris (1991).

From this research, it is evident that a firm's accounting information releases are perceived by the market as informative for other firms in the same industry. It can be concluded from the research that: 1) accounting information is value relevant; 2) the value relevance of accounting information is conveyed beyond the company reporting the information; and 3) the informativeness of accounting information varies cross-sectionally and is influenced by the market's perception of the earnings quality. Furthermore there is proof from the research that share prices in emerging markets do not incorporate all information, as such; volatility in share prices is not only due to news or unanticipated events, therefore suggesting some level of inefficiency in these emerging markets.

In conclusion, it is imperative to remind oneself of the key objectives that were outline at the early stages of the research and to confirm or otherwise if all or any of these objectives have been accomplished. The main four objectives of the study as outline in chapter one included the following:

To examine the structure and characteristics of the Ghanaian Stock Market; to test using empirical data, the effect of announcement/publication of accounting information on share prices; thirdly, to undertake empirical analysis of the relation between accounting information and share prices and finally to investigate using non-empirical data, the influence of political and economic factors on share prices. To accomplish these objectives, four hypotheses were formulated. The tables 37 and 38 on next page summarise the results of the tested hypotheses and the achievement of the respective objectives.

Table 37: Summary of Hypothesis Testing

HYPOTHESIS	RESULT
<i>H₁</i> <i>The announcement (Publication) of accounting information has significant impact on share prices in the Ghana Stock Market</i>	Supported
<i>H₂</i> <i>There is significant relationship between accounting earnings and share prices in the Ghanaian Stock Market.</i>	Supported
<i>H₃</i> <i>There is significant relationship between Book Values and share prices in emerging markets.</i>	Supported

Table 38: Summary of Research Objectives and Status

<i>RESEARCH OBJECTIVES</i>	<i>STATUS</i>
Examine the structure and characteristics of the Ghanaian Stock Market	Achieved
Test using empirical data, the effect of announcement/publication of accounting information on share prices	Achieved
Undertake empirical analysis of the relation between accounting information and share prices	Achieved

8.5 Recommendations

Ghana's Vision 2020 has as its main target the transformation of Ghana from a poor and underdeveloped and low-income country into a prosperous middle-income country by the year 2020. This vision will not be far fetched if the following recommendations could be considered in the development of the Ghanaian capital market.

Policy implications indicate that the Ghanaian government needs to provide an enabling environment for the development of the Ghanaian capital market. A robust GDP and lower interest rates due to fiscal discipline and low inflation rates, coupled with corporate restructuring, would improve the quality of companies' earnings thus, allowing for higher valuations. Taxes and other incentives to induce firms to list on the stock exchange would be useful. Encouraging the issue of a broader range of financial instruments and automated trading practices on the exchange should be given priority. Uniform accounting, disclosure rules, and regular auditing of corporate accounts would improve the quality of information about the securities being traded.

One way to strengthen the GSE would be through regional integration. Such a move would attract more investors and increase the potential for increased

total market capitalisation. The management committee of the GSE must embrace technological innovation to enhance delivery.

Regionalisation and globalisation of the Ghanaian Capital Market has the potential to diversify and attract international capital. It would enable domestic companies to cross list in major international markets, resulting in greater exposure. The challenge for Ghana is to integrate more rapidly into the globalised economy and hence benefit from increasing trade and investment. Stocks are being globalised in the sense that firms in need of funds can tap into foreign markets and investors can purchase foreign stocks. Madura (2000) asserts that in recent years, many firms have obtained funds from foreign markets through international stock offerings.

Modernisation would improve the transparency and security of transactions, and would eventually attract more investors. Quotation, which is still often displayed on a blackboard, could be replaced with an electronic quotation system. The creation of an automated central clearing, settlement, and depository system is needed to enhance the efficiency of the capital market transactions. This would decrease delays and also add to transparency.

The researcher recommends that brokerage activities should be deregulated and open to foreign entities. With as much as 13 brokers in Ghana for a

market capitalisation of only a few hundred million dollars, the role of the stock broker could be reconsidered to go beyond buying and selling of shares to productive research and making of recommendations. The total number and the nature of stockbrokers in Ghana seem to depend more on the degree of liberalisation of the stock exchange than on its size.

As much as the importance of modernisation and deregulation cannot be overemphasised, so is an effective market authority. The establishment of a strong independent market authority, will effectively regulate and control activities in areas such as listing, subscription, accounting and auditing rules, reporting and disclosure requirements, inspection of brokers, etc. Though insider dealing practices do not as yet appear, they feature high on the agenda of the GSE authorities.

It is imperative that the development of the Ghanaian capital market must give consideration to the nature of the macroeconomic and sector policies being pursued. The urgent task facing Ghana is to stabilise its macroeconomic variables in order to create an enabling environment for capital market development. This implies adopting macroeconomic policies that lead to low inflation, stable foreign exchange rates, low fiscal deficits, and a balanced budget. The liberalisation of the foreign exchange control system in Ghana though beneficial, is quite delicate. Such an act in the short term may

encourage domestic investors to move part of their investment out of domestic stock exchanges and into off-shore stock markets. In the long run however, this measure will also attract foreign investors who do not feel comfortable if they cannot get their capital out of a market freely.

Privatisation is one of the most potent government tool used to promote the development of stock exchanges. Therefore, the listing of state owned companies on the stock exchange adds liquidity to the market. Also, the portions allocated to employees and local investors strengthen the small investor base. Privatisation and divestiture programs should be geared towards floating shares of divested firms through the primary markets and stock exchanges. Furthermore, privatisation, (even partial privatisation), raises the knowledge, awareness and confidence of both the general public and the government about the exchange. Nevertheless, serious care must be taken in the implementation of a privatization programme in the face of hunger, poverty, disease and deprivation.

The Ghana stock exchange is less sophisticated (in terms of settlement, custody, etc.) than its counterparts in rich-world countries, bringing about a vicious circle of lower domestic liquidity caused by the preference expressed by foreign investors for trading on the off-shore exchange. This, to some

extent, is what happened with the multi-listing of Ashanti Goldfields. With Ashanti Goldfields holding a predominant position in the stock market capitalisation, the market return of the GSE could suffer from lower world prices of gold.

Improving financial infrastructure by setting up an efficient securities trading and settlement systems and backed by proper custodial services is also recommended. Adequate infrastructure needs to be developed to support capital market development. This requires developing an efficient communications network necessary for pricing of issues and settlements and delivery of instruments. The modern information technology and the internet has become a useful tool of e-commerce and investment channels. Online trading has the potential to increase the demand for securities and lower average trading costs.

In summary, a sound macroeconomic environment, privatisation, domestic savings, deregulation and modernisation combine to support stock exchanges. Apart from the elements outlined above, a review of GDP and of population patterns will also help determine the upside potential of a stock exchange. With the exception of South Africa, GDP is still low, but real growth has significantly increased in most African countries, compared with its depressed or negative level during the 1980s.

8.6 Limitations and Suggestions For Further Future Studies

The inferences and conclusions drawn from capital markets-based accounting research of this nature regarding accounting information questions are quite limited. Certainly, the existence of an association between share prices and accounting information suggests the accounting information is relevant and reliable enough in reflecting some aspects of companies' activities of interest to market participants for the association to be detectable. However, assessing the levels of relevance or reliability of this accounting information was not an area of emphasis in this research. To this end, the researcher did not consider the Ghanaian Accounting Standards and Policy, the application of Standard Accounting Practices, the Ghanaian Legal Framework of Accounting and the Role of the Institute of Chartered Accountants (CA) Ghana in generating accounting information. The quality, reliability and relevance of accounting information could not be examined in this study though it could form a relevant source of reference. An accounting system which is of relevance and use should produce information pertinent for decision making.

An association between accounting information and share prices need not mean that investors actually use the information in making their investment and trading decisions. It may simply just reflect some common information with other accounting and non-accounting information that are used by

investors. Even though, since Ball and Brown (1968) many studies have raised this issue, the question is still open. Future research in accounting should address this limitation as well as should try to respond to questions referring to the types, usefulness and credibility of disclosures that firms should provide. Although the paper offers some aspects of disclosure issues, in the light of market globalization, this topic is a potentially fruitful area for accounting research that deserves a more extensive exploration.

Since the research focuses primarily on only two pieces of accounting information, accounting earnings and book values, it therefore does not fully represent all the many pieces of accounting information. The conclusions in this perspective could be too generalised. The political, economic and other factors that impact share prices in the Ghanaian capital market have not been empirically examined in this project. These are broad and major areas of study and could be examined in future researches.

Future Research on the information content of accounting data in the Ghanaian capital market can be undertaken from various angles and perspectives. Applying a time series approach, the value relevance of accounting data could be examined, comparing accounting variables obtained before the adoption of the International Accounting Standards and those after.

Secondly, the information content of financial statements prepared under the Ghana accounting system can be compared with the information content of financial statements prepared under other accounting systems in other Sub Saharan African countries. This study can also be used to motivate subsequent studies of information content, controlling for specific events that might trigger trades driven purely by investor psychology.

The most important objective of financial accounting system is to provide information useful for assessing the amounts, timing, and uncertainty of future dividends and cash flows. One of the most important groups that use accounting information for decision making are investors. Present and potential investors, including creditors all use accounting information in making rational investment and other decisions. To this end, financial reporting systems in general should provide information that is relevant to these users. It is therefore important to examine the extent to which accounting information values firms.

The study analyzed the relationship between accounting data and share prices over a long annual window. Further research, including event studies, is necessary to determine the efficiency of the Ghanaian capital market.

DEFINITIONS

DEFINITIONS AND TERMINOLOGIES

1. Book Values – The term 'Book Value' in this research refers to the shareholders' equity of a business (assets - liabilities) as measured by the accounting 'books'. It is used as a 'per share' value, where the Balance Sheet Equity value is divided by the number of shares outstanding at the date of the balance sheet. For the purpose of clarity, the following formula is consistently used throughout this project to calculate Book Value :

$$\text{Book Value per Share} = \frac{\text{Total Net Value of assets as per balance sheet less liabilities}}{\text{No of outstanding shares}}$$

Net Value of Assets refers to Gross Value of assets less Accumulated Depreciation.

2. Return on Equity (ROE) - Return on Equity measures the rate of return on the shareholders' equity. This is equal to a fiscal year's net income (after preferred stock dividends) divided by total equity (excluding preferred shares which is non-existent in the Ghanaian Capital Market), expressed as a percentage. For the purpose of consistency, ROE is calculated in this research as:

$$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholders' Equity}}$$

3. Earnings per share (EPS) are the earnings returned on the initial investment amount. The Ghanaian Accounting Standards (adopted from the International Accounting Standards, IAS) requires companies' income statements to report EPS.

Throughout this research, EPS is calculated as:

$$\text{EPS} = \frac{\text{Net Income}}{\text{Total No of Outstanding Shares}}$$

Where the number of shares outstanding during a period fluctuates, a weighted average is used

The value used for company earnings is the last twelve months' Net income. The number of shares used for the calculation is only shares that are currently outstanding at the end of each financial year.

4. The P/E ratio, also called its "earnings multiple", is used to measure how cheap or expensive its share prices is. The lower the P/E, the less you have to pay for the share, relative to what you can expect to earn from it.

$$\text{P/E ratio} = \frac{\text{Price per Share}}{\text{Earnings per Share}}$$

The price per share (numerator) is the market price of a single share of the stock. The earnings per share (denominator) is the net income of the company for the most recent 12 month period, divided by number of shares outstanding.

