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DETERMINING THE FACTORS THAT INFLUENCE INVESTORS' DECISIONS TO BUY OR SELL STOCKS ON THE MACEDONIAN STOCK MARKET

Abstract

During the period 2005 – 2009, the Macedonian Stock Exchange (MSE) witnessed its first bull and bear market in its short history. The study aims at identifying the most and the least influencing factors on the MSE small investor behavior. Convenience sample survey was conducted on individual investors in the recession period to discover the influence of economic indicators on the decision to buy or sell stocks on the MSE during the recession period. The findings are that investors are not completely rational as perceived by traditional finance theories. As the most affecting factor considered by the participants is "Neutral information". Even more, the investment decision process is driven by such factors as: "Reputation of the company", "Acceptable stock price", and "Accounting information" is identified as the second most influencing category for the Macedonian equity investor, which was an unexpected result. The structure and relative weights

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of the chosen categories reflect on the average, which is a still unsophisticated and immature profile of the Macedonian investor.

Keywords: investor behavior; influencing factors; behavioral finance; Macedonian stock market

JEL classification*:* G10, G11

Introduction

The modern economic research has been built on the notion that human beings are rational agents who attempt to maximize wealth while minimizing risk (Barber & Odean, 2013). The mainstream finance literature is based on the assumption that rational and omniscient investors optimize the risk/return profile of their portfolios. This approach has merits in the development of theoretical foundations like the Capital Asset Pricing Model and the Arbitrage Pricing Theory for a stylized world with efficient markets. However, treating investors as being utility optimizing, omniscient, and unboundedly rational sets limits to understanding and explaining real-life investors' behavior, because the real individual investors behave differently from investors in these models. They are human and humans are not rational agents who attempt to maximize wealth while minimizing risk. However, due to the lack of information and mathematical capacities, the investors are bounded to be rational, since apart from the knowledge they store and experience they have, they are still limited (Hoffmann, Eije, & Jager, 2006). A large body of empirical research indicates that individual investors make systematic, not random, buying and selling decisions and go beyond the rationality. The limitations of mainstream finance are well-known in the field of behavioral finance and the existant literature in this field has contributed to

understanding many facets of investor behavior that were initially inexplicable from a mainstream finance perspective. Research in behavioral finance is relatively new (Rabin, 1998; Shiller, 1999; Hirshleifer, 2001; Hirshleifer at al., 2009; Barberis & Thaler, 2003; Campbell, 2006; Benartzi and Thaler, 2007; Subrahmanyam, 2008). Within behavioral finance it is assumed that the information structure and the characteristics of market participants systematically influence individuals' investment decisions as well as market outcomes. According to behavioral finance, investor market behavior derives from psychological principles of decision making to explain why people buy or sell stocks. Behavioral finance focuses on how investors interpret and act on information to make investment decisions. Behavioral finance is a study which has enlightened the role of behavioral aspects of investment decisions. In behavioral finance, financial markets are analyzed using models which are less narrow than those given by Neumann and Morgenstern (1947). It is a rapidly growing field which focuses on the behavior of financial practitioners' psychology (Merikas at al., 2004; Al-Tamimi, 2006).

Merikas et al., (2004) tested the tenets of the behavioral finance theory on the factors that influence investment choices and the analysis performed on the data collected appears to give a fairly accurate view of the average equity investor in the Athens Stock Exchange (ASE). They found that the most important variables were related to classic wealth maximization criteria. Environmental criteria like "coverage in the press", "statements from politicians and government officials" and "political party affiliation" were totally unimportant to most stock investors. Hoffmann et al., (2006) researched the needs and conformity behavior on investors. The results indicated that besides satisfying the financial needs investors also struggle to satisfy socially oriented needs. Hoffmann, et al. (2006) also found that individual investors give importance to financial gains. Thus, this study followed an "extended" utility approach along with supporting behavioral

finance, which states that investing offers both utilitarian and expressive benefits. Therefore investors display a palette of different needs besides the financial aspects of investing (Fisher & Statman, 1997; Statman, 1999; Statman, 2002; Statman, 2004). Al-Tamimi (2006) researched factors like expected corporate earnings, government holdings, stock marketability, getting rich quickly, and the creation of financial markets using factor analysis.

