# Investors' Behaviour in the Athens Stock Exchange (ASE)

**Dimitrios I. Maditinos***
**Technological Educational Institute of Kavala Business School**
**Agios Loucas, 654 04, Kavala, Greece**
**Tel. and Fax ++30-2510-462219**
**E-mail: dmadi@teikav.edu.gr**

**Željko Šević**
**The University of Greenwich Business School**
**Old Royal Naval College**
**30 Park Row, Greenwich**
**London SE10 9LS, England, UK**
**Tel. +44-20-8331-8205, Fax. +44-20-8331-9924**
**E-mail: Z.Sevic@gre.ac.uk**

**Nikolaos G. Theriou**
**Technological Educational Institute of Kavala Business School**
**Agios Loucas, 654 04, Kavala, Greece**
**Tel. and Fax ++30-2510-462156**
**E-mail: ntheriou@teikav.edu.gr**

## Abstract

**Purpose:** This paper investigates the various methods and techniques used by Greek investors (both professional and individuals) when evaluating potential additions to their investment portfolios.

**Design/methodology/approach:** The paper uses both a questionnaire survey and a series of interviews to examine the practice of investment management in terms of stock market forecasting and stock valuation. The respondents consists of six different groups of investors which are drawn from the whole geographic area of Greece: official members of the ASE, mutual funds management companies, portfolio investment companies, listed companies, brokers, and individual investors.

**Findings:** The results indicate that individual investors rely more on newspapers/media and noise in the market when making their investment decisions, while professional investors rely more on fundamental and technical analysis and less on portfolio analysis. The investment horizon seems to have a direct association with the relative importance of the techniques that professionals use for stock analysis. Also, the use of specific techniques seems to have a different impact on the performance of professionals.

**Practical Implications:** The results highlight the practical methods and techniques used by various Greek investors when making their stock investment decisions as well as analysing the consequences of these methods on their performance.

**Originality/Value:** This paper is the first study of the methods used by different classes of investor in the relatively underdeveloped capital market of Greece.

*Jel Classification: Research paper F31*
Key words: Investors' behaviour, Fundamental analysis, Technical analysis, Portfolio analysis.

* Corresponding author: Dimitrios I. Maditinos

# Investors' Behaviour in the Athens Stock Exchange (ASE)

## Introduction

In conventional financial theory, investors are assumed to be rational wealth-maximisers; they follow basic financial rules and base their investment strategies on the risk-return consideration. However, in practice, the level of risk investors are willing to undertake is not the same and depends mainly on their personal attitudes to risk. Research in behavioural finance has been of high interest in recent years and provides evidence that investors' financial decisions are also affected by internal and external behavioural factors (Shefrin, 2000; Shleifer, 2000; Warneryd, 2001).

Standard analysis of companies' financial statements involves the examination of fundamentals to explain and predict their growth and value added potential. However, in many cases, current fundamentals-based models fail to explain the past adequately, or predict the future reliably. Largely as a result of these failures, scholars have started to look beyond fundamentals to the role of other 'non-fundamentalist' influences on financial and stock markets including the approach to forecasting taken by practitioners. Goodhart (1988) finds that the interplay between professional analysts who base their views on fundamental analysis and those who use the chartist approach influences the stock market crash. Shiller (1989) explains excess bond and stock market volatility by 'irrational' patterns of investor behaviour and suggests that technical analysis is one of the important factors that gave rise to the October 1987 international stock market crash. However, despite the increasing interest in non-fundamental analysis, there is little evidence on the prevalence and importance of such techniques in practice (Lui and Mole, 1998).

The objectives of this study are to (1) identify the general practices of individual and professional investors for stock analysis in Greece; (2) investigate the association that might exist between the time horizon and the relative importance of the techniques that individual and professional investors use for stock analysis and; (3) to examine the impact of the various techniques adopted on the performance of individual and professional investors. To the best of our knowledge, this is the first field study on the practice of investment management in the Greek stock market. The rest of the paper is structured as follows. The next section summarises survey findings on investment practice globally. This section is followed by a description of the sample and the research methods, the questionnaire and the semi-structured interviews. Thereafter, the results are presented and some concluding observations made.

## Literature Review

Empirical evidence suggests that investment professionals may have different practices in different markets and may use different techniques for market forecasting in different time horizons (Lui and Mole, 1998). Thus, it is probable that the practice of market forecasting and stock selection in Greece may be different from that used in other developed stock markets, such as the US. Today, more than 30 per cent of Greeks own shares either directly or through managed funds (ATHEX, 2004). Government policy is encouraging individuals to take responsibility for their own retirement income, suggesting that this figure is likely to rise in the long-term. Despite the importance of individuals' investment decisions, however, we know little about the factors that influence them. Therefore, the review of the

literature concentrates on work involving both individual and professional investors, since they are the focus of the present study.

Individuals' investment behaviours have been explored through a body of studies performed in the past. Potter (1971) identified six factors: dividends, rapid growth, investment for saving purposes, quick profits through trading, professional investment management, and long-term growth, affecting the individual investors' attitudes towards their investment decisions. Baker and Haslem (1973) argued that investors are primarily concerned with expectations about the future, considering earnings projection and historical data to be of high interest to investors. On the other hand, the research by Lee and Tweedie (1975, 1976 and 1977) revealed that the general public faces problems in understanding corporate sector's reporting. Blume and Friend (1978) provided evidence that both price and earnings volatility were the primary measures of risk undertaken by individual investors. Schlarbaum, Lewellen, and Lease (1978), exploring individual investors' investment performance compared to that of professional fund managers, revealed that they have considerable skills in their investment decisions.

Lease, Lewellen, and Schlarbaum (1974) describe individual investors as 'investors' rather than 'traders', since they are long-term minded and give little interest to short term yields. Moreover, Lewellen, Lease and Schlarbaum (1977) reveal that investors' main source of information is through fundamental or technical analysis. Antonides and Van Der Sar (1990) argued that the perceived risk of an investment is lower the more the stock price has increased recently, which is consistent with Blume and Friend's (1978) findings. Nagy and Obenberger (1994) searching the extent to which a listing of 34 variables influence shareholders' perception, provide evidence of a mix of financial and non-financial variables. Additionally, they found that each shareholder considers in a different way the seven different factors arising from their factor analysis. Fisher and Statman (1997) relying on the general agreement that investment decision is a complex one, reveal that investors are not only concerned about risk and return when buying shares since there are other parameters to take into consideration. Moreover, Clark-Murphy and Soutar (2003) suggest that the vast majority of individual investors in Australia have little interest in speculation and are by nature long-term investors.

