USING ANALYTICAL HIERARCHY PROCESS (AHP) TO FORM SHARES PORTFOLIO IN KINGDOM OF BAHRAIN STOKE MARKET

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ABSTRACT

This study comes to Use the Analytic Hierarchy Process (AHP) approach to build shares portfolio in kingdom of Bahrain shares' market. So that, we want to find out to what extent the Analytical Hierarchy Process approach is helpful taken in the account the importance of the investment decision to the investors as individuals or fund manager. We perform this assessment depending on the information of Bahrain stock market activities' handbook and some experts who have good experience in financial planning and some colleagues in university who are teaching financial and investment decision courses. The results demonstrated that (AHP) can help the decision maker to rank the sectors of the stock market according to their relative importance. The rank is more likely influenced by the relative importance of balance sheet, income shares trading, profitability and leverage& liquidity. The study sheds importance insight into an area of multi-criteria decision making.

Keywords: Analytical Hierarch Process (AHP), Pair-wise Comparisons, Multi-criteria Decision Making.

1- Introduction

Using the Analytic Hierarchy Process (AHP) to build a shares portfolio in Kingdom of Bahrain stock market is described. AHP can be characterized as a multi-criteria decision technique in which qualitative factors are of prime of importance. A model of the problem (shares portfolio) is developed using a hierarchical representation. At the top of the hierarchy is the overall goal or prime objective one is seeking to fulfill. The succeeding lower levels then represent the progressive decomposition of the problem. We complete a pair-wise comparison of all entries in each level relative to each of the entries in the next higher level of the hierarchy. The comparison of these judgments indicates the relative priority of the entities at the lowest level (e.g. investment sectors) relative to achieving the top-most objective.

2 - AN OVERVIEW OF THE ANALYTICAL HIERARCHY PROCESS (AHP)

The Analytical Hierarchy Process (AHP) grew and evolution, at the Wharton School of Business by Thomas Satty (1). It is a structured approach facilitates the process of analyzing the problem by breaking it down to small problems with multistage (2) which leads to show the problem of decision in analytical and systematic Fashion and in the way that shows the degree of similarity with the thinking of the decision-maker in the filming of the problems. The (AHP) style is not a style of complex processes designed for the analysis of complex problems but rather simple operations designed to analyze complex problems.
The (AHP) style views the problem of decision hierarchaly with multiple levels, making it easier to use pairwise comparisons to determine the relative importance of all elements of the pyramid and using a series of objective / subjective judgments. This style shows its ability to detect the mistakes of Consistency of Judgments. By using (AHP) these provisions to determine priorities more accurately depending on verbal judgments even if the words used are not accurate, and building on this property, it is possible to use the words of comparison as quality variables for a relative measure could be coupled with quantitative variable to calculate the priorities that can affect or contribute to every variable in determining the final decision. (AHP) uses to overcome the negatives that accompany the process of using the other entries in the decision-making process likes the style of pros / cons, weights and scores techniques by identifying all aspects of the problem and the variables which reflect the relative importance of each variable within the group but not individually (3). using (AHP) needs four steps (4).

2-1 Decompose the Problem and represents it hierarchically.

The first step in using (AHP) is to divide the problem and analysis it to its components, and synthesis it in hierarchically form. So that, the problem should contain at least at the following levels: the first level is the Goal, second level Criteria and the third level is the alternatives which are the course of actions.

2-2 - Setting priorities for the problem components

Rating process in (AHP) depends on the opinion of the decision maker, where judgments can be derived from realistic information -hard data- in addition to the knowledge and experience of decision-maker.

2-3 - Synthesis of Results

Calculated relative importance of each alternative depends on the relative contribution of each criterion in determining the degree of preference. Sum of the relative importance of each alternative represents an appropriate degree that alternative standards for. The alternative with higher relative importance has the higher chance in the selection process.

2-4 - Evaluate the homogeneity of the verdicts

Pairwise comparison adopted in (AHP) does not specify randomly but can be derived from a set of judgments. These Judgments whether quality or quantity are governed by mathematical rules. At this stage, is assessing the degree of homogeneity of these verdicts and case heterogeneity Inconsistency must be equal to or less than 0.10 (1). Individuals often give a high bias in the estimation of the verdicts , overweighing bias requires tested statistically in order not to affect the importance of giving the proportion of non- real value(5) . The lack of high inconsistency at any level or in the final assembly process does not invalidate the model as a whole, but give the indicator on the need to re- test some of the provisions (4).