Sevil, Sen & Yalama (2007) aimed to understand the decision processes of small investors trading on the Istanbul stock exchange and found that investors are not completely rational as perceived by traditional finance theories. Iqbaland & Usmani, (2009) made survey based research on the Karachi Stock Exchange and the findings were similar to Merikas et al., (2004). The wealth maximization criteria on making their stock purchase or making use of the accounting information derived by financial statements and the firms' financial position in general were the most influential factors.

Individual investors participate in the stock market by purchasing and selling different stocks and it is very important to identify various economic and behavioral motivations that affect their purchasing decisions. The objective of this study is to give insight into the behavior of Macedonian individual investors i.e. which factors influence them to purchase or sell the stocks on MSE.

1. Data and methodology

The survey targeted the individual investors who were investing in stocks on the Macedonian Stock Market and who visited brokerage houses in the period of September 2009 to January 2010. The questionnaire was distributed through several brokerage houses to their clients qualified as small investors. Faced by the recession period and lower trading volume, there was

difficulty in surveying, which was caused mostly by the very few clients entering the brokerage houses. 108 clients responded to the questionnaire. The participants were asked to answer the following question: "How do the following factors influence your decision to buy or sell shares on MSE", by evaluating the importance of 25 indicators identified in the literature as potentially influencing stock investment decisions. These variables were ranked in 5 categories: Accounting Information, Personal Financial Needs, Subjective/Personal, Advocate Recommendation, and Neutral Information (Merikas et al., 2004). Participants had to evaluate the relative importance of the 25 variables in their investment decision by marking only one of three choices for each one. If they considered the variable is likely to be the most influential in the decision making process on buying and selling stocks, then they chose to mark: *most influence*. If the variables are of secondary importance in their investment decision making, they chose to mark: *some influence*, and *no influence* if the variables are not at all significant in their investment decision process.

The variables were ranked according to how frequently they were placed in each response category. Reliability of the measures was assessed with the use of Cronbach's alpha. Cronbach's alpha allows us to measure the reliability of the different categories. It consists of estimates of how much variation in scores of different variables is attributable to chance or random errors (Selltiz, et al., 1976). As a general rule, a coefficient greater than or equal to 0.5 is considered acceptable and a good indication of construct reliability (Nunnally, 1976). To identify the similarities among the variables and to group them into identifiable categories, factor analysis was used. More specifically, factor analysis was used to examine how they interact with each other.

2. Results

2.1. Frequency distribution

Frequency distributions of variables that significantly influence investor decisions show which of the variables were identified by the Macedonian investors to significantly affect their individual investor behavior, namely the "most influence" variables (Table 1).

Table 1: Frequency Distribution of Variables that Significantly Influence Investor Decisions

Rank	Item	Frequency	Per Cent
1	Reputation of the firm	70	64.8
2	Affordable share price	68	63
3	Firm status in industry	63	58.3
4	Condition of financial statements	61	56.5
5	Current economic indicators	57	52.8
6	Fluctuations/developments in the indices of the major markets	52	48.1
7	Expected dividends	51	47.2
8	Gut feeling on economy	51	47.2
9	Recent price movements in a firm's stock	47	43.5
10	Brokerage house recommendation	46	42.6
11	Past performance of the firm's stock	45	41.7
12	Protection or not of the investor	42	38.9
13	Opinions of the firm's majority stockholders	42	38.9
14	Feelings for a firm's products & services	39	36.1
15	Diversification needs	38	35.2
16	"Get rich quick"	31	28.7
17	Statements from politicians & governmental officials	30	27.8
18	Perceived ethics of firm	28	25.9
19	Coverage in the press	26	24.1
20	Attractiveness of non-stock investments	25	23.1
21	Ease of obtaining borrowed funds	22	20.4
22	Political party affiliation	20	18.5
23	Environmental record	19	17.6
24	Friend or coworker recommendations	15	13.9
25	Family member opinions	14	13

Source: Author's calculations.