5. The Market P/E: To calculate the P/E ratio of the market index the accurate method I calculated the weighted average. Each stock's underlying market cap (price multiplied by number of shares in issue) was summed to give the total value in terms of market capitalization for the whole market index. The same method is

computed for each stock's underlying net earnings (earnings per share multiplied by number of shares in issue). In this case the total of all net earnings is computed and this gives the total earnings for the whole market index. Then I divided the total market capitalization by the total earnings to give the market P/E ratio. The reason for using the weighted average method rather than 'simple' average is because I took into consideration any recessionary period of the economic cycle, where some shares could be reporting a loss.

6. Economic Value Added (EVA) is often defined as the value of an activity that is left over after subtracting from it the cost of executing that activity and the cost of having lost the opportunity of investing consumed resources in an alternative activity. The concept of Economic Profit is closely linked to EVA. However, Economic Profit is not adjusted. In the field of corporate finance, EVA is a way to determine the value created, above the required return, for the shareholders of a company. The basic formula is: $EVA = (r - c) \cdot K = NOPAT - c \cdot K$

where $r = \frac{NOPAT}{K}$ is the firm's return on capital, NOPAT is the Net Operating Profit After Tax and c is the Weighted Average Cost of Capital.

7. Martingale (probability theory) - a stochastic process in which the conditional expectation of the next value, given the current and preceding values, is the current value.

8. Kurtosis is a measure of the "peakedness" of the probability distribution of a real-valued random variable. Higher kurtosis means more of the variance is due to infrequent extreme deviations, as opposed to frequent modestly-sized deviations. Distributions with zero kurtosis are called **mesokurtic**. A distribution with positive kurtosis is called **leptokurtic**. A distribution with negative kurtosis is called **platykurtic**.

9. Heteroscedasticity - a sequence or a vector of random variables is *heteroscedastic* if the random variables in the sequence or vector may have different variances, i.e the variance of the error term is not constant. The opposite is *homoscedasticity*.

10. Autoregressive Conditional Heteroskedasticity - an autoregressive conditional heteroskedasticity (ARCH) Model considers the variance of the current error term to be a function of the variances of the previous time period's error terms. ARCH relates the error variance to the square of a previous period's error. If an autoregressive moving average model (ARMA model) is assumed for the error variance, the model is a **Generalized Autoregressive Conditional Heteroskedasticity (GARCH,)** model.

11. White test is a statistical test which establishes whether the residual variance of a variable in a regression model is constant (**homoskedasticity**). To test for constant variance one regresses the squared residuals from a regression model

onto the regressors, the cross-products of the regressors and the squared regressors. One then inspects the R^2 . If homoskedasticity is rejected one can use a **GARCH** model.

12. EGARCH is the exponential general autoregressive conditional heteroskedastic (EGARCH) model by Nelson (1991), which is another form of the **GARCH**

model. Formally:

$$\log \sigma_t^2 = \omega_t + \sum_{k=1}^{\infty} \beta_k g(Z_{t-k})$$

where $g(Z_t) = \theta Z_t + \lambda(|Z_t| - E(Z_t))$, σ_t^2 is the conditional variance, ω , β , θ and λ are coefficients, and Z_t is a standard normal variable.

13. Volatility Clustering: as noted by Mandelbrot, is where large changes tend to be followed by large changes, of either sign, and small changes tend to be followed by small changes.

14. Autocorrelation is a mathematical tool used frequently in signal processing for analysing functions or series of values, such as time domain signals. Informally, it is a measure of how well a signal matches a time-shifted version of itself, as a function of the amount of time shift. More precisely, it is the **cross-correlation** of a signal with itself. The autocorrelation function (ACF) of a random process describes the correlation between the process at different points in time. Let X_t be the value of the process at time t (where t may be an integer for a

discrete-time process or a real number for a continuous-time process). If X_t has mean μ and variance σ^2 then the definition of ACF is

$$R(t, s) = \frac{E[(X_t - \mu)(X_s - \mu)]}{\sigma^2}, \text{ where } E \text{ is the expected value.}$$

15. Cointegration is an econometric technique for testing the correlation between non-stationary time series variables. If two or more series are themselves non-stationary, but a linear combination of them is stationary, then the series are said to be cointegrated.

16. The linear model is a model given by $Y = X\beta + \varepsilon$

where Y is an $n \times 1$ column vector of random variables, X is an $n \times p$ matrix of "known" (i.e., observable and non-random) quantities, whose rows correspond to statistical units, β is a $p \times 1$ vector of (unobservable) parameters, and ε is an $n \times 1$ vector of "errors", which are uncorrelated random variables each with expected value 0 and variance σ^2 .

17. The Guass-Wiener Process. (a Gaussian process), commonly referred to as the Wiener process is a continuous-time stochastic process with stationary independent increments. It is not stationary, but it has stationary increments. As any Gaussian process, Wiener process is completely described by its expectation and correlation functions.

18. The Normal Distribution, also called **Gaussian distribution** is a family of distributions of the same general form, differing in their *location* and *scale* parameters: the mean ("average") and standard deviation ("variability"), respectively. The **standard normal distribution** is the normal distribution with a mean of zero and a standard deviation of one (the green curves in the plots to the right). It is often called the **bell curve** because the graph of its probability density resembles a bell.

19. The Wald Test is a statistical test, typically used to test whether an effect exists or not.

20. The Earnings Response Coefficient (ERC) expresses the relationship between equity returns and unexpected earnings announcements. The **efficient market hypothesis** posits that equity prices reflect all relevant information at a given time. Consequently, any change in equity value results from a change in relevant information. To this end, the earnings response coefficient measures equity returns related to unexpected earnings information. Generally, the ERC is expressed mathematically as follows – $R = a + b(ern - u) + e$

Where – R = the expected return

a = benchmark rate

b = earning response coefficient $(ern - u)$ = unexpected earnings

e = random movement

21. Vector Autoregression (VAR) is an econometric model used to capture the evolution and the interdependencies between multiple time series, generalizing the univariate AR models. A VAR model describes the evolution of a set of n variables (called *endogenous variables*) measured over the same sample period ($t = 1, \dots, T$) as a linear function of only their past evolution. The variables are collected in a $n \times 1$ vector y_t , which has as the i^{th} element $y_{i,t}$, the time t observation of variable y_i .

22. NASDAQ (originally an acronym for **National Association of Securities Dealers Automated Quotations** system) is an American electronic stock exchange. It was founded in 1971 by the National Association of Securities Dealers (NASD), who divested it in a series of sales in 2000 and 2001. It is owned and operated by **The Nasdaq Stock Market, Inc.** (NASDAQ: NDAQ) the stock of which was listed on its own stock exchange in 2002. NASDAQ is the largest electronic screen-based equity securities market in the United States. With approximately 3,200 companies, it lists more companies and, on average, trades more shares per day than any other U.S. market.

APPENDICES

Appendix 1

Ghana Political timeline	
1952	Nkrumah becomes the first African prime minister and government leader, but shares power with the British governor, Sir Charles Arden-Clarke.
1957	Ghana is the first of the colonies in sub-Saharan Africa to gain independence.
1960	Nkrumah is appointed president of the republic.
1964	Nkrumah suspends the democratic constitution. Ghana officially becomes a one-party state and Nkrumah assumes the powers of a dictator.
February 1969	A bloodless military coup ends the rule of Nkrumah and his administration. The new military government calls itself the National Liberation Council (NLC), and aims to govern in a provisional capacity until an election has been held. Political parties are once again legalized.
September 1969	Multi-party elections are held in Ghana, and Dr Kofi Busia and the Progress Party form a new civilian government.
1972	Forces within the military carry out a coup. The National Redemption Council declares Colonel Ignatius Acheampong the head of state.
1975	Acheampong dissolves the government and replaces it with the Supreme Military Council (SMC), comprising only seven handpicked members.
1978	Acheampong is forced to resign as General William Akuffo takes control, creating the second Supreme Military Council. He promises to reinstate a civilian government. Political parties are once again allowed in Ghana, and a date for the elections is set.

Appendix 1 continued

4 June 1979	Jerry Rawlings carries out a new military coup. The Armed Forces Revolutionary Council (AFRC) takes power, but continues to promise that a democratic election will be held later the same month.
18 June 1979	Dr Hilla Limann and his People's National Party win the election.
September 1979	The AFRC hands over power to Hilla Limann, and Rawlings and his soldiers return to the army.
1981	Jerry Rawlings once again seizes power through a military coup.
1992	Multi-party elections are held in Ghana. Rawlings wins the presidential election with nearly 60% of the votes.
1996	Rawlings is re-elected. His party, the NDC, retains the majority in parliament, but John Kufuor's New Patriotic Party (NPP) also has strong representation.
2000	Rawlings' presidency ends as the constitution allows a president only two terms in office. The NDC's vice president, John Atta Mills, is the new presidential candidate, but it is John Kufuor from the NPP who wins the elections and becomes the new president.
December 2004	President Kuffuor is re-elected after winning 53% of the votes in Ghana's presidential elections.

Source: http://crawford.dk/africa/ghana_timeline.htm.2004

Appendix 2**Ghana's Economic Indicators (2004)**

- § Population -18.9 million (Ghana Population Census 2000).
- § Population density - 79.3 persons per sq. km.
- § Female population – 50.5%.
- § Male population – 49.5%.
- § Population below 15 years – 41.3%.
- § Population above 64 years – 5.3%.
- § Population Growth Rate – 2.7% (Ghana Population Census 2002).
- § GDP Per Capita (2004) – US\$420.
- § Real GDP Growth 5.8% (2004).
- § Inflation (End of December 2004) – 11.8%.
- § Gross International Reserves (December 2004)–US\$1,732 million, which is equivalent to 3.8 months of imports.
- § Domestic Primary Balance - Surplus (2004) – equivalent to 0.7% of GDP
- § Total Revenue (including grants, foreign loans and HIPC relief-2004 provisional): ₵28,736.8 billion.
- § Total Expenditure (2004 Provisional): ₵28,736.8 billion.