On the other hand there are few studies examining the way that various investor groups (both professional and individuals) are making their investment decisions, especially in less developed countries with a moderately sophisticated capital market. Nassar and Rutherford (1996), and Naser and Nuseibeh (2003) show that investors adopt annual reports in about the same way as those in developed countries with sophisticated capital markets, but they rely more on information obtained directly from the companies (Nassar and Rutherford, 1996) and do not consult intermediary sources of corporate information in order to make informed decisions (Naser and Nuseibeh, 2003). Overall, investors seem to use, mainly, fundamental analysis and, to a lesser degree, portfolio analysis (mean-variance analysis).

Studies concerning professional investors in sophisticated capital markets, such as Hong Kong (Lui and Mole, 1998; Wong and Cheung, 1999), UK (Taylor and Allen, 1992; Collison, Grinyer and Russell, 1996) and US (Frankel and Froot, 1990; Carter and Van Auken, 1990), reveal that these groups of investors rely more on fundamental and technical analysis and less on portfolio analysis. Arnold and Moizer (1984) examined the general

procedures adopted by UK investment analysts in appraising the ordinary shares of companies. They found that the primary technique used by analysts is fundamental analysis, followed by technical analysis and beta analysis. Their results are similar to those revealed by an earlier study of Lee and Tweedie (1981), also for the UK market. Moreover, Arnold, Moizer and Noreen (1984) reported results of a questionnaire survey conducted in the US and UK during 1981 and 1982. They provided a general description of procedures used by financial analysts in both countries, revealing that both groups attach more importance to accrual-based historical cost accounting numbers, particularly earnings, rather than to inflation adjusted accounting numbers or cash flows. Both groups also adopt fundamental analysis rather than technical analysis or beta analysis and rely on discussions with company personnel as a source of information.

From all these findings we realise that professional investors use methods and techniques different from those proposed by academics. Therefore, it is concluded that the traditional approaches, including both fundamental analysis and technical analysis, are still dominant in some developing and most of the developed financial markets.

**Research Methods**

The sample consists of six different groups: official members of ASE (OMOA), mutual funds management companies (MF), portfolio investment companies (PIC), listed companies (LC), brokers (BR), and individual investors (ININ), constituting the frame of investors contributing to the investment process in ASE. A questionnaire was developed and distributed to 1,014 respondents in Greece in the period between December 2003 and June 2004.

For the selection of the sample the following process was adopted. A database was created, which included all OMOA, all MF, all PIC, and all LC in ASE except banks or those companies which were under suspension. The questionnaire was distributed in three phases; firstly by e-mail and fax, secondly by post and thirdly by contacting and informing the potential respondents by phone and then sending them the questionnaire. However, the distribution of the questionnaire to brokers and individual investors was quite complicated. For this reason, ten of the brokerage companies were randomly selected, from each of the thirteen regions in Greece, targeting one questionnaire for each company (130 in total). Moreover, the same selected brokerage companies were used for the distribution of the questionnaire to individual investors, sending four questionnaires to each company (520 in total) asking them to randomly select four of their potential respondents-customers. The returned questionnaires were 435 (45 from OMOA, 17 from MF, 17 from PIC, 47 from LC, 85 from BR, and 224 from ININ) which represents a 42.90 per cent average response rate. Analytically, the response rate was: 52.33, 56.67, 60.71, 21.36, 65.38, and 43.08 per cent for OMOA, MF, PIC, LC, BR, and ININ respectively.

To test whether the respondents of this study were different from the non-respondents, it was examined to see if there were any differences in the means of all variables used between early and late respondents. The rationale behind such an analysis is that late respondents are more similar to the general population than early respondents (Armstrong and Overton, 1977). There was no statistically significant difference found in the means of the variables used. Hence, it appears that non-response bias is not a serious issue in this study.

The purpose of the questionnaire and the in-depth semi-structured interviews (see: Berg, 1998; Wood and Vilkinas, 2005) were to study whether individuals and investment analysts: (a) regard some techniques for market forecasting and stock selection as more important and use them more than others, and (b) use some techniques more than others in different time periods (short and long-term[1], as well as before, during, and after the 1999 crisis[2] of the ASE). The questionnaire focused on four categories of analyses: fundamental analysis, technical analysis, portfolio analysis, and others' opinions. The first two categories have a long history of being used worldwide, while the third category became popular in the past two decades. The fourth category, others' opinions, is mainly focused on public and private opinions, information of newspapers/media, instinct/experience, foreign stock markets, government policy, etc. Each category includes a list of techniques that are used for market forecasting and stock selection.

The above categories are grouped into five sections: short-term forecasting and stock selection usage level (less than a month), long-term forecasting and stock selection usage level (one month to a year), forecasting and stock selection usage level before 1999, forecasting and stock selection usage level during 1999, forecasting and stock selection usage level after 1999. The respondents were asked to rate their use of these techniques on a five-point ordinal Likert scale, where 'score five' means 'always' and 'score one' means 'not at all'.

A number of approaches were used to ensure response quality and to enhance response rate. These collectively constitute a modified version of Dillman's (1978) "total design method". More specifically, the process was organised as follows: First, the research instrument was pre-tested twice. In its draft form, it underwent a pre-test with CEOs from three companies. A second pre-test was conducted after in depth discussions with academics and questionnaire design experts. After some minor modifications the final questionnaire was mailed to Chief Executive Officers (CEOs) together with a letter explaining the purpose of the study and assuring anonymity, together with a pre-stamped envelope addressed to one of the researchers. Four weeks after the initial mailing a similar follow-up mailing was sent. An early draft of questionnaire was piloted by a small number of potential respondents from every user group. After the feedback, the wording was modified, where needed, and a few questions were reformulated. The final version of the questionnaire consists of ten pages.

Concerning the in-depth semi-structured interviews, only the CEOs of the 10 per cent of the selected groups (4 CEOs from OMOA, 2 from MF, 2 from PIC, 5 from LC and 8 from BR, a total of 21 persons) and the 10 per cent of the selected individual investors (22 persons) were interviewed over a period of four months. This enabled us to collect opinions from people with an accumulated long experience and different perspectives, as well as the opinions of the various individual investors. The majority of the interviews were tape recorded (a few interviewees refused recording), and during interviews we strictly respected the relevant rules (see: Berg, 1998). The interviewees represent all geographical area of Greece. Analytically, interviewees from OMOA, MF and PIC are

[1] After consultation with representatives of the various user groups we agreed to define short-term the period of less than a month, and long-term the period between one month and one year). Very few suggested adding medium-term (from one to six months) too, but the majority did not agree, since their meaning of long-term included the medium term and they were not using this term.