3-The research problem

The decision problem considered in this study is how to determine the priorities of the sectors in Bahrain stock market to form the shares portfolio depending on their relative importance. Generally speaking, we develop an (AHP) model as multi-criteria decision making method in the field of investment. Accordingly, the emphases had been put to shade the light on using the Analytical Hierarchy Process (AHP) as new way to form shares financial portfolio.

4-Research design

We built (AHP) model to research problem to form shares portfolio in Bahrain stock market. The structure of multi-criteria decision making according to (AHP) model consists of a number of alternatives (banks, investment, insurance, services, industrial and hotels &tourism) after setting the overall goal (shares portfolio) as well as a number of criteria like(balance sheet, income statement, shares trading, profitability and leverage & liquidity). We perform this assessment depending on the information of Bahrain stock market activities' handbook(5) and some experts who have good experience in financial planning and some colleagues in university who are teaching financial and investment decision courses. The results demonstrated that (AHP) can help the decision maker to rank the sectors of the stock market according to their relative importance.

5- Model Analysis

Figure (1) illustrates the decision problem according to (AHP) model which consist of six alternatives and five criterions

. This is some of the pairwise comparison judgment. We evaluated the six alternatives in term of five decision criteria. The following matrix represents the corresponding judgment matrix with the pairwise comparison. So that the corresponding priority vector and the consistency coefficients are given as well

Table (1) illustrates the judgment matrix for the case of comparing the importance of the six alternatives.

Table (1) Pairwise comparison matrix for balance sheet

BALANC SHEET	C. bank	investment	insurance	Services	Industrial	Hotels & tourism	Priority Vector
C. bank	0.41	0.46	0.28	0.18	0.52	0.28	0.36
investment	0.20	0.23	0.23	0.18	0.26	0.23	0.22
insurance	0.09	0.06	0.06	0.04	0.03	0.03	0.05
Services	0.13	0.08	0.12	0.06	0.03	0.23	0.11
industrial	0.10	0.12	0.28	0.24	0.13	0.18	0.18
Hotels & tourism	0.07	0.05	0.03	0.30	0.03	0.05	0.09

