ANALYSIS OF INDIVIDUAL INVESTOR BEHAVIOR AT STOCK MARKET STUDY GROUP MEMBER OF UNIVERSITY IN SURAKARTA USING ANALYTICAL HIERARCHY PROCESS METHOD (AHP)

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ABSTRACT

Behavioral finance is a new approach to financial markets. Behavioral finance argues that some financial phenomena can be understood sensibly by using a model in which some agents are not entirely rational. The Market Efficiency Theory or known as the EMH (Efficient Market Hypothesis) was introduced by Fama (1970), on the ground EMH said that in an efficient capital market, relevant information will be responded quickly, completely and accurately by the market. If the market is efficient, then all information is reflected in the price. The price will adjust quickly and precisely to new information, and no one "precedes the market", which means that in an efficient capital market there should be no one getting excessive results because it has better access to information and responds more quickly. The purpose of this study is to determine the factors that most influence the investment decision of individual investors in the universities in Surakarta. This study used the Analitycal Hierarchy Process (AHP) method and distributed questionnaires to individual investors to find out the factors that influence them in trading. This research was conducted at Capital Market Study Group in the Higher Education Area of Surakarta Residence. The population in this research is Stock Market Study Group at Universities in Surakarta, while the affordable population is 5 Universities who have the Capital Market Study Group each taken as many as 20 respondents. The sampling technique used stratified random sampling technique, that is, taking a random sample of proportional from each group in each college in Surakarta.The result shows that Long-Term Investment has 56% priority to be choosen as investment, Short-Term Investment has 29% priority to be choosen as investment, and Mid-Term Investment has 15% priority to be choosen as investment.
Keywords*: investment decision, stock market, Analytical Hierarchy Process* (AHP), *decision making*

INTRODUCTION

Traditional finance theory seems very simple and will be very satisfying if the forecast is confirmed with the data. But, as a matter of fact, it becomes clear that it is not easy to understand the basic facts of the aggregate stock market and the behavior of individual trades within this framework. To cover the weakness of traditional financial theory, there is a new paradigm called behavioral finance.

Investors mistakenly associate profits in wealth with their ability to choose stocks. As a result, they underestimated the variance of stock returns and trades more frequently in the subsequent period due to improper error limits around re-estimates.

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Statman (2004) tested the prediction of market trading volumes on the trust model using U.S. market rate data. The study found that market turnover, the size of their trading volume, was positively associated with market returns for months.

Considering controversial arguments surrounding issues related to the financial behavior and investor confidence, the researcher decided to explore and investigate empirically and more deeply about the factors that influence the behavior of individual investors in decision making in the Surakarta region, especially incorporated in the Capital Market Study Group in Higher Education.

LITERATURE REVIEW

Efficient Market Theory

Market Efficiency Theory or known as EMH (Efficient Market Hypothesis) was introduced by Fama (1970). On the ground EMH says that in an efficient capital market, relevant information will be responded to quickly, completely and accurately by the market. If the market is efficient, then all information is reflected in the price. The price will adjust quickly and precisely to new information, and no one "precedes the market", which means that in an efficient capital market there should be no one getting excessive results because it has better access to information and responds more quickly. Market efficiency concerns two main areas: speed and accuracy of market price adjustment to new information (Asri, 2013).

According to Jones (2007), in Gumanti (2011, 327), efficient markets need to meet the following criteria: 1) There are many rational and profit-maximizing investors actively participating in the market by analyzing, valuing and trading stocks. The investor is a price taker, meaning that an agent himself will not be able to influence the price of a security; 2) No fee is required to obtain information and information freely available to market participants at almost the same time; 3) Information is obtained in random form, in the sense that any announcement on the market is free or unaffected by another announcement; 4) Investors react quickly and completely to new information entering the market that causes stock prices to make adjustments immediately.

There are three forms of capital market efficiency. The first is the circumstance in which the price reflects all the information contained in the price record in the past. Under these circumstances investors may not gain above normal profit by using trading rules based on price information in the past. This first form is called the weak form efficiency (Husnan and Pudjiastuti, 2012).

A second form of efficiency is a state in which prices reflect not only prices in the past, but all information being published. This is called a semi strong form of efficiency. In other words, the financiers can not gain above normal profit by utilizing public information. Some of the events that led to the occurrence of a strong half-market include: stock split announcement, right issue, accounting changes, stock quotes, and reactions to announcements or news.