[2] Since the Greek capital market had an extreme fluctuation during the last few years, with the General Index below 2000 units before 1999, an extreme increase up to nearly 6500 units during 1999, and a very deep decrease below 1700 units in subsequent years, we decided to separate our research to these three examining periods hoping to catch some possible differences between these periods.

coming from the Athens region since the companies they represent are established in this region, interviewees from LC and BR are coming from different regions randomly selected, while interviewees from the individual investors' group are coming from all thirteen regions of Greece. The average age of the interviewees is 34.5 years, and the educational qualification is as follows: (1) 10 per cent hold a PhD; (2) 48 per cent are MSc graduates; (3) 25 per cent are undergraduates and; (4) 17 per cent have a secondary school degree.

## Analysis of the results

We sought information about the respondents' position within the company, educational background and years of experience in the field. Examining the position within the company for the respondents of the first four user groups (OMOA, MF, PIC, LC) it was found that on average for all groups, 20.4 per cent are CEOs, 17.7 are CFOs, 2.7 are shareholders, 32.3 are analysts, and 26.9 per cent others. As for their educational background, for all six user groups, on average, the respondents hold a master degree (57.3 per cent) followed by those holding a bachelor degree (26.5 per cent). Finally, concerning the respondents' years of experience, it was found that almost eleven years (10.8) of experience seems to be the average for all user groups.

Table I outlines the perceptions of the six user groups regarding the level of importance they attach to a list of nine factors in their approach to valuation of stocks. On average, respondents rank first their instinct/experience, followed by fundamental analysis and the movement of the foreign stock markets, while they consider the noise in the market and portfolio analysis as the least important approaches, which is in direct contrast to the theories developed by various scholars. However, a more detailed examination of each user group separately reveals that OMOA, MF, PIC, and LC consider the fundamental analysis as the first priority, while noise in the market does not seem to influence them.

**Table I:** Level of importance attached to different methods of all user groups

| Item | OMOA (45) | Rank | MF (17) | Rank | PIC (17) | Rank | LC (47) | Rank | BR (85) | Rank | ININ (224) | Rank | Mean whole sample (435) | Rank | ANOVA Sign. level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fundamental analysis | 4.56 | 1 | 4.71 | 1 | 4.29 | 1 | 3.74 | 1 | 3.61 | 4 | 2.92 | 6 | 3.44 | 2 | 0.000*** |
| Technical analysis | 3.20 | 6 | 2.88 | 6 | 3.41 | 6 | 2.38 | 9 | 3.65 | 3 | 2.48 | 7 | 2.82 | 6 | 0.000*** |
| Both Fundamental and Technical | 3.62 | 3 | 3.76 | 2 | 4.06 | 3 | 2.83 | 5 | 3.51 | 5 | 2.12 | 8 | 2.76 | 7 | 0.000*** |
| Noise in the market | 2.31 | 9 | 2.18 | 9 | 1.94 | 9 | 2.48 | 8 | 2.64 | 8 | 2.99 | 5 | 2.72 | 8 | 0.000*** |
| Portfolio analysis | 3.16 | 7 | 3.18 | 5 | 2.94 | 7 | 2.53 | 7 | 2.48 | 9 | 1.80 | 9 | 2.25 | 9 | 0.000*** |
| Newspapers / media | 2.60 | 8 | 2.82 | 8 | 2.35 | 8 | 2.77 | 6 | 2.81 | 7 | 3.30 | 2 | 3.02 | 5 | 0.000*** |
| Instinct / Experience | 3.40 | 4 | 3.65 | 4 | 3.65 | 4 | 3.09 | 2 | 3.67 | 2 | 3.47 | 1 | 3.47 | 1 | 0.000*** |
| Foreign markets | 3.80 | 2 | 3.71 | 3 | 4.12 | 2 | 3.04 | 3 | 3.75 | 1 | 3.26 | 3 | 3.44 | 2 | 0.000*** |
| Government policy | 3.27 | 5 | 2.88 | 6 | 3.47 | 5 | 3.02 | 4 | 3.31 | 6 | 3.06 | 4 | 3.14 | 4 | 0.117 |
| Cronbach's Alpha test | 0.72 | | 0.73 | | -0.07 | | 0.71 | | 0.59 | | 0.66 | | 0.71 | | |

Notes: (a) Figures are in terms of mean values, (b) the question concerning the use of both fundamental and technical analysis revealed from the pilot study of the questionnaire, (c) with foreign markets we mean how investors are influenced of the performance of other stock markets such as NASDAQ etc., (d) with Government policy we mean how investors' investment strategies are affected by

decisions in terms of privatisation etc., (e) The degree of agreement among the respondents of each group concerning their choice of the listed factors is quantified by performing the Cronbach's Alpha test, and (f) ANOVA tests show the significant differences between user groups' responses.

* significance at 10% level. ** significance at 5% level. *** significance at 1% level

These results are also confirmed by the interview findings. The answer given by most of the CEOs was 'fundamental analysis is the most important factor in the selection of specific stocks or portfolios, especially when dealing with a relatively new and not fully developed stock exchange. Similarly, the movement of the developed foreign stock markets is also a very important factor'. On the other hand the answer given by the vast majority of individual investors was 'since we are focused on trading and not on long-term investing, we follow our instinct/experience, we try to get information from newspapers/media, and to focus our investment practices based on the reports from the foreign markets'. This suggests that the individual investors sample was biased towards short-term traders.

A closer examination of table I shows that portfolio analysis seems to be of some interest only to mutual fund management companies whose respondents rank it in fifth place, but with a mean value above the average. Our results seem to agree with previous research undertaken for developed stock markets (Lui and Mole, 1998; Wong and Cheung, 1999; Taylor and Allen, 1992; Collison, Grinyer and Russell, 1996; Frankel and Froot, 1990; Carter and Van Auken, 1990) revealing that these groups of investors rely more on fundamental and technical analysis and less on portfolio analysis.

The results also reveal that professional investors are interested more in fundamental than technical analysis while brokers and individual investors do not consider it as their first choice. Brokers have the technical analysis as a priority, while media and newspapers mostly influence individual investors. This becomes very clear from the answer given by the CEO of the biggest Brokers' company in Greece: 'In contrast with professional investors, whose investment strategy concerns their long-run profitability and, thus, mostly use fundamental analysis, our customers are pressing us for profits every single day. They are acting more as speculators and less as investors…'.