The first conclusion drawn from Table 1 is that most of the variables that were rated most important are standard wealth maximization criteria such as: Reputation of the firm; Expected dividends; Firm status in industry; Condition of financial statements; Current economic indicators. It was generally expected that these factors would be high on the list of criteria considered in choosing stock investments, especially given the fact that the survey was conducted in the recession period. The participants were generally investors who have been hit hard by the "bubble burst" of the Macedonian stock exchange initialized at the end of 2007. It is supposed that the investors despite the big blow in the MSE have not learned the lesson. Speculative factors like "Affordable share price", "Fluctuations/developments in the indices of the major markets", "Recent price movements in the firm's stocks" significantly influenced more than half of the respondents. Secondly, apart from the wealth criteria, surprisingly more than half of the respondents considered no other factor important, indicating that investors truly employ diverse decision criteria when choosing stocks. Finally, environmental criteria like "coverage in the press", "Statements from politicians and government officials", "Ease of obtaining borrowed funds" and "Political party affiliation" were either totally unimportant to most stock investors and only a very small percentage of them considered them significant investment decision criteria.

A more complete picture however is shown in Table 2, which presents the same data sorted according to those factors that have the least impact and influence on investor behavior ("no influence").

Table 2: Frequency Distribution of Variables that Least Influence Investors' Decisions

Rank	Item	Frequency	Per Cent
1	Ease of obtaining borrowed funds	55	50.9
2	Family member opinions	52	48.1
3	Political party affiliation	46	42.6
4	Friend or coworker recommendations	41	38
5	Perceived ethics of firm	34	31.5
6	Environmental record	33	30.6
7	Coverage in the press	28	25.9
8	Statements from politicians & governmental officials	26	24.1
9	Attractiveness of non-stock investments	25	23.1
10	"Get rich quick"	24	22.2
11	Protection or not of the investor	22	20.4
12	Past performance of the firm's stock	19	17.6
13	Diversification needs	19	17.6
14	Opinions of the firm's majority stockholders	17	15.7
15	Expected dividends	15	13.9
16	Gut feeling on economy	15	13.9
17	Brokerage house recommendation	15	13.9
18	Feelings for a firm's products & services	14	13
19	Recent price movements in a firm's stock	12	11.1
20	Fluctuations/developments in the indices of the major markets	12	11.1
21	Firm status in industry	11	10.2
22	Condition of financial statements	9	8.3
23	Affordable share price	8	7.4
24	Reputation of the firm	8	7.4
25	Current economic indicators	8	7.4

Source: Author's calculations.

Table 2 ranks the variables by the frequency which respondents ignore when making stock purchases decision. The criterion "Ease of obtaining borrowed funds" is perhaps the least important criterion driven by the negative experience of borrowing in the boom period. It is interesting that there are self-reliant ignoring inputs of family members, politicians, and coworkers when purchasing stocks.

2.2. Factor analysis

The overall Cronbach's alpha for the 25 variables is (0.78). The Cronbach's alpha for the five categories, namely, Accounting Information, Subjective/Personal, Neutral Information, Advocate Recommendation, and Personal Financial Needs are (0.49), (0.53), (0.57), (0.57) and (0.44), respectively. Cronbach's alpha shows that these categories are not reliable. These ratios show that the scale of measures is not consistent for all categories, which further leads to the realignment of the variables.

The Varimax algorithm of orthogonal rotation is used, which is a commonly used method of factor analysis. The evaluation of the resulting categories and rankings is highly subjective since factor analysis identifies only the homogeneous cluster groups.