The third efficient form of the market is a strong form of price where prices not only reflect all published information, but also information that can be obtained from fundamental analysis of firms and economies. In these circumstances stock prices are always reasonable

and no investor who are able to get a better estimate of stock prices. Most of the research in this third form is done on the performance of professionally managed protofolios. The study shows that after considering the difference in risk, there is no single institution that is able to outperform the market consistently and even the difference in achievements of each portfolio is no greater than what is expected by chance (Husnan and Pudjiastuti, 2012).

Individual Investor

In his research, Natapura (2009) mentions three types of investors: (1) intuitive, which is the type of investor who makes a decision based on instinct, tends to act on the emotion, (2) emotionally, who is someone who acts on emotions, (3) , which is the type of investor who has a tendency to delay decision making with the aim of reducing uncertainty, to obtain a rational explanation.

Another opinion states that there are two types of investors are informed investors and uninformed investors. Informed investors are investors who are able to capture available information, while uninformed investors are investors who lack awareness or ability to capture information related to investments (Syamni, 2009)

Analytical Hierarchy Process

Analytical Hierarchy Process (AHP) was developed by Thomas Lorie Saaty in the 1970s used to search rank. The AHP method is used to create alternative decision sequences and select the best alternative decision-making process. This method is designed to capture the perceptions of individuals skilled in the art.

Analytical Hierarchy Process method from Saaty (2008) can solve a complex problem with the number of aspects or criteria that there are quite a lot. This complexity can also be caused by an unclear problem structure. According to Saaty, there are three principles in solving the problem with AHP, namely the principle of composing the hierarchy (Decomposition), the principle of determining the priority (Comparative Judgment), and the principle of logical consistency (Logical Consistency).

The hierarchy in the AHP model is a hierarchy of problems to be solved to consider the criteria or components that support the achievement of objectives. In the process of setting goals and objectives hierarchy, it should be noted whether the set of objectives along with the appropriate criteria is appropriate for the problem at hand. In selecting the criteria on any decision-making problem it is necessary to consider the following criteria: (1) Complete, the criteria must be complete to cover all the important aspects that are used in making decisions for the achievement of goals; (2) Operational, operational in the sense that each of these criteria must have meaning for the decision maker, so that it can truly appreciate the alternatives, in addition to the means to help explain the tools to communicate; (3) Not excessive, avoiding the existence of criteria that basically contain the same meaning; (4) Minimum, keep the minimum number of criteria possible to facilitate understanding of the problem, and to simplify the problem in the analysis.

Older Research

Natapura (2009) in her research entitled "Institutional Investor Behavior Analysis with Analytical Hierarchy Process Approach" mentions that institutional investors tend to be rational (55%), 45% emotional and nobody uses intuition. Based on the results of research Cecilia found that the most influential factor on institutional investor decision making is the state of the economy and followed by corporate accounting information.

Jagongo and Mutswenje (2014) in his research entitled "A Case of Individual Investors at the NSE" found that the most important factors influencing decision making were firm reputation, firm industry status , expected rate of return, profit and condition of the report, previous stock performance, price per share, valuation on the economy.

Jayakumar et al. (2015) in his research entitled A decision-making framework for investment diversification using the analytic hierarchy process shows that the ranking of alternative investments is as follows: (1) fixed deposit; (2) Insurance; (3) Property; (4) Gold Market; (5) The stock market. The results of this study indicate that the AHP method is able to generate a sequence of options from investors who will invest their funds based on several sub criteria.

Here is a study that has been done both in the country and abroad associated with the financial behavior of individual investors and research by AHP method. The research framework can be seen on figure 1 and the comparison scale used in pairwise comparison can be seen on table 1 in appendix.

================================= Figure 1 =================================
================================= Table 1 =================================

METHOD

The methodology used in this study is a quantitative method by assessing the percentage of factors influencing investment decision making by individual investors. This research is to prove investment behavior theory and investor type which is not always rational in making decision (Friedman, 1953 and Fama, 1965). This study uses the AHP method that helps solve complex problems by structuring a hierarchy of criteria, interested parties, outcomes and by drawing various considerations to develop weight or priority. This method also combines the strengths of the feelings and logic concerned on various issues, then synthesizes diverse considerations into outcomes that fit our expectations intuitively as presented in the considerations that have been made (Saaty, 1993).