Therefore, our results about individual investors come in direct contrast to previous studies, which identify other important factors influencing the forecasting and selection decisions of individual investors (see: Potter, 1971; Baker and Haslem, 1973; Lee and Tweedie, 1975, 1976 and 1977; Chenhall and Juchau, 1977; Blume and Friend, 1978; Lewellen, Lease and Schlarbaum, 1977).

For stock price valuation and forecasting in the short-term, table II shows that on average, all user groups rank first the technical analysis, followed by fundamental analysis, the combination of both analyses, and portfolio analysis.

**Table II:** Level of usage attached in short-term of all user groups

| Item | OMOA (45) | Rank | MF (17) | Rank | PIC (17) | Rank | LC (47) | Rank | BR (85) | Rank | ININ (224) | Rank | Mean whole sample (435) | Rank | ANOVA Sign. level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fundamental analysis | 3.18 | 3 | 3.41 | 1 | 3.35 | 3 | 2.85 | 1 | 2.69 | 3 | 2.75 | 2 | 2.84 | 2 | 0.001*** |
| Technical analysis | 3.42 | 1 | 3.35 | 2 | 3.59 | 1 | 2.68 | 4 | 3.67 | 1 | 3.36 | 1 | 3.36 | 1 | 0.000*** |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Both Fundamental and Technical | 3.36 | 2 | 3.24 | 3 | 3.53 | 2 | 2.70 | 2 | 3.19 | 2 | 2.38 | 3 | 2.75 | 3 | 0.000*** |
| Portfolio analysis | 2.49 | 4 | 2.47 | 4 | 2.59 | 4 | 2.70 | 2 | 2.39 | 4 | 1.87 | 4 | 2.18 | 4 | 0.000*** |
| Cronbach's Alpha test | 0.60 | | 0.45 | | 0.68 | | 0.80 | | 0.70 | | 0.44 | | | | |

Notes: (a) Figures are in terms of mean values, (b) the question concerning the use of both fundamental and technical analysis revealed from the pilot study of the questionnaire, (c) The degree of agreement among the respondents of each group concerning their choice of the listed factors is quantified by performing the Cronbach's Alpha test, and (d) ANOVA tests show the significant differences between user groups' responses.

* significance at 10% level. ** significance at 5% level. *** significance at 1% level

Examining each group separately, OMOA (3.42), PIC (3.59), BR (3.36), and ININ (3.36) consider technical analysis as the first important method for short term use, while MF rank it second (3.35) after fundamental analysis (3.41), and LC rank technical analysis in the last position (2.68). At this point, it is very interesting to present the answer given by the majority of the individual investors concerning the usage attached to each method in the short and the long-term: 'We use fundamental and/or technical analysis because the newspapers we read use them, although we cannot really understand them'. Finally, portfolio analysis ranks last from all user groups and only listed companies consider it as the second most important investment practice.

Examining the user groups' perception for long-term horizon we find different results. As table III shows, on average, fundamental analysis ranks first, followed by the combination of fundamental and technical analysis. Technical analysis ranks in third place, very close to that of portfolio analysis, which is still in last place.

**Table III:** Level of usage attached in long-term of all user groups

| Item | OMOA (45) | Rank | MF (17) | Rank | PIC (17) | Rank | LC (47) | Rank | BR (85) | Rank | ININ (224) | Rank | Mean whole sample (435) | Rank | ANOVA Sign. level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fundamental analysis | 4.36 | 1 | 4.41 | 1 | 4.24 | 1 | 3.53 | 1 | 4.00 | 1 | 3.58 | 1 | 3.80 | 1 | 0.000*** |
| Technical analysis | 2.82 | 4 | 2.88 | 3 | 2.82 | 4 | 2.38 | 4 | 3.28 | 3 | 3.04 | 2 | 2.98 | 3 | 0.000*** |
| Both Fundamental and Technical | 3.49 | 2 | 3.35 | 2 | 3.82 | 2 | 2.81 | 2 | 3.62 | 2 | 2.84 | 4 | 3.11 | 2 | 0.000*** |
| Portfolio analysis | 2.87 | 3 | 2.88 | 3 | 3.18 | 3 | 2.53 | 3 | 3.19 | 4 | 2.95 | 3 | 2.95 | 4 | 0.074* |
| Cronbach's Alpha test | 0.61 | | 0.44 | | 0.46 | | 0.75 | | 0.47 | | 0.70 | | | | |

Notes: (a) Figures are in terms of mean values, (b) the question concerning the use of both fundamental and technical analysis revealed from the pilot study of the questionnaire, (c) The degree of agreement among the respondents of each group concerning their choice of the listed factors is quantified by performing the Cronbach's Alpha test, and (d) ANOVA tests show the significant differences between user groups' responses.

* significance at 10% level. ** significance at 5% level. *** significance at 1% level

The important findings here are that the combination of fundamental and technical analyses is considered as the second important approach, while portfolio analysis achieves a mean of (2.95) which is above the average (2.5) and higher than that achieved in the short term (2.18). This leads us to conclude that, portfolio analysis plays a more important role for valuation and forecasting in the long-term. This is consistent with the answers revealed from the interviews both from CEOs and individual investors concerning the level of usage attached both in short and long-term of all user groups.

From the above we could conclude that technical analysis is used more often in the short-term, while fundamental analysis ranks first in the usage perceptions of all user groups in the long-term valuation and forecasting. This may occur for the following reasons given during the interview process: (a) 'accounting manipulations may easily be applied to a single period, but in the long-term these manipulations are easily identified and the true condition of the company is exposed'; (b) 'long-term aggregated accounting ratios are giving a better indication of the strategic position of a company, a group of companies (competitors) or the industry as a whole'; (c) 'the new established accounting (e.g., EVA) and discounted cash flow (e.g., SVA, CVA) measures are mainly used for the performance measurement (evaluation) of the implemented strategies, thus they are bound to cover the whole period of implementation and not only a part of it, otherwise the reported results may lead to wrong conclusions and further actions'.

Finally, the combination of fundamental and technical analyses seems to be more interesting in the long-term. This is obvious to fundamental analysis for the reasons stated above. The same applies to technical analysis probably because some of its techniques used (e.g., trend-following indicators, chart-pattern analysis) could give accurate forecasting results about the trend of the competitive position of a company or an industry. Similarly, portfolio analysis also earns a higher reputation in the long-term, but still ranks in last position.

Concerning the usage level of each user group of the various techniques of each of the four categories, we notice that the results do not differentiate between short and long-term. These results (from the questionnaire) are confirmed by the findings coming out of the interview process. Table IV presents a summary of the first category.