Appendix 3**GHANA'S MAJOR IMPORTS/EXPORTS**

Major Exports (Destinations)	Major Imports (Origins)
United Kingdom	Nigeria
Switzerland	United Kingdom
Italy	Cote D'Ivoire
Togo	USA
Netherlands	Germany
USA	Netherlands
Germany	Japan
Japan	South Africa
Nigeria	Italy
	Nigeria

Appendix 4**LIST OF STOCKBROKERS DEALING IN GHANA STOCK EXCHANGE – 30 SEPT 2004.**

Broker	Address	Phone Number Fax Number	e-mail
CAL Brokers Ltd	PO Box 14596 Accra	233-21- 221056/231103 233-21-231913	calbank@ncs.com.gh
CDH Limited	PO Box 14911 Accra North	233-21-667425 233-21-662167	cdhl@ncs.com.gh
Databank Brokerage Ltd	PMB, Ministries Post Office Accra	233-21 669110/ 669417 233-21-669100	databank@africaonline.com.gh
EBG Stockbrokers Ltd	PO Box 16746 Accra North	233-21- 231931/231932 233-21-775406	ecobank@ncs.com.gh
First Atlantic Brokers Ltd	PO Box 5188 Accra North	233-21- 667088/666909 233-21-775743	fabl@ncs.com.gh
Gold Coast Securities Ltd	PO Box 453 Accra	233-21-777380 233-21- 226310/229892	goldcoas@AfricaOnline.com.gh
Merban Stockbrokers Ltd	PO Box 401 Accra	233-21-666311-3 233-21-667305	merbanservices@ighmail.com.gh
National Trust Holding Co Ltd	PO Box 9563 Airport Accra	233-21- 229664/229106 233-21-229975	nthc@ghana.com
New World Investment Ltd	PO Box 16452 Airport Accra	233-21-228610 233-21-225721	newworld@ghana.com
SDC Brokerage Ltd	PO Box 14198 Accra	233-21-669372-5 233-21-669371	sdc@africaonline.com.gh
Sterling Securities Ltd	PO Box C1325 Accra	233-21 762955/764335 233-21 762954	sterling@africaonline.com.gh
Strategic African Securities Ltd	PO Box 16446 Airport Accra	233-21- 231386/233777 233-21-229816	sasltd@ncs.com.gh
United Securities Trust Ltd	3rd Floor, Enterprise House High Street, Accra	233-21-669501, 664423, 667513 233-21-667395	ustivsb@africaonline.com.gh

Appendix 5

MY INTERVIEW GUIDE

Preface:

Set the interviewee at rest. Explain purpose of interview. Indicate the significance of the research, its potential benefits and that the interviewees comments will be valuable. Explain how the interview will be conducted, the general areas to be covered and how long it will last. Confirm your commitment to research ethics: make guarantees of confidentiality and anonymity. Be sensitive to signs of emotional reaction. Avoid carrying a sense of urgency or impatience.

1. How long have you traded as a stockbroker?
2. How many shares have you bought and in how many companies
3. When did you buy a majority of the shares? To be more specific, which month in the year do you buy most of your shares and why?
4. What is the general cause of changes (rise and fall) in the GSE share index?
5. Which three particulars stocks in GSE do you have the most interest in?
6. Which particular period of the year do you consider buying these stocks?
 - 1st Quarter
 - 2nd Quarter
 - 3rd Quarter
 - 4th Quarter
7. When are the accounts of these three listed companies normally published?

• Company	1 st Qtr	2 nd Qtr	3 rd Qtr	4 th Qtr

8. Do you normally study the financial statements of the companies you have shares in?

9. Rank these in order of importance when considering the purchase of shares in any listed company

- *Return on Capital Employed (ROCE), Earnings*
- *Earnings Per Share (EPS)*
- *Cash Flow from operations*
- *Turnover*
- *Working Capital*
- *Book Values*

10. What impact has earnings got on share prices?

11. How often do you go to the GSE trading floor

- *Daily*
- *Once a week*
- *Occasionally*

12. Which part of the year do you buy most of your share;

1st Quarter 2nd Quarter 3rd Quarter 4th Quarter

- *Probe: Explanation*

13. What non-accounting information influences your decision to buy or sell shares?

- *Probe: Which of these is most significant and why*

14. What impact has politics got on share prices in Ghana?

- *Probe answer for examples and elaboration*

Close by asking whether there is anything the informant wants to add about share prices in the GSE. Leave the interviewee with a sense of success. Enquire if they have interest in the findings and promise copy of summary of findings. Ask whether they would be prepared to participate in a follow up interview.

Appendix 6

NOTE-TAKING FORM

This form is designed for note taking. This form contains sections or headings that reflect the main topic areas covered during the interview.

Assessing the level of correlation between accounting information and share price. Does Accounting information has any impact in share prices in the Ghanaian Capital Market?

.....

.....

.....

.....

.....

.....

.....

Assessing the usefulness of accounting information for investors and the signals they send to the market.

.....

.....

.....

.....

.....

.....

.....

Recognition of non- empirical factors (cultural) that have implications on share prices

.....

.....

.....

.....

.....

.....

.....

Investigating the influence of cultural factors on stock market prices

.....

.....

.....

.....

.....

.....

.....

Appendix 7**SELF EVALUATION OF INTERVIEWS**

A day after every interview, I reviewed my approach in the light of the following questions. I checked these points against my transcripts.

- How well is the interview guide working?
- Is the interview taking too long?
- Does the interviewee understand the questions?
- Which questions worked? Which questions failed?
- Did I miss places where I could probe for more detailed information?
- Did I miss places where I could ask follow-up questions?
- Did I talk too much instead of listening?
- Did I build up good relationship with the interviewees?
- Is there any thing to indicate that I am gaining people's trust and confidence?
- Am I able to encourage interviewees to talk freely and openly with me?
- Did I feel I left interviewees in a relaxed and untroubled condition?
- Are the data shedding light on my research hypothesis?

Appendix 8**IMPORTANCE RANKING OF ACCOUNTING MEASURES**

ACCOUNTING MEASURE	RANKING			
	1st	2nd	3rd	4th
Return on Capital Employed (ROCE), Earnings	//////	///	/	/
Earnings Per Share (EPS)	////////	///	-	-
Cash Flow from operations	-	//	////	////////
Turnover	//	//	////	////
Working Capital	//	/	////	////
Book Values	////	///	///	//

Appendix 9**Ghana Stock Exchange, Listing Fees for Equities**

	Market Capitalisation		Founder Members	Other Members	Non-Members
	¢'billion	¢'billion	¢'million	¢'million	¢'million
Application Fees	Below	0.5	1.0	1.5	3
	0.6 -	1	2.0	3.0	6
	1.1 -	20	5.0	9.0	13
	20.1 -	50	9.0	12.8	16.9
	50.1 -	100	13.0	22.8	27.9
	100.1 -	200	18.0	32.8	49.9
	200.1 -	500	28.6	48.8	71.8
	500.1 -	1,000	37.6	54.8	91
	1,000.1 -	1,500	45.6	65.8	108
	1,500.1 -	2,000	52.6	75.8	122
	Over	2,000	58.6	84.8	133
Original and Additional Listing Fees	Below	0.5	1.0	1.5	3.0
	0.6 -	1	2.0	3.0	6.0
	1.1 -	2	3.0	6.0	9.0
	2.1	2.5	5.0	8.0	11.0
	2.6	5	7.0	10.0	13.0
	5.1	10	9.0	12.0	15.0
	10.1	20	11.0	14.0	17.0
	20.1 -	50	13.0	16.0	19.0
	50.1 -	100	15.0	18.0	21.0
	100.1 -	200	17.0	20.0	23.0
	200.1 -	500	21.0	26.0	36.0
	500.1 -	1,000	25.0	32.0	49.0
	1,000.1 -	1,500	29.0	38.0	62.0
	1,500.1 -	2,000	33.0	44.0	75.0
	Over	2,000	37.5	54.0	90.0
Annual Listing Fees	Below	0.5	1.0	1.5	3.0
	0.6 -	1.0	2.0	3.0	6.0
	1.1 -	2.0	6.0	10.5	14.0
	2.1	2.5	7.5	12.5	16.0
	2.6	5.0	9.0	14.5	18.0
	5.1	10	10.5	16.5	20.0
	10.1	20	12.0	18.5	22.0
	20.1 -	50	13.5	20.5	24.0
	50.1 -	100	15.0	22.5	26.0
	100.1 -	200	16.5	24.5	28.0
	200.1 -	500	18.0	26.5	30.0
	500.1 -	1,000	19.5	28.5	32.0
	1,000.1 -	1,500	21.0	30.5	34.0
	1,500.1 -	2,000	22.5	32.5	36.0
	Over	2,000	24.0	37.5	45.0

Appendix 10

Ghana Stock Exchange, Listing Fees for Corporate Bonds

Application Fees	First 1 million to 25 million	-	0.0005
	Next 750m	-	0.0002
	Next 4000m	-	0.0001
	Next 5000m	-	0.00005
	In Excess of 10,000m	-	0.00002
Original and Additional Listing Fees	First 1 million to 25 million	-	0.0010 thereof
	Next 750m	-	0.0008 thereof
	Next 4000m	-	0.0004 thereof
	Next 5000m	-	0.0002 thereof
	In Excess of 10,000m	-	0.0001 thereof
Annual Listing Fees	Based on total bond value outstanding at the end of previous year	-	0.0001 thereof

BIBLIOGRAPHY

BIBLIOGRAPHY

Abarbanell, J., Bushee, B., 1998, Abnormal returns to a fundamental analysis strategy, *The Accounting Review* 73, 19-45

Abuzar, M.A.E., and Khalid, S.A., 2001. Performance Measures and Wealth Creation in an Emerging Market: The Case of Saudi Arabia. *International Journal of Commerce & Management*, Vol. 11, pp.54-72.

Acheampong, N.O., 1994. Emerging Capital Markets: The Research Agenda and the Development of the Ghana Stock Exchange, Working Paper, University of Portsmouth.

Admati, A.R. and Pfleiderer, P. 1988. A theory of Intraday Patterns: Volumes and Price Variability. *Review of Financial Studies* 1, 1-40.

Afedzie, E. et al, 2001. The Development Of Capital Markets And Growth In Sub-Saharan Africa: The Case Of Ghana.

Agbetsiafa, D. K., (1998). Financial intermediation under information asymmetry: implications for capital market efficiency in selected developing countries. *Journal of Managerial Finance*. Volume 24 Issue 3 Pp 62 - 73

Aitken, B. 1996. Have institutional investors destabilized emerging markets? Working Paper No. 96/34. Washington DC. IMF

Aitken, B. 1998. Have institutional investors destabilized emerging markets? *Contemporary Economic Policy*, 16, 173-184.

Album, A., 1996. Guide to African Stock Markets, *African Business*, February pp. IS- 16.

Alford, A.; Jones, J.; Leftwich, R.; And Zmijewski, M., 1993. The Relative Informativeness Of Accounting Disclosures In Different Countries. *Journal Of Accounting Research* 31, Pp. 183-221.

Ali, A., and Hwang, L., 2000. Country-specific factors related to financial reporting and the value relevance of accounting data. *Journal of Accounting Research*. 38: 1-21.

Ali, A. And Zarowin, 1992. The Role Of Earnings Levels I Annual Earnings-Returns Studies, *Journal Of Accounting Research* 30 (2), 286-296.

Al – Ehrbar., 1997. Debate: Ducking it out over EVA. Fortune Magazine, 136 (3), P 232.

Al Hadad, R., 1989. Testing the factors that have an effect on stocks returns in Saudi Arabia. Jeddah, KSA.

Almotairy, O.M., Lenk, M. and Schultz, N., 1995. The Saudi Equity Investor: A Descriptive Survey. International Journal of Commerce and Management, 5, 73-89.

Amihud, Y. and Mendelson, H., 1987. Trading Mechanism and Stock Returns: An Empirical Investigation. Journal of Finance, 533-553.

Amihud, Y. and Mendelson, H., 1989. Index and Index-futures Returns. Journal of Accounting, Auditing and Finance 4, pp.415-431.

Amihud, Y. Mendelson, H. and Murgia, M., 1990. Stock market microstructure and return volatility: evidence from Italy. Journal of Banking and Finance, 14, 423-440.

Amihud, Y., Mendelson, H. and Lauterbach, B. 1997. Market microstructure and securities values. Evidence from Tel Aviv stock exchange. Journal of Financial Economics, 45, 365-390.

Amir, E., et al. 1993. A Comparison of the Value-Relevance of USB versus Non-US GAAP Accounting Measures Using 2SF Reconciliations. Journal of Accounting Research 31: pp. 230-275.

Antoine, W. and Agtmael, V., 1993. World Emerging Stock Markets. Chicago: Probus Publishing Company.