Inconsistency = 0.08

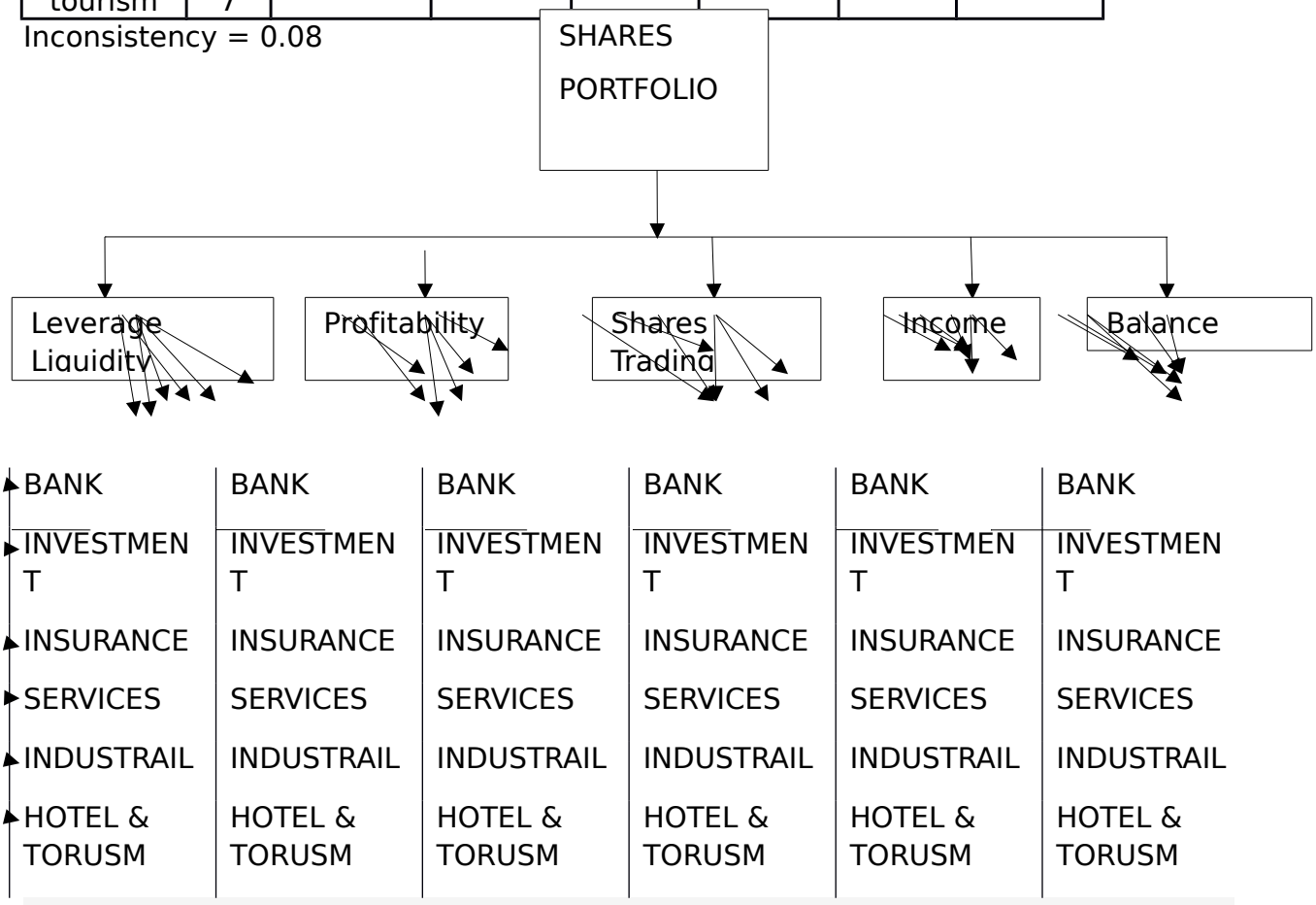

Figure (1) Structure of the decision problem

Composition and synthesis Impact of alternatives on Criteria

Balance Incom Shares Profitabili Leverage&

	Sheet 0.29	e 0.07	Trading 0.09	ty 0.36	Liquidity 0.19	
C. Bank	0.36	0.17	0.40	0.28	0.25	0.29
Investment	0.22	0.24	0.13	0.19	0.21	0.07
Insurance	0.05	0.10	0.06	0.13	0.11	0.09
Services	0.11	0.19	0.07	0.20	0.16	0.36
Industrial	0.18	0.19	0.19	0.12	0.13	0.19
Hotels & tourism	0.09	0.11	0.15	0.08	0.14	

Commercial Bank = 0.30 Investment = 0.20 Insurance =0.09
Services = 0.15 Industrial = 0.15 Hotels & tourism = 0.11

6- LIMITATIONS

The crucial thing that I faced is the delay of the companies in Bahrain stock market to announce their final report, the riot in Bahrain which affect the investment in the stock market because many companies let or have no desire to invest by limiting their activities. As well as, the limited number of pages for the proposal which force me not to include supporting materials for the study?

7- CONCLUTIONS

The most important conclusions can be determined as follows:

1 – Shares portfolio must be respectively contains (Commercial banks 0.30%, Investment 0.20%, Services and Industrial 0.15%, Hotels & Tourism 0.11% and at the end came the insurance sector in 0.09%) shares according to the relative importance of these sectors.

2 – It appears that Analytical Hierarchy Process (AHP) can be used with high elasticity and tool to analyze aspects of investment decisions, as it is characterized by easily use without the need for the decision-maker for the high requirements in mathematics and statistics.

3 – (AHP) model can be used in the formulation of the problem of the resolution, which relies on subjective judgments and experience, is also distinguished by its ability to adapt and integration Completeness in cases that rely on a mixture of qualitative and quantitative factors.

4 – (AHP) contributes to explain and understand complex and unstructured problem. to help decision maker.

5 - (AHP) Model provides self-censorship to control the overall appreciation or judgments to decision makers by measuring the degree of homogeneity Consistency case to avoid bias that are the result of miscalculations or emotions.

6 - Sensitivity Analysis can be used to demonstrate the effect of the changes that can get on the relative importance of some of the criteria on the final ranking of the decisions ranking of alternatives.

7 – These results may encourage doing comparison study between (AHP) and other methods of forming shares portfolio in near future.

8- REFERENCES

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