**Table IV:** Level of usage attached to different techniques of fundamental analysis for all user groups

| Accounting Measures | OMOA | Rank | MF | Rank | PIC | Rank | LC | Rank | BR | Rank | ININ | Rank | TOTAL | Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOPAT | 3.53 | 3 | 3.20 | 5 | 2.50 | 5 | 2.74 | 5 | 2.67 | 3 | 2.92 | 2 | 2.90 | 3 |
| EPS | 3.98 | 2 | 4.32 | 2 | 3.85 | 2 | 3.05 | 2 | 2.73 | 2 | 2.79 | 3 | 3.01 | 2 |
| ROI | 3.29 | 5 | 3.22 | 4 | 2.92 | 4 | 2.94 | 3 | 2.27 | 5 | 1.95 | 4 | 2.33 | 5 |
| ROE | 3.53 | 3 | 3.96 | 3 | 3.35 | 3 | 2.93 | 4 | 2.36 | 4 | 1.93 | 5 | 2.40 | 4 |
| P/E | 4.27 | 1 | 4.43 | 1 | 4.15 | 1 | 3.56 | 1 | 3.48 | 1 | 3.53 | 1 | 3.65 | 1 |
| Market Value-Based | | | | | | | | | | | | | | |
| EVA | 3.21 | 1 | 2.77 | 1 | 3.12 | 1 | 2.27 | 1 | 1.94 | 1 | 1.36 | 2 | 1.86 | 1 |
| SVA | 2.36 | 3 | 2.06 | 3 | 2.20 | 3 | 1.73 | 3 | 1.78 | 3 | 1.32 | 3 | 1.62 | 3 |
| MVA | 2.54 | 2 | 2.54 | 2 | 2.65 | 2 | 1.84 | 2 | 1.88 | 2 | 1.43 | 1 | 1.75 | 2 |
| Discounted Cash Flow | | | | | | | | | | | | | | |
| NPV | 3.30 | 1 | 2.90 | 2 | 2.82 | 2 | 2.52 | 2 | 2.40 | 1 | 1.64 | 3 | 2.13 | 2 |
| IRR | 3.04 | 3 | 2.22 | 4 | 2.67 | 3 | 2.73 | 1 | 1.96 | 5 | 1.50 | 5 | 1.94 | 3 |
| Payback | 2.46 | 5 | 1.88 | 8 | 1.82 | 9 | 2.39 | 3 | 1.89 | 7 | 1.54 | 4 | 1.81 | 5 |
| DDM | 3.27 | 2 | 3.49 | 1 | 3.62 | 1 | 2.05 | 5 | 2.34 | 2 | 1.98 | 1 | 2.29 | 1 |
| CFROI | 2.48 | 4 | 2.43 | 3 | 2.67 | 3 | 1.92 | 6 | 2.23 | 3 | 1.76 | 2 | 2.00 | 4 |
| DCA | 2.41 | 8 | 2.12 | 5 | 2.42 | 5 | 1.57 | 9 | 1.76 | 9 | 1.25 | 9 | 1.57 | 9 |
| EP | 2.45 | 6 | 2.08 | 6 | 1.85 | 8 | 2.14 | 4 | 1.98 | 4 | 1.33 | 6 | 1.70 | 6 |
| EVM | 2.35 | 9 | 1.96 | 7 | 1.95 | 7 | 1.69 | 7 | 1.92 | 6 | 1.31 | 8 | 1.62 | 7 |
| CVA | 2.44 | 7 | 1.84 | 9 | 2.40 | 6 | 1.64 | 8 | 1.77 | 8 | 1.32 | 7 | 1.61 | 8 |

Notes: (a) Figures are in terms of mean values; (b) Cronbach's Alpha and ANOVA test did not show any significant difference; (c) the questionnaire allowed respondents to select 'other' however no significant responses came out.
NOPAT: Net Operating Profit After Taxes; EPS: Earnings Per share; ROI: Return On Investment; ROE: Return On Equity; P/E: Price Earnings ratio; EVA: Economic Value Added; SVA: Shareholder Value Added; MVA: Market Value Added; NPV: Net

Present Value; IRR: Internal Rate of Return; DDM Dividend Discount Model; CFROI: Cash Flow Return On Investment; DCA: Discounted Cash Flows; EP: Economic Profit; EVM: Economic Value Management; CVA: Cash Value Added.

Beginning with the accounting measures, on average, all user groups rank P/E as their first preference, EPS as their second, NOPAT as their third and ROE as their fourth preference. From the market value-based measures, first in the usage ranking comes EVA, MVA comes second, which is very similar to EVA, with SVA coming third probably because of its computing difficulty. Finally, from the discounted cash-flow measures, DDM (Dividends discounted model) comes first, NPV second, IRR third, and CFROI fourth, more or less the most known measures of this group. Looking at the three groups of measures, we notice that traditional accounting measures are preferred by all user groups, having the highest mean values.

These results are quite logical and do not diverge from theory and previous research findings (see: Prakash and Rappaport, 1977; Sandahl and Sjögren, 2003). Although theory proposes the use of the new market value-based performance measures, research findings are still contradictory in the sense that the majority of scholars prove the superiority of the traditional accounting measures in explaining the expected returns of stocks in any developed stock market (see: Holms and Sugden, 1999; Maditinos, Šević, and Theriou, 2005). Table V presents a summary of the second major category.

**Table V:** Level of usage attached to different techniques of technical analysis for all user groups

| | OMOA | Rank | MF | Rank | PIC | Rank | LC | Rank | BR | Rank | ININ | Rank | Total | Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chart analysis | 3.24 | 1 | 2.82 | 2 | 3.38 | 1 | 1.81 | 2 | 3.68 | 2 | 2.25 | 2 | 2.65 | 2 |
| Technical indicators | 3.00 | 2 | 3.29 | 1 | 3.19 | 2 | 1.68 | 1 | 3.76 | 1 | 2.42 | 1 | 2.72 | 1 |
| Moving Averages | 3.13 | 1 | 3.29 | 1 | 3.38 | 1 | 1.83 | 2 | 3.83 | 2 | 2.54 | 2 | 2.83 | 2 |
| RSI | 2.91 | 2 | 3.12 | 2 | 3.13 | 2 | 1.66 | 3 | 3.51 | 3 | 2.42 | 3 | 2.65 | 3 |
| Bollinger bands | 1.98 | 7 | 2.76 | 4 | 2.50 | 6 | 1.57 | 4 | 2.80 | 5 | 1.83 | 5 | 2.07 | 5 |
| MACD | 2.80 | 3 | 2.94 | 3 | 2.88 | 3 | 1.85 | 1 | 3.90 | 1 | 2.69 | 1 | 2.86 | 1 |
| Momentum | 2.53 | 4 | 2.24 | 5 | 2.69 | 5 | 1.55 | 6 | 2.96 | 4 | 2.08 | 4 | 2.27 | 4 |
| OBV | 2.09 | 6 | 1.94 | 7 | 1.88 | 7 | 1.47 | 7 | 2.23 | 7 | 1.70 | 6 | 1.83 | 7 |
| Parabolic | 1.87 | 8 | 1.82 | 8 | 1.69 | 8 | 1.45 | 8 | 1.99 | 8 | 1.58 | 7 | 1.69 | 8 |
| Stochastic oscillator | 2.47 | 5 | 2.06 | 6 | 2.88 | 3 | 1.57 | 5 | 2.69 | 6 | 1.57 | 8 | 1.95 | 6 |