Arestis, et al. 2001. Financial Development and Economic Growth: The Role of Stock Markets. Journal of Money. Credit and Banking 33: 16-41.

Arnold, A.J., 1998. UK Accounting Disclosure Practices and Information Asymmetry During the First Quarter of the Twentieth Century: The Effects on Book Returns and Dividend Cover. Journal of Business Finance & Accounting Volume 25 Page 775

Atiase, R.K. 1985. Predisclosure Information, Firm Capitalization, and Security Prices Behaviour Around Earnings Announcements. Journal of Accounting Research 23, 21-36.

Atje, R. and Jovanovic, B., 1993, Stock markets and development. European Economic Review, 37, 632-640.

Auer, K., 1996. Capital Market Reactions To Earnings Announcements: Empirical Evidence On The Difference In The Information Content Of IAS-Based Earnings And Ec Directives-Based Earnings. The European Accounting Review, Pp.587-623.

Ayadi, Dufrene, and Chatterjee, 1998. Stock Return seasonality in low-income African emerging markets, managerial Finance, Vol.24 Issue 3.

Ayadi, O. F., 1991. Stock Market Rationality, Growing Bubbles, and Noise Trading: An Empirical Evaluation of the Nigerian Stock Market, Ph. D. Dissertation, The University of Mississippi, 1991.

Ayadi, O.F., 1994. The Efficiency of Price Discovery in the Stock Market and Macroeconomic Variables: An Empirical Investigation, African Review of Money, Finance and Banking, 33-55.

Ayadi, O.F., 1994. What is so Special About Emerging Markets? Managerial Finance, Volume 24, Issue 3.

Bahnson, et al., 1996. Nonarticulation in Cash Flow Statements and Implications for Education, Research and Practice. Accounting Horizons, Vol. 10 pp.1-15.

Ball, R., 1972. Changes In Accounting Techniques And Stock Prices, Empirical Research In Accounting: Selected Studies, Supplement To The Journal Of Accounting Research, Pp. 1-38.

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

Ball, R., and Kothari, S., 1991, security returns around earnings announcements, The Accounting Review, v66, 718-738.

Ball, R., Kothari, S., and Robin, A., 2000, The effect of institutional factors on properties of accounting earnings, working paper, Journal of Accounting and Economics, vol. 29, pp.1-51.

Banz, R. 1981. The Relationship between Return and Market Value of Common Stocks. Journal of Financial Economics 9: 3-18.

Bao, Yan, 2004. The value relevance of accounting information: Evidence from Asian stock markets (Hong Kong, Malaysia, Singapore, Thailand, Indonesia, Philippines, Korea, China

Bao, B.H. and Chow, L. 1999. The Usefulness of Earnings and Book Value for Equity Valuation in Emerging Capital Markets: Evidence From Listed Companies in the Peoples' Republic of China. *Journal of International Financial Management and Accounting* 10: 85-104.

Barth, M.E. and Clinch, G. 1996. International Accounting Differences and Their Relation to Share Prices: Evidence from UK, Australian and Canadian Firms. *Contemporary Accounting Research* 13, pp. 135-170.

Barth, M.E., Beaver, W.H. and Landsman, W.R., 2001. The Relevance of the Value Relevance Literature for Accounting Standard Setting: Another View. *Journal of Accounting and Economics* 30: 77-103.

Barnes, P., 1986. Thin Trading And Stock Market Efficiency: The Case Of Kuala Lumpur Stock Exchange, *Journal Of Business Finance And Accounting*, Vol 13, Pp. 609-17.

Bartov, E. and Bodnar, G.M. 1994. Firm valuation, earnings expectations, and the exchange rate exposure effects. *Journal of Finance*, 5, 1755-1785.

Bascom, W.O., 1994. The Economics of Financial Reform in Developing Countries. New York: St Martin's Press.

Basu, P., 1994. Demystifying privatization in developing countries, *International Journal of Public Sector Management*, Vol. 7 No. 3, pp. 45-55.

Basu, S. 1997. The Conservatism Principle and the Asymmetric Timeliness of Earnings. *Journal of Accounting and Economics* 24: 3-37.

Beaver, W.H. 1968. The Information Content of Annual Earnings Annoucements. *Journal of Accounting Research* 6, 67-92

Beaver, W.H. 1970. The Information Content of Annual Earnings Announcements, *Empirical Research in Accounting: Selected Studies 1968*, supplement to vol. 6 of *Journal of Accounting Research* (1970), pp. 62-99.

Beaver, W.H. and Dukes, R.E., 1972. Interperiod Tax Allocation, Earnings Expectations, and the Behaviour of Security Prices. *The Accounting Review*: 320-332.

Beaver, et al., 1980. The Information Content of Security Prices. *Journal of Accounting and Economics* 2,2-28.

Beaver, W., Griffin, P., and Landsman, W., 1982. The Incremental Information Content of Replacement Earnings. *Journal of Accounting and Economics*, 4, pp. 15-39.

Beaver, W. H.; Lambert, R.; and Morse, D. 1980. The information content of security prices. *Journal of Accounting and Economics* 2: 3-28.

Beckett, S. and Morris, 1992. Are Bank Loans Still Special. *Economic Review*. Federal Reserve Bank of Kansas City.

Beenhakker, A. and Unger, M.L., 1995. An Assessment of Values and Risk in African Stock Exchanges, Working Paper, University of South Florida.

Bekart, G. and Harvey, C.R., 1997. Emerging equity market volatility. *Journal of Financial Economics*, 43, 29-77.

Bencivenga, V.R. and Bruce, D.S., 1991. Financial Intermediation and Endogenous Growth. *Review of Economic Studies*, 58, 195-209.

Bencivenga, et al., 1995. Transaction Costs, Technological Choice, and Endogenous Growth. *Journal of Economic Theory*, 67, 153-177.

Benston, G.J., 1967. Published Corporate Accounting Data and Stock Prices, *Empirical Research in Accounting: Selected Studies*, pp.1-54.

Bernard, V. 1995. The Feltham-Ohlson Framework: Implications for Empiricists. *Contemporary Accounting Research*, 733-747.

Bernard, V.L., and Stober, T.L., 1989. The Nature and Amount of Information in Cash Flows and Accruals. *The Accounting Review*.

Bhandari, L. 1988. Debt/Equity Ratio and Expected Common Stock Returns: Empirical Evidence. *Journal of Finance* 43: 507-528.

Bhattacharya, U., Daouk, H. and Welker, M., (2003), The World Price of Earnings Opacity, *Accounting Review*.

Biddle, G.; Bowen, R.; And Wallace, J., 1997. Does EVA Beat Earnings? Evidence On Associations With Stock Returns And Firm Values. *Journal Of Accounting And Economics*, Pp 301-36.

Biddle, G.; Seow, and Siegel, 1995. Relative versus Incremental Information Content. *Contemporary Accounting Research*. 12 : 1-13.

Black, F., 1976. Studies of Stock Price Volatility Changes, *Proceedings of 1976 Meetings of the Business and Economics Statistics Section, American Statistical Association*, 177-181.

Black, F., 1986. Noise. *Journal of Finance* 41: 529-543.

Black, T. R. 2002. Understanding social science research / Thomas R. Black. - 2nd ed. - London: Sage.

Board, J. L.G., Day, J.F.S. and Walker, M., 1989. Information content of unexpected accounting flow and cash flow Comparative evidence between U S and U.K Economies. London: Institute of Chartered Accountants in England and Wales.

Bodnar G.M. and Gentry, W.M. 1993. Exchange rate exposure and industry characteristics: Evidence from Canada, Japan, and USA. *Journal of International Money and Finance*, 12, 29-45.

Bollerslev, T., 1986. Generalised autoregressive conditional heteroscedasticity. *Journal of Econometrics*, 31, 307-27.

Bollerslev, T. Chou, R.Y. and Kroner, F.K., 1992. ARCH modelling in Finance: A review of the theory and empirical evidence. *Journal of Econometrics*, 52, 5-59.

Bonser-Neal, C. and Dewenter, K.L. 1999. Does financial market development stimulate savings? Evidence from emerging stock markets. *Contemporary Economic Policy*, 17(3), 370-380.

Booth, G.G., Martikainen, T. and Tse, Y., 1997. Price and volatility spillovers in Scandinavian stock markets. *Journal of Banking and Finance*, 21(6), 811-823.

Boutchkova, M. and Megginson, W.L., 2000. Privatisation and the Rise of Global Capital Markets. *Financial Management*, 31-76.

Bowen, R. M., Burgstahler, D. and Daley, L. A., 1986. Evidence on the relationships between earnings and various measures of cash flow. *The Accounting Review*: 713-725.

Bowen, R. Burgstahler, D. and Daley, L., 1987. The Incremental Information Content Of Accruals Versus Cash Flows. *The Accounting Review*, pp.723-747

Boyd, J.H. and Smith, B.D., 1997. Capital market imperfections, international credit markets, non convergence. *Journal of Economic Theory*, 73(2), 335-364.

Brannen et al, 1995. Mixing Methods: Qualitative and Quantitative Research

Brennan, M.J., 1991. A Perspective on Accounting and Stock Prices. *The Accounting Review* Volume 66, No1.

Brennan, M.J. and Schwartz, E.S., 1982. Consistent Regulatory Policy under Uncertainty. *The Bell Journal of Economics* 13, 506-521.

Briloff, A. 1972. Corporate Financial Report Quagmire. *The CPA Journal*, 42.

Brookfield, D. and Morris, R., 1992. The Market Impact of UK Company News Announcements. *Journal of Business Finance and Accounting* 19, 585-602.

Brooks, R., Faff, R., Fry, T. and Bissoondoyal-Bheenick, E. (2004), Alternative Beta Risk Estimators in Cases of Extreme thin Trading: Canadian Evidence.

Brooks, R., Faff, R., Fry, T. and Gunn, L., (2004), Censoring and its Impact on Beta Risk Estimation, *Advances in Investment Analysis and Portfolio Management*.

Brooks, R., Faff, R., Fry, T. and Rey, D. M., (2004), Alternative Beta Risk Estimators in Emerging Markets: The Latin American Case.

Brown, P., 1970. The Impact of the Annual Net Profit Report on the Stock Market, *The Australian Accountant*, pp. 277-283.

Brown, P. and Kennelly, J., 1972. The Informational Content of Quarterly Earnings: An Extension and Some Further Evidence. *Journal of Business*, pp. 403-415.

Brown S., Lo, K. and Lys, T., 1999. Use of R² in accounting research: Measuring changes in value relevance over the last four decades. *Journal of Accounting and Economics*, 28(1): 83-115.

Bryman, A. 1988. Quantity and Quality in Social Research.

Brymann, A. 1995. Research Methods and Organisation Studies. Contemporary Social Research Series: 20.

Bryman, A. and Cramer, D., 2005. Quantitative Data Analysis With SPSS 12 and 13. A Guide for Social Scientists.

Brymann, A. and Burgess, R.G., 1994. Analyzing Qualitative Data. London: Routledge.

Burgess, R.G., 1984. In the Field: An Introduction to Field Research. Contemporary Social Research Series: 8.

Butler, K. C., Malikah, S.J. 1992. Efficiency and inefficiency in thinly traded stock markets: The case of Kuwait and Saudi Arabia. Journal of Banking and Finance, 16, 197-210.