In general, the basic steps of AHP can be summarized in the following explanation: (1) Define problems and set goals. If AHP is used to select alternatives or alternative prioritization, then at this stage the alternative development is done; (2) Compose problems in the hierarchical structure. Any complex problem can be viewed from the detail and structured side; (3) Set priorities for each element of the problem at the hierarchy level.

RESULT AND DISCUSSION

Based on the result of data processing the following results can be submitted on table 2 in appendix. Table 2 shows, Personal Analysis has the most influence to make decision. It has 59% influence the decision, rather than The Quality of Financial Statements which has 25% and then The State Economics Conditions at 16%. While the sub criteria that make the 59% of the Personal Analysis are 57% on Personal Opinion, 23% on Emitten Reputation, and 20% on Management Reputation. The sub criteria that make the 25% of the Quality of Financial Statement are 40% on Rentability, 30% on Liquidity, and 30% on Solvability. And then the sub criteria that make the 16% of the State Economics Conditions are 52% on Media Information, 27% on Stock Index Fluctuation, and 21% on Stock Price Movement.

================================ Table 2 ================================

The comparison of all of the sub criteria shows that Personal Opinion has the most influence to make decision at 33%, then Emitten Reputation at 14%, Management Reputation at 12%, Rentability at 10%, Liquidity at 7%, Solvability at 8%, Media Information at 8%, Stock Index Fluctuations at 4%, and Stock Price Movement at 3%. These results can be seen on table 3 in appendix.

================================ Table 3 ================================

To get best decision we can pick the maximum influence of sub criteria in each criteria. We got 8% of State Economic Condition, 10% of Quality of Financial Statements and 33% of Personal Analysis. Then we normalize them, then The State Economic Condition has 16% influence of all, the Quality of Financial Statements has 20% and then Personal Analysis has 64%. These results can be seen on table 4 on appendix.

================================ Table 4 ================================

Based on that proportion of consideration to make decision Personal Analysis has the most influence followed by The Quality of Financial Statements and The State Economic Condition. Then we processed that consideration to the alternative. Based on the result of data processing with the alternative the following results can be submitted that Long-Term Investment has 56% priority to be choosen as investment, Short-Term Investment has 29% priority to be choosen as investment, and Mid-Term Investment has 15% priority to be choosen as investment. These results can bee seen on table 5 on appendix.

================================ Table 5 ================================

CONCLUSION

The conclusion of the findings on the result and discussion are : (1) this Analytical Hierarchy Process Method (AHP) is used to Analyze the Individual Investor Behavior at Stock Market Study Group Member of University In Surakarta; (2) the consideration of State Economics Conditions to make decision are 16%, the consideration of Quality of Financial Statements to make decision are 25%, the consideration by Personal Analysis to make decision are 59%; (3) the consideration to make decision by sub criteria Stock Price Movement are 3%, Stock Index Fluctuations are 4%, Media Information are 8%, Solvability are 8%, Liquidity are 7%, Rentability are 10%, Management Reputation are 12%, Emitten Reputation are 14%, Personal Opinion are 33%; (4) Long-term investments has higher

priority so it will be choosen to maximizing profit from the high return. (5) Mid-term investment has lowest priority for investment. Those results means that student are risk averse. This study is limited to the individual investor of stock market study group. Hopefully, the next research can expand the topics to the investor not only in the college or universities but also in the securities investment companies.

MANAGERIAL IMPLICATION/LIMITATION AND SUGGESTIONS

This study which focuses on the behavior of individual investors in investment decision making using the Analytic Hierarchy Process method has not been examined. Based on previous research data, the AHP method is more often used in research on decision-making related to the technical field, still rarely used in the economic field, especially investment. In fact, AHP is the most effective technique in determining the level of the order of factors or criteria from a case study.