Notes: (a) Figures are in terms of mean values; (b) Cronbach's Alpha and ANOVA test did not show any significant difference; (c) the questionnaire allowed respondents to select 'other' however no significant responses came out.

All user groups, on average, rank the use of the technical indicators first in their preference with chart analysis second but the mean values of both techniques are so close that we could conclude that all groups use both techniques interchangeably. More specifically, OMOA and PIC use mostly the chart analysis, while all other groups prefer the technical indicators. From the technical indicators, those that are used more often are MACD, moving average, RSI, and momentum, all indicating trends. These results are also similar and agree with previous research findings (Wong and Cheung, 1999).

Table VI shows the results both on average for all user groups and for each user group separately, for each of the three different time periods. Findings reveal that fundamental analysis, technical analysis, both fundamental and technical analysis, portfolio analysis, and foreign markets rank in the first place for the third time period (after 1999). On the other hand, noise in the market, newspapers/media and instinct/experience rank in first place during the second time period (during 1999) where the crisis of the Greek stock

market appeared. This is an indication that factors such as noise in the market, newspapers/media and instinct/experience can drive investors to wrong decisions.

Noise in the market and newspapers/media rank last for the third time period, which means that individual investors realised that these factors led them to wrong decisions: 'During the stock market crisis we have lost a lot of money. Some of us lost even our houses and were left with big overdrafts to our banks. After this crisis we have become very cautious and prefer to invest our money where the brokers advise us or mainly through the mutual fund and portfolio investment companies. We do not base our judgment solely in our experience any more, we have realised that the noise in the market and the financial newspapers are not very good advisors and they could make very bad forecasts'. Moreover, table VI shows detailed investment perceptions for each user group in the three different time-periods.

**Table VI:** All user groups' level of usage attached in different time periods (before, during, and after 1999)

| Item | | OMOA | Rank | MF | Rank | PIC | Rank | LC | Rank | BR | Rank | ININ | Rank | TOTAL | Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fundamental analysis | <99 | 3.79 | 2 | 3.64 | 2 | 3.27 | 2 | 2.59 | 2 | 3.09 | 2 | 2.71 | 2 | 2.92 | 2 |
| | =99 | 3.51 | 3 | 3.07 | 3 | 3.09 | 3 | 2.55 | 3 | 2.33 | 3 | 2.24 | 3 | 2.50 | 3 |
| | >99 | 4.29 | 1 | 4.35 | 1 | 4.29 | 1 | 3.04 | 1 | 3.44 | 1 | 3.20 | 1 | 3.43 | 1 |
| Technical analysis | <99 | 2.77 | 3 | 2.86 | 3 | 3.09 | 3 | 1.68 | 3 | 2.74 | 3 | 1.72 | 3 | 2.09 | 3 |
| | =99 | 2.95 | 2 | 3.61 | 1 | 4.00 | 1 | 2.04 | 2 | 3.24 | 2 | 2.56 | 2 | 2.75 | 2 |
| | >99 | 3.18 | 1 | 3.12 | 2 | 3.41 | 2 | 2.25 | 1 | 3.73 | 1 | 2.72 | 1 | 2.95 | 1 |
| Both Fundamental and Technical | <99 | 3.05 | 3 | 3.07 | 2 | 3.00 | 3 | 1.80 | 3 | 2.78 | 2 | 1.69 | 3 | 2.13 | 3 |
| | =99 | 3.08 | 2 | 2.85 | 3 | 3.18 | 2 | 2.00 | 2 | 2.65 | 3 | 1.93 | 2 | 2.25 | 2 |
| | >99 | 3.42 | 1 | 3.47 | 1 | 3.71 | 1 | 2.32 | 1 | 3.50 | 1 | 2.64 | 1 | 2.92 | 1 |
| Noise in the market | <99 | 2.82 | 2 | 2,.79 | 2 | 2.54 | 2 | 1.89 | 3 | 2.80 | 2 | 2.75 | 2 | 2.67 | 2 |
| | =99 | 3.28 | 1 | 3.54 | 1 | 3.00 | 1 | 2.47 | 1 | 3.53 | 1 | 3.79 | 1 | 3.51 | 1 |
| | >99 | 2.33 | 3 | 2.29 | 3 | 2.18 | 3 | 2.08 | 2 | 2.19 | 3 | 2.62 | 3 | 2.42 | 3 |
| Portfolio analysis | <99 | 2.46 | 2 | 2.14 | 3 | 1.91 | 3 | 1.91 | 2 | 2.16 | 2 | 1.68 | 2 | 1.89 | 2 |
| | =99 | 2.28 | 3 | 2.54 | 2 | 2.09 | 2 | 1.83 | 3 | 1.97 | 3 | 1.61 | 3 | 1.81 | 3 |
| | >99 | 2.69 | 1 | 2.82 | 1 | 3.06 | 1 | 2.11 | 1 | 2.70 | 1 | 1.96 | 1 | 2.27 | 1 |
| Newspapers / media | <99 | 2.95 | 2 | 3.36 | 2 | 2.91 | 2 | 2.17 | 3 | 2.97 | 2 | 2.92 | 2 | 2.86 | 2 |
| | =99 | 3.26 | 1 | 3.54 | 1 | 3.00 | 1 | 2.57 | 1 | 3.52 | 1 | 3.85 | 1 | 3.55 | 1 |
| | >99 | 2.62 | 3 | 2.76 | 3 | 2.18 | 3 | 2.32 | 2 | 2.50 | 3 | 2.82 | 3 | 2.66 | 3 |
| Instinct / Experience | <99 | 3.36 | 2 | 3.71 | 3 | 3.36 | 1 | 2.51 | 3 | 3.27 | 3 | 3.09 | 3 | 3.11 | 3 |
| | =99 | 3.51 | 1 | 3.77 | 2 | 3.36 | 1 | 2.76 | 1 | 3.39 | 2 | 3.54 | 1 | 3.42 | 1 |
| | >99 | 3.24 | 3 | 3.82 | 1 | 3.29 | 3 | 2.76 | 1 | 3.53 | 1 | 3.34 | 2 | 3.32 | 2 |
| Foreign markets | <99 | 3.10 | 3 | 3.14 | 2 | 3.27 | 2 | 2.45 | 2 | 3.04 | 2 | 2.88 | 2 | 2.90 | 2 |
| | =99 | 3.31 | 2 | 2.85 | 3 | 3.18 | 3 | 2.42 | 3 | 2.91 | 3 | 2.82 | 3 | 2.85 | 3 |
| | >99 | 3.73 | 1 | 3.65 | 1 | 4.25 | 1 | 2.72 | 1 | 3.87 | 1 | 3.60 | 1 | 3.60 | 1 |
| Government policy | <99 | 3.18 | 1 | 3.50 | 1 | 3.55 | 2 | 2.47 | 2 | 2.18 | 3 | 2.83 | 2 | 2.86 | 2 |
| | =99 | 3.13 | 2 | 3.46 | 2 | 3.91 | 1 | 2.40 | 3 | 3.10 | 2 | 2.74 | 3 | 2.86 | 2 |
| | >99 | 3.02 | 3 | 3.12 | 3 | 3.47 | 3 | 2.64 | 1 | 3.43 | 1 | 3.57 | 1 | 3.36 | 1 |