Table 3: Factors influencing the Equity Selection Process of Individual Investors

Label	Variables	%
Neutral Information	Reputation of the firm	64.8
3.102	Affordable share price	63
	Current economic indicators	52.8
	Gut feeling on economy	47.2
	Past performance of the firm's stock	41.7
	Attractiveness of non-stock investments	23.1
	Environmental record	17.6
Accounting Information	Condition of financial statements	56.5
1,907	Fluctuations/developments in the indices of the major markets	48.1
	Expected dividends	47.2
	Opinions of the firm's majority stockholders	38.9
Personal Financial Needs	Firm status in industry	58.3
1.685	Protection or not of the investor	38.9
	Diversification needs	35.2
	Perceived ethics of firm	25.9
Subjective/Personal	Recent price movements in a firm's stock	43.5
1.63	"Get rich quick"	28.7
	Statements from politicians & governmental officials	27.8
	Coverage in the press	24.1
	Ease of obtaining borrowed funds	20.4
	Political party affiliation	18.5
	Feelings for a firm's products & services	36.1
Advocate Recommendation	Brokerage house recommendation	42.6
0.695	Friend or coworker recommendations	13.9
	Family member opinions	13

Source: Author's calculations.

The "factor" categories displayed in Table 3 were found to be heavily loaded by a specific subset of the 25 variables in each particular case. The assignment of the factors was undertaken by the factor analysis, but considerable subjective judgment and common sense were also employed to clarify discrepancies. Finally, the percentage frequencies of each set of variables were added together, and the resulting sum serves as a "weight of significance" attributed to each of the identified categories.

It was unexpected that the factor category displaying the highest significance is "Neutral Information" with a weight of 3.10. "Reputation of the company", with 65%, is the variable with the most influence on the decision-making process of the small Macedonian investors with the highest percentage of participation. Probably the next main driver in the decision making process is "Acceptable stock price" with 63%, etc. The factor category displaying the next highest significance is "Accounting Information" with a weight of 1.91. In this category despite the "Condition of Financial Statements" with 56.5%, it is interesting that factor analysis groups as well "Fluctuations/developments in the indices of the major markets" with 48.1%. To follow the fluctuations in the indices of the major markets has become a very important factor for Macedonian individual investors in their investment decision after the crisis.

The next factor category with the weight of 1.69 was the category "Personal Financial Needs", where the factor "Firm status in industry" is with high 58.3%. In the category "Subjective/Personal" with a weight of 1.63 is noteworthy to mention the fact that only 28.7 percent of the respondents considered their desire to "get rich quick" as a most influence factor. Finally, the last category "Advocate Recommendation" received weight of 0.69. This is a very interesting fact, which indicates that the equity investors in the Macedonian Stock Exchange consider themselves quite independent of any influences outside their own personal feelings, although it is quite a mystery just how the investors' own subjective judgments were formed.

To check the reliability of the scale of the measures within the categories created by the factor analysis, we find Cronbach's alpha of 0.66 for “Neutral Information” to 0.55 for "Accounting Financial Information", 0.53 for "Personal financial needs", 0.63 for "Subjective/Personal" and "Advocate Recommendation" of 0.57. Cronbach’s alpha shows that these categories are reliable.

3. Study Limitations

To enable a correct interpretation of the study’s results, it is important to acknowledge its limitations. The convenience sample covered only clients who have visited brokerage houses in this period. The possibility that the other clients who did not participate in our survey can be systematically different from those that did participate, which means that the results can be biased. Yet, for many reasons we can expect that the survey is unbiased for the surveying period, driven by the changes in the behavior of the investors after the bubble busted.

Conclusion

The analysis performed on the collected data appears to give a fairly accurate view of the equity investors on the Macedonian Stock Exchange. The survey based research was done to confirm that there is a certain degree of correlation between the factors that behavioral finance theory and previous empirical evidence identify as the influencing factors for the average equity investor, and the individual behavior of active investors in MSE influenced by the overall trends prevailing at the time of the survey in the recession period after the stock market busted. The findings are that investors are not

completely rational as perceived by traditional finance theories. This is because the most affecting factor considered by the participants is "Neutral information". Even more, the investment decision process is driven by the factors as: "Reputation of the company", "Acceptable stock price", "Current economic indicators" etc. Previous empirical evidence identifies "Accounting information" as the most influencing indicator for the average equity investor, which was unexpectedly second most important category in our Factor analysis results. The Macedonian investors, beside the "Condition of financial statements", consider the second factor "Fluctuations/developments in the indices of the major markets" very important. The structure and relative weights of the chosen categories reflect on the average – a still unsophisticated and immature profile of the Macedonian investor.

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