Calderon-Rossell, J.R. 1991. The Determinants of Stock Markets Growth In Pacific Basin Capital Markets Research Proceedings of the Second Annual Pacific-Basin Finance Conference, Bangkok, Thailand. S Ghon Rhee and Rosita P. Change (Eds) (1990). Vol. II. Amsterdam North-Holland.

Campbell, J.Y. and Shiller, R.J., 1988. Stock Prices, Earnings and Expected Dividends. Journal of Finance, 48, pp. 661-676.

Capaul, C., Rowley, I. and Sharpe, W. 1993. International Value and Growth Stock Returns. Financial Analysts Journal: 27-36.

Caprio, G.Jr., and Demirgüç-Kunt, A. 1998. The role of long term finance: Theory and evidence. The World Bank Research Observer, 13(2), 171-189.

Cates, D. C. 1998. Turning shareholder value into stock price. ABA Journal, 90 (5), 59-62.

Central Bank of Ghana, Various Issues. Central Bank of Ghana Bulletin.

Central Bank of Ghana, 2001. Handbook of Statistics on Ghanaian Economy.

Champ, H., 1996. Not for the Faint-Hearted, Accountancy - International Edition, p.47.

- Chan, L., Hamao, Y. and Lakonishok, J. 1991.** Fundamentals and Stock Returns in Japan. *Journal of Finance* 46: 1739-1789.
- Chan, L.K.C., Megadeath, N. and Lakonishok, J., 1996,** Momentum Strategies, *Journal of Finance* 51, 1681-1713
- Chandra, S.M. and McConaughy, D.L., 1999.** Founding Family Control and Capital Structure: The Risk of Loss of Control and the Aversion to Debt.
- Chang, J., 1998,** The decline in value relevance of earnings and book values, Working paper, University of Pennsylvania, Philadelphia, PA.
- Chang, L.S. and Most, K.S., 1985.** The perceived Usefulness of Financial Statements for Investors' Decisions. Florida International University Presses.
- Chang, R.P., Hsu, S., Huang, N. and Rhee, S.G., 1999.** The effects of trading methods on volatility and liquidity: evidence from Taiwan Stock Exchange. *Journal of Business Finance and Accounting*, 26(1/2), 137-170.
- Chan, D., 2002.** Speed of Share Price Adjustment to Information. *Journal of Managerial Finance*, Volume 28.
- Chelley-Steeley, P.L, and Pentecost, E.J., 1994.** Stock market, efficiency the small firm effect and cointegration. *Applied Financial Economics*, 4, 405-411.
- Chen, S. and J.L. Dodd. 2001.** Operating Income, Residual Income and EVA: Which Metric is More Value Relevant. *Journal of Managerial Issues* 13: 65-86.
- Chen, S. and Dodd, J.L., 2002.** Operating Income, Residual Income and EVA: Which Metric is More Value Relevant. *Journal of Managerial Issues* 13: 65-86.
- Chiang, R. and P. Venkatesh. 1988.** Insider holdings and perceptions of information asymmetry: A note. *Journal of Finance* 43 (4): 1041-1048.
- Christie, A. 1987.** On Cross-Sectional Analysis in Accounting Research. *Journal of Accounting and Economics* 9, 231-258.
- Claessens, S., 1995.** The Emergence of Equity Investment in Developing Countries: Overview, *The World Bank Economic Review*, vol.9, No.1, 1-17.
- Claessens, S., Dasgupta, S. and Glen, J., 1995.** Return Behaviour in Emerging Stock Markets, *The World Bank Economic Review*, vol.9, No. 1 131-151.

Cochran, S.J. and Defina, R.H., 1995. New evidence on predictability in World equity markets. *Journal of Business Finance & Accounting*, 22,845-54.

Cohen, L. and Manion, L. 2000. *Research Methods in Education*.

Cohen, L. et al. 1986. *The Microstructure of Security Markets*, Prentice Hall.

Collins, D. M. and Kothari, S. P. 1989. An analysis of intertemporal and crosssectional determinants of earnings response coefficients. *Journal of Accounting & Economics* 11 (July): 143-181.

Collins, D., Maydew, E. and Weiss, I. 1997. Changes in the Value- Relevance of Earnings and Book Values over the Past Forty Years. *Journal of Accounting and Economics* 24: 39-67.

Collins, D., M. Pincus and H. Xie. 1999. Equity valuation and negative earnings: The role of book value of equity. *The Accounting Review*, 29-61.

Creswell, J. W., 1994. *Research design : qualitative and quantitative approaches*. London ; Thousand Oaks, Calif. : Sage Publications

Creswell, J. W., 2003. *Research design: qualitative, quantitative, and mixed methods approaches / 2nd ed . - London: SAGE.*

Cutler, D.M., Poterba, M. and Summers, L.H., 1989. What Moves Stock Prices? *Journal of Portfolio Management* 15: 4-12.

Damodaran, A. 1993. A Simple Measure of Price Adjustment Coefficients. *Journal of Finance* 48, 387-400.

Damodaran, A. and Lim, J. 1991. The Effect of Option Listing on the Underlying Stocks' Return Process: A Study. *Journal of Banking and Finance* 15, 647-664.

Davis-Friday, P. 1998. *Equity Valuation and Current Cost Disclosures: The Case of Mexico*. Working Paper, University of Notre Dame.

Dechow, P.M., 1994. Accounting Earnings and Cash Flows as Measures of Firm Performance: The Role of Accounting Accruals. *Journal of Accounting and Economics*, pp. 3-42.

Demirgüç-Kunt, A. and Levine, R., 1996. Stock market development and financial intermediaries. Stylised facts. The World Bank Economic Review, 10(2), 341-69.

Demski, J.S. and Feltham, G.A. 1994, Market Response to Financial Reports. Journal of Accounting and Economics 17, 3-40.

Denzin, N.K., 1970. Sociological Methods: A Sourcebook. Aldine.

Denzin, N.K.. 1989. The Research Act, New Jersey Apprentice Hall, Inc.

Denzin, et al. 2002. The Qualitative Inquiry Reader.

De Santis, G. and İmrohoroglu, S., 1997. Stock returns and volatility in emerging financial markets. Journal of International Money and Finance, 16(4), 561-579.

Dhakal, D., Kandil, M. and Sharma, S. C., 1993. Causality between the money supply and share prices. A VAR investigation. Quarterly Journal of Business and Economics, 32, 52-74.

Diamond, D.W. and Verrecchia, R.E. 1981. Information Aggregation in a Noisy Expectations Economy: Journal of Financial Economics 9, 221-235.

Diamond, D.W. and Verrecchia, R.E. 1987. Constraints on Short Selling and Assets Price Adjustment to Private Information. Journal of Financial Economics, 18, 277-377.

Diamond, D.W. and Verrecchia, R.E. 1991. Disclosure, Liquidity, and the Cost of Capital. Journal of Finance 46, 1325-1359.

Dickey, D.A. and Fuller, W.A., 1979. Distribution of the Estimation for Autoregressive Time series with a Unit Root. Journal of American Statistical Association 79: 355-367.

Dickinson, J.P., And K. Muragu, 1994. Market Efficiency In Developing Countries: A Case Study Of The Nairobi Stock Exchange, Journal Of Business Finance And Accounting, Vol 21, Pp.133-50.

Dimson, E. (1978), Risk Management when Shares are Subject to Infrequent Trading, Institute of Finance and Accounting. London Business School.

Divecha, A.B., Drach, J. and Stefek, D., 1992. Emerging markets: A quantitative perspective. *Journal of Portfolio Management* 19(1), 41-51.

Dontoh A., Radhakrishnan, S. and Ronen, J., 2004. The decline in value relevance of accounting information and noninformation-based trading: A noisy rational expectations model analysis, Working Paper, Stern School of Business, New York University, NY.

Dontoh,A. and Ronen, J. 1993. Information Content of Accounting

Dumontier, P. and Labelle, R., 1998. Accounting Earnings and Firm Valuation : The French Case. *The European Accounting Review* 7: 163-183.

Dumontier, P., and B. Raffournier, 2002, Accounting and capital markets: a survey of the european evidence, *The European Accounting Review*, v11 (1), 119-151.

Dyckman, T. R. Et Al, 1975. Efficient Capital Markets And Accounting: A Critical Analysis, Prentice-Hall Contemporary Topics In Accounting Series.

Easton, P. 1985, Accounting earnings and security valuation: evidence of the fundamental links", *Journal of Accounting Research*, 23, Supplement, 54-77.

Easton, P.D., et al., 1992. Accounting earnings can explain most of security returns: The case of long event windows. *Journal of Accounting and Economics* 15: 119-142.

Easton, P.D., et al., 1993. An Investigation of Revaluation of Tangible Long-Lived Assets. *Journal of Accounting Research*, 31.

Easton, P. and Harris, T. 1991. Earnings as An Explanatory Variable for Returns. *Journal of Accounting Research* 29: 19-36.

Easton, P.D., Zmijewski, M.E. 1989. Cross-sectional variation in the stock market response to the announcement of accounting earnings", *Journal of Accounting and Economics*, Vol. 11 pp.117-41.

Economist, The, 1999. Ghana - return visit, 13 November, p. 46.

Edwards, E. and Bell, P. 1961. The Theory and Measurement of Business Income. University of California Press.

Eilifsen et al, 2001. Earnings Announcements and The Variability of Stock Returns. *Scandinavian Journal of Management*, Vol. 7, No. 2 pp 187-200

Elliott R. and Jacobsen, P., 1991. U. S. accounting: A national emergency. *Journal of Accountancy*. November: 5458.

El-Wassal, K.A., 2002. An Empirical Examination of Stock Markets Growth in the Emerging Economies (1980-2000). Graduate School of Vanderbilt University, Tennessee.

Ely, K. and Waymire, G., 1999. Accounting Standard-Setting Organizations and Earnings Relevance: Longitudinal Evidence from NYSE Common Stocks, 1927-93. *Journal of Accounting Research* 37: 293-317.

Engle, R.F and Granger, C.W., 1987. Cointegration: Representation, Estimation, and Testing. *Econometrica*, 55, 251-276.

Epstein, M.J. and Pava, M.L., 1993. The Shareholders Use of Corporate Annual Reports, Greenwich, CT: JAI Press Inc.

Errunza, V.R., 1994, Emerging Markets: Some New Concepts, *Journal of Portfolio Management*, 82-87.

Errunza, V. R., and Losq, E., (1985), The Behaviour of Stock Prices on LDC Markets. *Journal of Banking and Finance*, Vol. 9, pp. 561-575.

Fairfield, P.M., Sweeney, R.J. and Yohn, T.L. 1996. Accounting classification and the predictive content of earnings. *The Accounting Review* 71: 337-355.

Fama, E., 1965, The Behaviour Of Stock Market Prices, *Journal Of Business*, Pp.34-105

Fama, et al, 1969, The Adjustment of Stock Prices to New Information, *International Economic Review*, Pp.1-21

Fama, E., 1970, Efficient capital markets: A review of theory and empirical work. *Journal of Finance*, 25(2), 383-423.

Fama, E., 1981, Stock returns, real activity, inflation and money. *The American Economic Review*, 71(4), 545-65.

Fama, E., 1991, Efficient capital markets: II. Journal of Finance, 46(5), 1575-1617.

Fama, E. and French, K., 1988, Permanent and temporary components of stock prices. Journal of Political Economy, 96, 246-273.

Fama, E. and French, K., 1992. The cross-section of expected stock returns. The Journal of Finance 47: 427-465.

Fama, E. and French, K., 1996. Multifactor Explanations of Asset Pricing. Journal of Finance 51: 55-84.