Notes: (a) Figures are in terms of mean values; (b) Cronbach's Alpha and ANOVA tests did not show any significant difference; (c) this table provides much information since we want to explore how the investment strategies change from period to period.

Finally, we examine the level of performance (in terms of gains and losses) of each user group, asking respondents to evaluate their performance indicating their opinion on a ten point Likert scale varying from 'not very successful' to 'very successful'. Results revealed that PIC (7.29) and MF (7.24) perform best followed by OMOA (7.18). Listed companies performance (6.32) ranks in fourth place, followed by BR (5.94). Individual investors (4.54) are placed last with a mean value lower than the average. These results may prove that the implemented strategies of PIC, MF, and OMOA were the most successful, while the strategy of ININ, based mainly on noise in the market, information of media and low use of fundamental analysis, led to the lower performance.

## Conclusions

All user groups in Greece rely more on fundamental and technical analysis and less on portfolio analysis. Fundamental analysis is mostly used by MF, OMOA, PIC and LC, while the BR and ININ groups consider it as less important. Technical analysis is more popular among BR while it is less popular among all other user groups. The combined use of both fundamental and technical analyses earns more and more confidence among all user groups. Fundamental analysis is considered as the most important approach in the long-term, while technical analysis becomes more favorable in the short-term. The combination of fundamental and technical analyses seems to be more convincing in the long-term. Similarly, portfolio analysis earns a higher reputation in the long-term, but still ranks in last position.

Users of fundamental analysis prefer the accounting measures, followed by the discounted cash-flow measures, with the relatively new market value-based measures taking third place with the lowest mean values. These results are quite logical and do not diverge from theory and previous research findings. Users of technical analysis provide evidence of preference on technical indicators rather than chart analysis, while MACD, moving averages and RSI are the most used technical indicators.

Concerning the usage level of each user group of the various techniques of each category, we notice that the results do not differentiate between short and long-term. Beginning with the accounting measures, on average, all user groups rank P/E as their first preference, EPS as their second, NOPAT as their third and ROE as their fourth preference. From the market value-based measures, first in the usage ranking comes EVA, followed by MVA, which is very similar to EVA, with SVA coming third probably because of its computing difficulty. Finally, from the discounted cash-flow measures, DDM (Dividends discounted model) comes first, NPV second, IRR third, and CFROI fourth, more or less the most known measures of this group.

Moreover, all user groups, on average, rank the use of the technical indicators first in their preference with chart analysis second but the mean values of both techniques are so close that we could conclude that all groups use both techniques interchangeably. More specifically, OMOA and PIC use mostly the chart analysis, while all other groups prefer the technical indicators. From the technical indicators, those that are used more often are MACD, moving average, RSI, and momentum, all indicating trends.

Since the research was divided into three periods, it was found that during the second period (1999) the use of fundamental analysis and portfolio analysis were of very low use, while technical analysis and factors such as noise in the market and the information from media drove the investors' strategy. It seems that it is more likely that the use of these techniques was a response to chaotic market conditions in which fundamentals were relatively poor indicators of short-term value. Moreover, it was found that in the third period the use of fundamental analysis, the combination of fundamental and technical analyses and portfolio analysis, in nearly all groups, are increasing their use to a considerable degree. Technical analysis still plays its role, but factors such as noise in the market and the information from media are decreasingly used by all user groups.

The self-assessment of financial performance of each user group reveals that portfolio investment companies, mutual fund management companies, and official members of the ASE, have performed better than the rest of the groups. In contrast, individual investors have performed worse with a self-assessment below the average. These results suggest that the investment practices employed by the portfolio investment companies, the mutual fund management companies and the official members of the ASE, which were based mostly on fundamental analysis and less on non-financial factors, provided satisfactory returns. On the other hand, the investment practices employed by individual investors, which in most cases were based upon non-financial factors such as instinct/experience, newspapers/media and noise in the market (rumours), led them to significant capital losses. All those discussed results offer an important contribution to knowledge especially for those who are studying emerging capital markets.

Overall, although theory suggests that investors are mainly concerned with portfolio analysis, revealed results both of the most internationally conducted studies and from the present one suggest that they are more concerned with fundamental and technical analysis and less on portfolio analysis.

This study has suggested various areas in which further research would be desirable. Those are to: (a) conduct the same survey in Greece from 2004 onwards; (b) examine attitudes and opinions in a larger sample at least in terms of individual investors; (c) get greater insight by carrying out more in-depth semi-structured interviews; (d) get further information on the procedures which investors use to forecast future earnings and free cash flows; (e) explore the methods analysts adopt to calculate most important ratios like E/P, EVA and discounted cash flows, and finally; (f) conduct the same study in different international markets either with the same characteristics as Greece or not and to compare the results. Moreover, given the limited knowledge of investment decision-making processes and consumer behaviour as it applies to financial assets and services, the possibilities for further research in this area are extensive.

**References**


Antonides, G. and Van Der Sar, N. L. (1990), "Individual expectations, risk perception and preferences in relation to investment decision-making", Journal of Economic Psychology, Vol 11 No 2, pp. 227-245.