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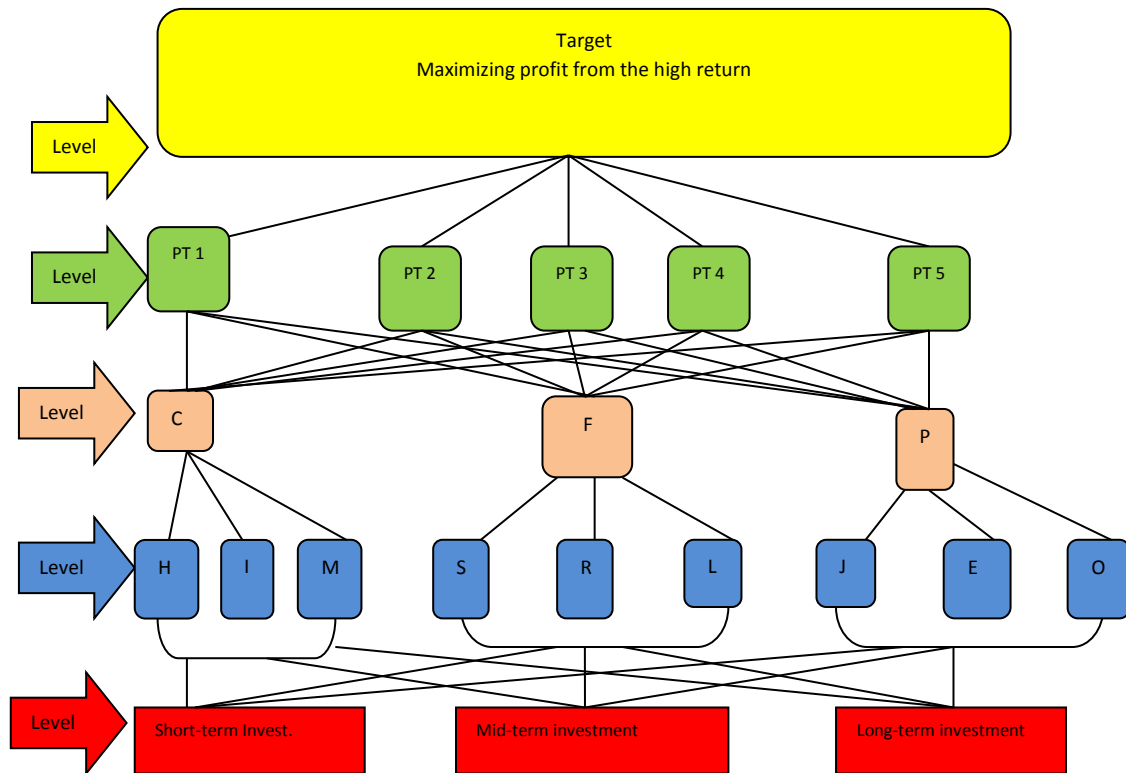
Appendix:

Figure 1. Research Framework

Table 1. The comparison scale used in pairwise comparison

Level of Importance	Definition	Explanation
1	Equally important	Both element have the same influence
3	A little more important	Experience and assessment strongly favor one element compared to the partner element
5	More important	One element is very well liked and practically its dominance is very real, compared to its partner elements.
7	Very Important	One element is proven to be very well liked and practically its dominance is very real, compared to its partner element.
9	Absolutely important	An absolute proven element is preferred compared to its partner, in the highest confidence.

Table 2. Resume of eigen vector of the criteria and sub criteria

0.16		0.25		0.59	
State Economics Conditions		Quality of Financial Statements		Personal Analysis	
Stock Price Movement	0.21	Solvability	0.30	Management Reputation	0.20
Stock Index Fluctuations	0.27	Liquidity	0.30	Emitten Reputation	0.23
Media Information	0.52	Rentability	0.40	Personal Opinion	0.57

Table 3. The priority of sub criteria

State Economics Conditions		Quality of Financial Statements		Personal Analysis	
Stock Price Movement	0.03	Solvability	0.08	Management Reputation	0.12
Stock Index Fluctuations	0.04	Liquidity	0.07	Emitten Reputation	0.14
Media Information	0.08	Rentability	0.10	Personal Opinion	0.33

Table 4. The priority of criteria at the maximum priority of sub criteria

State Economics Conditions	Quality of Financial Statements	Personal Analysis	Sum
0.08	0.10	0.33	0.52
Normalize			
0.16	0.20	0.64	

Table 5. Results

Type of Alternative	Investment Term	Value
Alternative 1	Long-Term Investment	0.56
Alternative 2	Mid-Term Investment	0.15
Alternative 3	Short-Term Investment	0.29