Fama, E. and French, K., 1998. Value versus Growth: The International Evidence. Journal of Finance 53: 1975-1999.

Fama, E. and French, K., 2000. Forecasting Profitability and Earnings. Journal of Business 53: 161-175.

Fama, E. and MacBeth, E., 1973. Risk, Return and Equilibrium: Empirical Tests. Journal of Political Economy 71: 607-636.

Feldman, R.A. and Kumar, M.S., 1995, Emerging Equity Markets: Growth, Benefits, and Policy Concerns, The World Bank Research Observer, vol.10, No.2, 181-200.

Feltham, G.A., and Ohlson, J.A., 1995. Valuation and Clean Surplus Accounting for Operating and Financial Activities. Contemporary Accounting Research, pp. 216-230.

Fields, T., Rangan, S. and Thiagarajan, S.R., 1998. An Empirical Evaluation of the Usefulness of non-GAAP Accounting Measures In the Real Estate Investment Trust Industry. Review of Accounting Studies 3: 103-130.

Fifeld, et al. 1998. A Review of Research into Emerging Markets. Economic Issues, 3: 1-35.

Financial Accounting Standards Board (FASB), 1977. Objectives of Financial Reporting by Business Enterprises. Statement of Financial Accounting Concepts No 1.

Firth M., 1981. The Relative Information Content of the Releases of Financial Results Data by Firms. Journal of Accounting Research, 19, 521-529.

- Fisher, L. 1966.** Some new stock market indexes. *Journal of Business*, 39, 191-225.
- Fisher, F. and J. McGowan, 1983.** On the misuse of accounting rates of return to infer monopoly profits. *American Economic Review*, 73 (1), 82-97.
- Fleischman, R. K. and Tyson, T. N. 1998.** The Evolution of Standard Costing in the U.K. and U.S.: From Decision Making to Control, *Abacus*, Vol. 32, No.2: 214-236.
- Forsgardh, L.E., And Herten, K., 1975.** The Adjustment Of Stock Prices To New Information, In E.J. Elton And M.J. Gruber, Eds., *International Capital Markets*, Pp. 68-86.
- Forster, G. 1981.** Intra-Industry Information Transfers Associated with Earnings Releases, *Journal of Accounting and Economics* 3, 201-232.
- Fowler, D. J., Rorke, C. H., and Jog, V., (1978),** Thin Trading on the Toronto Stock Exchange, Working Paper 78/12. Faculty of Management , McGill University.
- Fowler, D. J., Rorke, C. H., and Jog, V., (1979),** Heteroscedasticity, R² and Thin Trading on the Toronto Stock Exchange. *Journal of Finance*, Volume 34, No. 5
- Fowler, D. J., Rorke, C. H., and Ridding, A. L., (1979),** Thin Trading Errors in Variables and the Market Model. Working Paper 77/47. Faculty of Management , McGill University
- Francis, J. and Schipper, K. 1999.** Have Financial Statements Lost their Relevance? *Journal of Accounting Research* 37: 319-352.
- Fraser, P. and Power, D. 1997.** Stock return volatility and information: An empirical analysis of Pacific Rim, UK and US equity markets. *Applied Financial Economics*, 7, 241-253.
- French, K. and Roll, R., 1986.** Stock Return Variances: The Arrival of Information and the Reaction of Traders, *Journal of Financial Economics*, 17.
- French, K. R., Schwert, G. W. and Stambaugh, R. F., 1987.** Expected Stock Returns and Volatility, *Journal of Financial Economics*, 19, 3-29.

Frost, C., And Pownall, G. 1998. A Comparison Of The Stock Price Response To Earnings Disclosures In The United States And The United Kingdom. *Contemporary Accounting Research* 11, Pp. 59-84.

Frost, C.A. and Kinney, W.R., 1996. Disclosure Choices of Foreign Registrants in the United States. *Journal of Accounting Research*, 34. pp.6784.

Gallagher, L.A. 1999. A multi-country analysis of the temporary and permanent components of stock prices. *Applied Financial Economics*, 9, 129-142.

Garman, M. and Ohlson, J.A., 1980. Information and the Sequential Valuation of Assets in Arbitrage-free Economies. *Journal of Accounting Research* 18, 420-440.

Garvey, G.T., and Milbourn, T.T., 2000. Asymmetric Benchmarking in Compensation: Executives are Rewarded for Good Luck but not Penalized for bad. *Journal of Financial Economics*.

Geske, R. and Roll, R., 1983. The Fiscal and Monetary Linkage Between Stock Returns and Inflation. *Journal of Finance* 38, 1-33.

Ghana Stock Exchange, 1999 Fact Book.

Ghana Stock Exchange, 2000 Fact Book.

Ghana Stock Exchange, 2004 Fact Book.

Giddens, A., 1984. Positivism and sociology. London : Heinemann Educational

Gill, D. and Tropper, P., 1988. Emerging Stock Markets in Developing Countries, *Finance and Development*, 28-31.

Givoly, D. and Hayn, C., 2000. The Changing Time series Properties of Earnings, Cash Flows and Accruals: Has Financial Reporting Become More Conservative? *Journal of Accounting and Economics* 29: 287-320.

Glosten, L.R. and Milgrom, P.R., 1985. Bid, Ask, and Transaction Prices in a Specialist Market With Heterogeneously informed Traders. *Journal of Financial Economics* 14, 71-100.

Glosten, L.R., et al.1993. On the Relation Between the Expected Value and the Volatility of Nominal Excess Return on Stocks. *Journal of Finance* 48, 1779-1801.

Golob, J.E and Bishop D. 1997. What Long-Run Return Can Investors Expect From The Stock Market?. *Economic Review*. Federal Reserve Bank of Kansas City, 5-20.

Gonedes, N., 1971. Investor Actions And Accounting Messages, *Accounting Review* 2, Pp.328 And 535-551.

Gordon, D., 1996. Sustaining economic reform under political liberalization in Africa: issues and implications, *World Development*, Vol. 24 No. 9, pp. 1527-37.

Gordon, et al., 1998. Wharton Survey of Financial Risk Management by US Non-Financial Firms. *Financial Management*, Vol. 27, No. 4.

Gore, R., And Stott, D., 1998. Toward a more informative measure of operating performance in the REIT industry: Net income vs. funds from operations. *Accounting Horizons* 12: pp.323-339.

Gornik-Tomaszewski, S, and Jermakowicz, E.K., 2001. Accounting-based Valuation of Polish Listed Companies. *Journal of International Financial Management and Accounting*. Volume 12 Page 50

Graham, R., King, R. and Bailes, J., 2000,The Value Relevance of Accounting Information during a Financial Crisis: Thailand and the 1997 Decline in the Value of the Baht. *Journal of International Financial Management and Accounting*, Blackwell Synergy

Granger, C.W.J. 1969. Investigating causal relations by econometric models and crossspectral methods. *Econometrica* 37: 428-438.

Green et al, 2000. Key Microstructure and Policy issues for emerging stock markets: What have we learnt? *Institute for Development Policy and Management*.

Greenwood, J. and Bruce D.S. 1997. Financial Markets in Development and the Development of Financial Markets. *Journal of Economics Dynamics and Control*. 145-181.

Grundy, B.D. and McNicholas, M. 1989. Trade and Revelation of Information Through Prices and Direct Disclosure. *Review of Financial Studies* 2, 495-526.

Habibullah, M.S. and Baharumshah, A.Z., 1996. Money, Output and Stock Prices in Malaysia: An Application of the Cointegration Tests. *International Economic Journal* Vol. 10: 121-130.

Habibullah, M.S. and Baharumshah, A.Z., 2000. Testing for informational efficient market hypothesis: The case for Malaysian stock market. *Issues on Monetary and Financial Economics: Studies on Malaysian Economy*.

Hagerman, R.L. 1973. The Efficiency of the Market for Bank Stocks: An Empirical Test. *Journal of Money, Credit and Banking* 5, 846-855.

Halfpenny, P. 1979. The analysis of qualitative data - *Sociological Review*.

Hall, C., Y. Hamao, And Harris. T., 1994. A Comparison Of Relations Between Security Market Prices, Returns And Accounting Measures In Japan And The United States. *Journal of International Financial Management and Accounting* 5, Pp.47-73.

Harris, T,;Lang, M; And Moller, H.,1994. The Value Relevance Of German Accounting Measures: An Empirical Analysis. *Journal Of Accounting Research* 32 (2), Pp.187-209.

Harvey, C. 1989. Forecast of Economic Growth from the Bond and Stock Markets. *Economics Letters*, 31, 65-69.

Harvey, C. 1995. Predictable Risk and Returns in Emerging Markets. *Review of Financial Studies* 8: 773-816.

Haugen, et al., 1991. The Effects of Volatility Changes on the Level of Stock Prices and Subsequent Expected Returns. *Journal of Finance*, 46. 985-1008.

Hayn, C. 1995. The Information Content of Losses. *Journal of Accounting and Economics* 20: 125-153.

Heath, L.C., 1978. Accounting Research Monograph No 3: Financial Reporting and the Evaluation of Solvency. New York. American Institute of Certified Public Accountants.

Hellwig, M.F. 1980. On the Aggregation of Information in Securities Markets. *Journal of Economic Theory* 22, 477-498.

Hess, P.J. and Lee, B.S. 1999. Stock returns and inflation with supply and demand disturbances. *The Review of Financial Studies*, 12(5), 1203-18.

Holthausen, R.W. and Verrecchia, R.E., 1990. The Effect of Informedness and Consensus on Prices and Volume Behaviour. *The Accounting Review* 65, 191-208.

Hsu, D.A. 1984. The Behaviour of Stock Returns: Is it Stationary or Evolutionary? *Journal of Financial and Quantitative Analysis*, 19: 11-29.

<http://www.ghana.com.gh>

<http://www.ghanaweb.com>

<http://www.liquidafrica.com>

<http://www.mbendi.co.za/exgh.htm>

IFC, 1997. Emerging stock markets factbook. Washington, D.C.: IFC

IFC, 1999. Emerging stock markets factbook. Washington, D.C.: IFC

IFC, 2000. Emerging stock markets factbook. Washington, D.C.: IFC

Ikeme, J. 1999, Sustainable development, globalization and Africa: plugging the holes, <http://www.afbis.com/analysis/jekwu.html>

Institute of Management Accountants (IMA), 1996, The Practice Analysis of Management Accounting: Results of Research. Montvale, NJ: IMA

International Finance Corporation (IFC), 1997, Key Trends in Emerging Stock Markets in 1996, Selected from the 1997 Emerging Stock Markets Factbook.

Isaac, S. and Michael, W.B. 1995, Handbook in research and evaluation: For education and the behavioural sciences, San Diego, CA: EdITS,

Jaffe, J., Keim, D. and Westerfield, R. 1989. Earnings Yields, Market Values and Stock Returns. *Journal of Finance* 44: 135-148.