Armstrong, J. S. and Overton, T. S. (1977), "Estimating nonresponse bias in mail surveys", Journal of Marketing Research, Vol 14 (August), pp. 396-402.

Arnold, J. and Moizer, P. (1984): "A Survey of the Methods Used by UK Investment Analysts to Appraise Investment in Ordinary Shares", Accounting and Business Research, Vol 14 No 55, pp. 195-207.

Arnold, J., Moizer, P. and Noreen, E. (1984): "Investment Appraisal Methods of Financial Analysts: A Comparative Study of US and UK Practices", International Journal of Accounting, Spring, pp. 1-18.

ATHEX (2004), Annual Statistical Bulletin, Athens Exchange, Athens.

Baker, H. K. and Haslem, J. A. (1973), "Information needs of individual investors", Journal of Accountancy, Vol 136 No 5, pp. 64-69.

Berg, B. L. (1998), Qualitative Research Methods for the Social Sciences, 3rd ed., Allyn and Bacon, Boston.

Blume, M. E. and Friend, I. (1978), The changing role of the individual investor: A twentieth century fund report, Wiley, New York.

Carter R. B. and Van Auken, H. E. (1990), "Security analysis and portfolio management: a survey and analysis", Journal of Portfolio Management, Vol 16 No 1, pp. 81-85.

Clark-Murphy, M. and Soutar, G. N. (2003), "What individual investors value: some Australian evidence", Journal of Economic Psychology, Vol 25 No 4, pp. 539-555.

Collison, D. L., Grinyer, J. R. and Russell, A. (1996), "U.K. Managers' Decisions and Their Perceptions of Capital Markets", Journal of International Accounting and Taxation, Vol 5 No 1, pp. 39-52.

Dillman, D. (1978), Mail and Telephone Surveys: The Total Design Method, Wiley, New York.

Fisher, K. L. and Statman, M. (1997), "The mean-variance optimization puzzle: security portfolios and food portfolios", Financial Analyst Journal, Vol 53 No 4, pp. 41-50.

Frankel, J. and Froot, K. A. (1990), Chartists, fundamentalists and the demand of dollars, in: Courakis, A. S. and Taylor M. P. (Ed.), Private behavior and Government Policy in Independent Economies, Oxford University Press, Oxford.

Goodhart, C. A. E. (1988), "The foreign exchange market: a random walk with a dragging anchor", Economica, Vol 55, pp. 437-480.

Holmes, G. and Sugden, A. (1999), Interpreting Company Reports and Accounts, 7th ed., Financial Times / Prentice Hall, London.

Lease, R. C., Lewellen, W. G. and Schlarbaum, G. G. (1974), "The individual investor: Attributes and attitudes", Journal of Finance, Vol 29 No 2, pp. 413-438.

Lee, T. A. and Tweedie, D. P. (1975), "Accounting Information: An Investigation of Private Shareholder Usage", Accounting and Business Research, Autumn, pp. 280-291.

Lee, T. A. and Tweedie, D. P. (1975), "Accounting Information: An Investigation of Private Shareholder Understanding", Accounting and Business Research, Winter, pp. 3-13.

Lee, T. A. and Tweedie, D. P. (1976), "The Private Shareholder – His Sources of Information and His Understanding of Reporting Practices", Accounting and Business Research, Autumn, pp. 304-314.

Lee, T. A. and Tweedie, D. P. (1977), "The Private Shareholder and the Corporate Report", Institute of Chartered Accountants in England and Wales.

Lee, T. A. and Tweedie, D. P. (1981), "The Institutional Investor and Financial Information", Institute of Chartered Accountants in England and Wales.

Lewellen, W. G., Lease, R. C. and Schlarbaum, G. G. (1977), "Patterns of investment strategy and behavior among individual investors", Journal of Business, Vol 50 No 3, pp. 296-333.

Lui, Y. H. and Mole, D. (1998), "The use of fundamental and technical analyses by foreign exchange dealers: Hong Kong evidence", Journal of International Money and Finance, Vol 17 No 3, pp. 535-545.

Maditinos, D., Šević, Ž. and Theriou, N. (2005), **"**Performance measures: Traditional accounting measures versus modern value-based measures. The case of earnings and EVA® in the Athens Stock Exchange (ASE)", Conference paper presented in 3rd Accounting and Finance in Transition, July 2005, University of Greenwich, London.

Nagy, R. A. and Obenberger, R. W. (1994), "Factors influencing individual investor behavior", Financial Analysts Journal, Vol 50 No 4, pp. 63-68.

Naser, K. and Nuseibeh, R. (2003), "User's perception of corporate reporting: evidence from Saudi Arabia", The British Accounting Review, Vol 35 No 2, pp. 129-153.

Nassar, M. A. and Rutherford, B. A. (1996), "External users of financial reports in less developed countries: the case of Jordan", The British Accounting Review, Vol 28 No 1, pp. 73-87.

Potter, R. E. (1971), "An empirical study of motivations of common stock investors". Southern Journal of Business, Vol 6 No 1, pp. 41-44.

Prakash, P. and Rappaport, A. (1977), "Information inductance and its significance for accounting", Accounting Organisations and Society, Vol 2 No 1, pp. 29-38.

Sandahl, G. and Sjögren, S. (2002), "Capital budgeting methods among Sweden's largest groups of companies. The state of the art and a comparison with earlier studies", International Journal of Production Economics, Vol 84 No 1, pp. 51-69.

Schlarbaum, G. G., Lewellen, W. G. and Lease, R. C. (1978), "Realized returns on common stock investment: The experience of individual investors", Journal of Business, Vol 51 No 2, pp. 299-325.

Shefrin, H. (2000), Beyond greed and fear, Harvard Business School Press, Boston.

Shiller, R. J. (1989), Market Volatility, The MIT Press, New York.

Shleifer, A. (2000), Inefficient markets: An introduction to behavioral finance, Oxford University Press, Oxford.

Taylor, M. P. and Allen, H. (1992), "The use of Technical analysis in the foreign exchange market", Journal of International Money and Finance, Vol 11 No 3, pp. 301-314.

Warneryd, K.-E. (2001), Stock-market psychology: How people value and trade stocks, Edward Elgar, Cheltenham.

Wong, M. C. S. and Cheung, Y-L. (1999), "The practice of investment management in Hong Kong: market forecasting and stock selection", Omega, The International Journal of Management Sciences, Vol 27 No 4, pp. 451-465.

Wood, J. and Vilkinas, T. (2005), "Characteristics associated with success: CEOs' perspectives", Leadership & Organization Development Journal, Vol 26 No 3, pp. 186-196.