- Jan, C. and Ou, J. 1995.** The Role of Negative Earnings in the Evaluation of Equity Stocks. Working Paper, New York University.
- Jenkins E. 1994.** An information highway in need of capital improvements. *Journal of Accountancy*. 177 (May): 7782
- Jensen, M., And Litzenberger, R., 1970.** Quarterly Earnings Reports And Intermediate Stock Price Trends, *Journal Of Finance*, Pp. 143-148.
- Johansen, S., and Jesulius, K. 1990.** Maximum Likelihood Estimation and Inference on Cointegration, With Application to the Demand for Money, *Oxford Bulletin of Economics and Statistics*, 52, 169-210.
- Jones, J. 1991.** Earnings Management during Import Relief Investigations. *Journal of Accounting Research*, 29, pp. 193-228.
- Joos, P., 1998.** The Stock Market Valuation Of Book Value And Earnings: Some International Evidence. Working Paper, Instead.
- Joos, P. and Lang, M. 1994.** The Effects of Accounting Diversity: Evidence from the European Union. *Journal of Accounting Research*, 32, 141-168.
- Kahneman, D. and Tversky, A., 1979.** Prospect Theory: An Analysis of Decisions Under Risk. *Econometrica* 47. 508-522.
- Kaplan, R., and Roll, R., 1972.** Investor Evaluation Of Accounting Information: Some Empirical Evidence, *Journal Of Business*, Pp. 225-257.
- Kaplan, R.S. and Johnson, T.H., 1987.** Relevance lost : the rise and fall of management accounting. Boston, Mass: Harvard Business School Press,
- Kawakatsu, H. and Morey, M. R., 1999.** An empirical examination of financial liberalisation and the efficiency of emerging market stock prices. *The Journal of Financial Research*, 22(4), 385-411.
- Kearns, P and Pagan, A.R., 1990.** Ustralian Stock Market Volatility: 1875-1987. RCER Working Papers 248, University of Rochester - Center for Economic Research (RCER).
- Kerlinger, F. and Lee, H., 2000.** Foundations of Behavioral Research (New York: International Thomson Publishing).

- Khambata, D., 2000.** Impact of foreign investment on volatility and growth of emerging stock market. *Multinational Business Review*, 8, 50-59.
- Kitchen, R.L. 1986.** Finance for the Developing Countries. Chichester: Wiley.
- Kim, E.H. and Singal, V., 2000.** Stock market openings: Experience of emerging economies. *Journal of Business*, 73(1), 25-66.
- Kim, O. and Verrecchia R.E., 1991a.** Trading Volume and Price Reaction to Public Announcements. *Journal of Accounting Research* 29, 302-321.
- Kim, O. and Verrecchia R.E., 1991b.** Market Reaction to Anticipated Announcements. *Journal of Financial Economics* 30, 273-309.
- Kim, O. and Verrecchia R.E., 1994.** Market Liquidity and Volume Around Earnings Announcements. *Journal of Accounting and Economics* 17, 41-67.
- King, R. and Langli, J. 1998.** Accounting Diversity and Fair Valuation. *The International Journal of Accounting*, 33, 529-567.
- Knight, R.F., 1983.** The Association Between Published Accounting Data And The Behavior Of Share Prices, Unpublished Doctoral Thesis. Cape Town: University Of Cape Town.
- Koot, R.S. and Padmanabhan, P., 1993.** Stock Market Liberalization and the Distribution of Returns on the Jamaica Stock Market. *Global Finance Journal*, pp. 171-188.
- Kormendi, R. and Lipe, R. 1987.** Earnings innovation, earnings persistence, and stock returns. *Journal of Business* 60: 323-345.
- Kothari, S.P. 2001,** Capital Markets Research in Accounting. *Journal of Accounting and Economics* 31: 105-231.
- Koutmos, G. 1999.** Asymmetric price and volatility adjustment in emerging Asian stock markets. *Journal of Business Finance and Accounting*, 26(1/2), 83-101.
- Kual, G. 1987.** Stock Returns and Inflation: The Role of Monetary Sector. *Journal of Financial Economics* 18, 253-276.

- Kumar, P.C. and Tsetsekos, G.P., 1999.** The differentiation of emerging equity markets. *Applied Financial Economics*, 9, 443-453.
- Kyle, A.S. 1985.** Continuous Auctions and Insider Trading. *Econometrica* 53, 1315-1335.
- Lee, C.L. 2001.** Market Efficiency and Accounting Research: A Discussion of Capital Markets Research in Accounting, by S. P. Kothari,. *Journal of Accounting and Economics* 31: 233-253.
- Lee, et al. 1998.** What is the intrinsic value of the Dow? Working Paper, Cornell University.
- Lev, B. 1989.** On the Usefulness of Earnings; Lessons and Directions from Two Decades of Empirical Research. *Journal of Accounting Research*, pp. 153-201
- Lev, B., and Thiagarajan, R., 1993.** Fundamental information analysis, *Journal of Accounting Research* 31, 190-215
- Lev, B. and Zarowin, P. 1999.** The Boundaries of Financial Reporting and How to Extend Them. *Journal of Accounting Research* 37: 353-384.
- Levine, R., 1990.** Stock Markets, Growth and Policy, World Bank Working Papers, WPS 484.
- Levine, R., 1991.** Stock Markets, Growth and Tax Policy. *Journal of Finance* 64, 97-103.
- Levine, R. and Zervos, S., 1996.** Stock market development and long run growth. *World Bank Economic Review*, 10, 323-39.
- Levine, R. and Zervos, S., 1998.** Stock Markets, Banks and Economic Growth. *The American Economic Review*, 88, 537-558.
- Lieberman, I. and Kirkness, C.D., 1998.** Privatisation and Emerging Equity Markets. The World Bank.
- Liljeblom, E. and Stenius, M. 1997.** Macroeconomic volatility and stock market volatility: Empirical evidence on Finnish data. *Applied Financial Economics*, 7, 419-426.

- Lin, T. and Roberts, B., 2000.** Markets and Politics: The 2000 Taiwanese Presidential Election.
- Livnat, J. and Zarowin, P. 1990.** The Incremental Information Content of Cash Flow Components. *Journal of Accounting and Economics* 13: 25-46.
- Lyare, S.O. and Edo, S.E., 1992.** Demand for Securities: Estimate from Nigeria Stock Market. *Contemporary Economic Policy*, 15.
- Madhavan, A. 1992.** Trading mechanisms in securities markets. *Journal of Finance*, XLVII(2), 607-641.
- Mandelbrot, B., 1963.** The Variation of Certain Speculative Prices *Journal of Business*, Vol. 36, No. 4, pp. 394-419
- Marisetty, V.B. 2004.** Measuring productive efficiency of stock exchanges using price adjustment coefficients.
- Marshall, D.A. 1992.** Inflation and asset returns in a monetary economy. *Journal of Finance*, XLVII(4), 1315-1342.
- May, R. 1971.** The Influence of Quarterly Earnings Announcements on Investor Decisions as Reflected in Common Stock Prices Changes. *Journal of Accounting Research* 9, 119-163.
- McKinnon, R., 1973.** Money and Capital in Economic Development. Washington DC, Brookings Institution.
- McNicholas, M. and Manegold, J.G.. 1983.** The Effect of the Information Environment on the Relationship between Financial Disclosure and Security Price Variability. *Journal of Accounting and Economics* 5, 49-74.
- McNicholas, M. and Trueman, B. 1994.** Public Disclosure and Private Information Collection, and Short-term Trading. *Journal of Accounting and Economics* 17, 69-94.
- Meek, G. 1983.** U.S. Securities market responses to alternate earnings disclosures of non-U.S. multinational corporations. *The Accounting Review* 58: pp.394-402.

- Meek, G. 1985.** Interim Earnings Announcements in the United States by non-U.S. multinational corporations – responses by the U.S. securities market. *International Journal of Accounting*: pp. 1-18.
- Merton, R.C. 1980.** On Estimating the Expected Return on the Market: An Exploratory Investigation, *Journal of Financial Economics*, Vol.8, No, pp.323-361.
- Miller, M.H. and Modigliani, F., 1961.** Dividend Policy, Growth and the Valuation of Shares. *Journal of Business* 34, 411-433.
- Mobarek, A. and Keasey, K., (2000),** Weak-form Market Efficiency of an Emerging Market: Evidence from Dhaka Stock Market of Bangladesh
- Mobius, M., 1995.** *The Investor's Guide to Emerging Markets*. FT-Pitman Publishing – UK.
- Mobius, M., 1996.** *Mobius on Emerging Markets*; FT-Pitman Publishing–UK.
- Mobius, M., 1998.** *Mobius on Emerging Markets*; FT-Pitman Publishing–UK.
- Morse, D. 1981.** Price and Trading Volume Reaction Surrounding Earnings Announcements: A Closer Examination. *Journal of Accounting Research* 19, 374-383.
- Mostafa, A.E.S. and Metwally, A.K., 2005.** The Value Relevance of Earnings and Book Values in Equity Valuation: An International Perspective. The Case of Kuwait. *The International Journal of Commerce and Management*. PP 68
- Mullin, J., 1993.** Emerging Equity Markets in the Global Economy, *Federal Reserve Bank of New York Quarterly Review*, 54-83.
- Murinde et al 2000.** Key Microstructure and Policy Issues for Emerging Stock Markets: What Have We Learned? *Finance And Development Research Programme, Working Paper Series, Paper 16*.
- Murinde, V., 1996.** Financial markets and endogenous growth: An econometric analysis for Pacific Basin Countries. In *Financial Development and Economic Growth Theory and Experiences from Developing Countries*. Hermes, N. and Lensink, R. (Eds), London, Routledge, 94-114.

Mussa, M. and Goldstein, 1993. The Integration of World Capital Markets in Changing Capital Markets: Implications for Monetary Policy. Federal Reserve Bank of Kansas City.

Narktabtee, K., 2000. The Implications of Accounting Information in the Thai Capital Market. University of Arkansas.

Negakis, C.J. (2005). Accounting and Capital Markets Research: A review. *Managerial Finance*. Vol. 31, pp.1-23.

Neumeier, S. (1994). Emerging Markets are buys again. Here are the best. *Fortune Magazine*, June edition

Nicholas, D.C and Wahlen, J.M. 2004. How Do Earnings Numbers Relate to Stock Returns? A Review of Classic Accounting Research with Updated Evidence. *Accounting Horizons*, Vol. 18, Iss. 4, pp. 263-286.

Obadina, T., 1999, Between free market orthodoxy and African reality, [http://www.wafbis.com/analysis/free market orthodoxy.htm](http://www.wafbis.com/analysis/free%20market%20orthodoxy.htm),

Obstfeld, Maurice and Kenneth Rogoff. 1996. Foundations of International Finance, The MIT Press

Ohlson, J., 1989, Accounting earnings, book value, and dividends: the theory of the clean surplus equation (part 1), working paper, Columbia University.

Ohlson, J. A. 1995. Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research* 11: 661-687

Ohlson, J.A. 1989b. Accounting measurement, P/E ratios, and the information content of security prices. *Journal of Accounting Research* 27 (Supplement):111-144.

Ohlson, J.A. 1998. Earnings, Book Values and Dividends in Equity Valuation: An Empirical Perspective. Working Paper, New York University.

Ohlson, J.A. and Penman, S. 1992. Disaggregating accounting data as explanatory variables for returns. *Journal of Accounting, Auditing and Finance* 7; pp. 553-573

Ohlson, J.A. and Shroff, P.K., 1992. Changes Versus Levels in Earnings as explanatory Variables for Returns: Some Theoretical Considerations. *Journal of Accounting Research* 30: 210-226.

Ohlson, J.A. and Zhang, X., 1998. Accrual Accounting and Equity Valuation. *Journal of Accounting Research* 36, 85-112.

Ou, J., and Penman, S., 1989, Financial statement analysis and the prediction of stock returns, *Journal of Accounting & Economics* 11, 295-329

Owusu-Frimpong, N., 2001. The Causes and Consequences of a poor-performing emerging stock market in sub-Saharan Africa: The case of the Ghana Stock Exchange. *Journal of Financial Services Marketing*, Vo.6, Iss. 2.

Pagano, M. 1993. Financial markets and growth, an overview. *European Economic Review*, 37, 613-622.

Panafrican News Agency, 1996. Zimbabwe Stock Exchange Activity Increases, *African News Online*.

Papachristou, G. 1999. Stochastic behaviour of the Athens stock exchange: A case of institutional non-synchronous trading. *Applied Financial Economics*, 9, 239-250.

Papaioannou, M.G. and Duke, L.K., 1993. The internationalization of Emerging Equity Markets, *Finance and Development*, Washington, Vol. 30.

Patell, J.M. and Wolfson, M.A., 1981. The Ex Ante and ex Post Price Effects of Quarterly Earning Announcements Reflected in Option and Stock Prices. *Journal of Accounting Research* 19, 434-458.

Patell, J.M. and Wolfson, M.A., 1984. The Intraday Speed of Adjustment of Stock Prices to Earnings and Dividend Announcements. *Journal of Financial Economics* 13, 223-252.

Paton, W. and Littleton, A. 1940. An Introduction to Corporate Accounting Standards. *American Accounting Association Monograph* 3.

Paulo, S., 2002. Operating income, residual income and EVA: Which metric is more value relevant--a comment, *Journal of Managerial Issues*. Pittsburg Vol. 14, Iss. 4; pg. 500, 7 pgs

- Penman, S.H., 1991.** An Evaluation of Accounting Rates of Return. *Journal of Accounting, Auditing, and Finance*, pp. 233-255.
- Pindyck, R.S., 1984.** Risk, Inflation, and the Stock Market. *American Economic Review*, Vol. 74, No. 3, pp. 335-351
- Piotroski, J., 2000.** Value investing: The use of historical financial statement information to separate winners from losers, *Journal of Accounting Research*.
- Poon, S. H. and Taylor, S. J., 1992.** Stock Returns and Volatility: An Empirical Study of the U.K. Stock Market, *Journal of Banking and Finance*, 16, 37-59, 32.
- Pope, P. and Inyangete, C.G., 1992.** Differential Information, the Variability of UK Stock Returns, and Earnings Announcements. *Journal of Business Finance and Accounting* 19, 603-623.
- Poterba, J.M. and Samwick, A.A. 1995.** Stock ownership patterns stock market fluctuations and consumption. *Brookings Papers on Economic Activity*, 2, 295-372.
- Porterba, J.M. , and Summers, L.H., 1989.** What Moves Stock Prices?" *Journal of Portfolio Management* 15: 4-12.
- Ramesh K. and Thiagarajan, R., 1995.** Inter-temporal decline in earnings response coefficients. Working paper, Northwestern University, Evanston, IL
- Rappaport, A. 1994.** Corporate profits and trends. *Industry Week*, 243, 55-58
- Rappoport, M.D.. 1986.** Sitting Duck or Wise Old Owl? *Public Utilities Fortnightly* 131, 16.
- Ravid, R., 2000.** *Statistical Methods for Educators (2nd Edition)*, Lanham, MD: University Press of America.
- Rayburn, J., 1986.** The Association Of Operating Cash Flow And Accruals With Security Returns. *Journal Of Accounting Research* 24, Pp.112-133
- Richards, A.J., 1996.** Volatility and Predictability in National Stock Markets: How Do Emerging and Mature Markets Differ? *International Monetary Fund Staff Papers*, vol.43, No.3, 461-501.

Roger, I., 1996. The Bombay Stock Exchange: seasonalities and investment opportunities. *Journal of Managerial Finance*, Volume 24 Issue 3 Pp: 52 – 61.

Rogoff Kenneth, 1996. *Foundations for International Finance*. The MIT Press.

Roll, R. 1984. Orange Juice and Weather. *American Economic Review* 74, 861-880.

Roll, R. 1988. R2. *Journal of Finance* 43, 541-566.

Rosenberg, B., Reid, K. and Lanstein, R. 1985. Persuasive Evidence of Market Inefficiency. *Journal of Portfolio Management* 11: 9-17.

Ross, S. 1989. Information and Volatility: The No Arbitrage Martingale Approach to Timing and Resolution Irrelevancy. *Journal of Finance* Vol. 44, pp.1-17.

Rubin, I.S. and Rubin, H.J., 1995. *Qualitative Interviewing: the art of hearing data*. SAGE Publications.

Ryan, B., 2002. 1947- *Research method and methodology in finance and accounting* / Bob Ryan, Robert. - 2nd ed. - London: Thomson Learning.

Salamon, G. and T. Stober, 1994, Cross-quarter differences in stock price responses to earnings announcements: fourth-quarter and seasonality influences, *Contemporary Accounting Research*, v11, 297-330.

Saudagaran, S.M and Diga, J.G., 1997, Financial Reporting in Emerging Capital Markets: Characteristics and Policy Issues, *Accounting Horizons*, June, pp. 41-64.

Schipper, K., 1989, Commentary on earnings management. *Accounting Horizons*, v3, 91-102.

Schleifer, A. and Summers, L.H., 1990. The Noise Trader Approach to Finance. *Journal of Economic Perspective* 4, 19-33.

Scholes, M. and Williams, J., 1977. Estimating Betas with Non-synchronous Data, *Journal of Financial Economics*, 5, 309-327.

Schwert, G.W., 1981. Using Financial Data to Measure the Effects of Regulation. *Journal of Law and Economics*: 121-158.

- Schwert, G.W., 1989.** Why does Stock Market Volatility Change Over Time? *Journal of Finance* 44, 1115-1154.
- Schwert, G.W., 1990.** Stock Volatility and the Crash of '87. *Review of Financial Studies* 3, 77-106.
- Schwert, G.W. and Seguin, P.J., 1990.** Heteroskedasticity in Stock Returns. *Journal of Finance* 45, 1129-1155.
- Shefrin, H. and Statman, M. 1994.** Behavioral capital asset pricing theory. *Journal of Financial & Quantitative Analysis*, 29, 323-349.
- Shields, K. 1997.** Stock Return Volatility in an Emerging Eastern European Market. *The Manchester School Supplement*, Vol. 25. pp.118-138.
- Silvapulle, P. and M. J. Silvapulle. (1999).** Business cycle asymmetry and the stock market. *Applied Financial Economics*, Volume 9,
- Sinclair, A.A., Power, D.M. & Helliard, C.V., 1996.** Assessing the Potential Benefits from Investing in Emerging Markets, *Managerial Finance*, vol.22, No.12, 15-29.
- Sloan, R.G., 1996.** Do Stock Prices Fully Reflect Information in Accruals and Cash Flows about Future Earnings? *The Accounting Review*, pp.289-315.
- Solomon, E and J. Laya 1967.** Measurement of company profitability. New York, John Wiley
- Song, H., Liu, X. and Romilly, P. 1998.** Stock returns and volatility: An empirical study of Chinese stock markets. *International Review of Applied Economics*, 12(1), 129-139.
- Standard & Poor's, 2001.** Emerging Stock Markets Factbook
- Stattman, D. 1980.** Book Values and Stock Returns. *The Chicago MBA* 4
- Sterling, R.R 1970.** Asset valuation and income determination : a consideration of the alternatives; papers given at a symposium held at the School of Business, University of Kansas,
- Stewart III, B. 1991.** The Quest for Value. New York, NY: Harper Business.

- Stice, E., 1991.** The Market Reaction to 10-K and 10-Q filings and to subsequent. The Wall Street Journal Earnings Announcements. The Accounting Review.
- Sudweeks, B. L., 1989.** Equity Market Development in Developing Countries
- Swaminathan, S. 1991.** The Impact of SEC Mandated Segment Data on Price Variability and Divergence of Beliefs. The Accounting Review.
- Theil, H. 1971,** *Principles of Econometrics*. Wiley, New York. NY.
- Thorbecke, W. 1997.** On stock market returns and monetary policy. Journal of Finance, 52(2), 635-654.
- Titelbaum, R. 1997.** America's greatest wealth creators. Fortune, 136, (9), 265-276
- Titman, S. and Wei, J.K.C. 1999.** Understanding stock market volatility . The case of Korea and Taiwan. Pacific-Basin Finance Journal, 7, 41-66.
- Toda, H.Y. and Yamamoto, T., 1995.** Statistical inference in vector autoregressions with possibly integrated processes. Journal of Econometrics 66: 225-250.
- Tsyuyoshi, O., 1997.** Determinants of Stock Prices: The Case of Zimbabwe. International Monetary Fund Working Paper: WP/97/117, PP. 44.
- United Nations Economic Commission for Africa, 2000.** Promotion of Capital Markets in Africa in the Context of Enhancing Domestic and External Resource Mobilisation for Development, Presented at an International Conference, Abuja, Nigeria.
- Uppal, J.Y. and Han, K.C., 1994.** Stock Return Variability in an Emerging Market: A Case Study of the Karachi Stock Exchange, Managerial Finance, Working Paper, Catholic University of America.
- Uppal, J., 1994.** Market Efficiency for the Pakistan Stock Market: Evidence from the Karachi Stock Exchange. South Asia Economic Journal, pp 67-82.
- Vachajitpan, P., 1991.** Introduction to Quantitative Analysis for Managerial Decision.

- Van Horne, J.C. 1970.** Function and Analysis of Capital Markets Rates: Prentice Hall Foundation of Finance Series.
- Venkateswar, S., 1997.** The Adjustment Of Stock Returns To Earnings Announcements In The Bombay Stock Exchange, *Journal Of Business Finance And Accounting*, Vol. 15, No. 6.
- Vincent, L. (1999).** The Information Content of Funds From Operations (FFO) for Real Estate Investments Trusts (REITs). *Journal of Accounting and Economics* 26: 69-104.
- Walker, E. and Cogswell, 1921.** A History of Walker Evans and Cogswell (Charleston: WE&C).
- Webb, et al. 1966.** Unobtrusive Measures: Nonreactive Research in the Social Sciences. Rand McNally Sociology Series.
- Wiang, J. 1989.** Asset Prices, Stock Returns, Price Volatility, Risk Premium and Trading Strategies Under Asymmetric Information.
- Wild, J.J. 1992.** Stock Price Informativeness of accounting numbers: evidence on earnings, book values and their components. *Journal of Accounting and Public Policy* 11; pp. 119-154.
- Wilson, P.G., 1986.** The Relative Information Content of Accruals and Cash Flows: Combined Evidence at the earnings announcement and Annual Report Release date. *Journal of Accounting Research* 4: 165-203.
- Wilson, P.G., 1987.** The Incremental Information Content of Accrual and Funds Component of Earnings after Controlling for Earnings. *The Accounting Review*. 62, pp.293-322.
- Zapata, H.O. and Rambaldi, A.N., 1997.** Monte Carlo evidence on cointegration and causation. *Oxford Bulletin of Economics and Statistics* 59: 285-298.
- Zarowin, P. 1989.** Does the Stock Market Overreact to Corporate Earnings Information? *Journal of Finance* 44, 1385-1399.
- Zhang, X. 1999.** Conservative Accounting and Equity Valuation. Working Paper, University of California.

Ziorklui, S. Q., 2001. Capital Market Development and Growth in Sub-Saharan Africa: The Case of Tanzania. *African Economic Policy Discussion Paper 79.*