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Full Length Research Paper

Application of analytic hierarchy process in analyzing and ranking of non-financial measures that affect investor decisions

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This paper presents an application of the analytic hierarchy process (AHP) used to select the most appropriate non-financial measure that investors use in decision-making. (AHP) is a method of multi-criteria evaluation which organizes and simplifies decision-making. This decision model helps decision makers on reducing decision-making time and choosing a suitable decision alternative for investment situation. In addition, this study underlines the importance of different criteria, factors and alternatives that are essential to successful investment decisions by applying the Analytic Hierarchy Process (AHP). This study provides recommendations on strategic investment decision options. Thus, the main contribution of this paper is to demonstrate the potential of AHP as a tool that could easily rank non-financial measures. This ranking is expected to induce innovation, improve company disclosures, increase satisfaction of statement users, and enhance total performance.

Key words: Multi-criteria, decision-making, analytic hierarchy process, investment decision-making.

INTRODUCTION

In complex organizations, it is important to determine what the principles, style, guidelines for decision making are, and the structure of the organization structure that will lead and supervise the process of decision making (Wally and Baum, 1994).

The Analytic Hierarchy Process (AHP) is a multi-criteria decision-making approach and was introduced by Saaty (1994). The AHP has attracted the interest of many researchers mainly due to the nice mathematical properties of the method and the fact that the required input data are rather easy to obtain. The AHP is a decision support tool which can be used to solve complex decision problems. It uses a multi-level hierarchical structure of objectives, criteria, sub criteria, and alternatives. The pertinent data are derived by using a set of pairwise comparisons. These comparisons are used to obtain the weights of importance of the decision criteria, and the relative performance measures of the alternatives in terms of each individual decision criterion. If the comparisons are not perfectly consistent, then it provides a mechanism for improving consistency.

Analytical Hierarchy Process (AHP) is the methodology used to solve problems at the strategic level (Saaty, 1980). Vijayakumar et al. (2010) used the AHP to prioritize the factors affecting ERP implementation on the basis of the priority value obtained by this method for each cell in the framework. Xiaohua and Zhenmin (2002) have introduced the index system for appraising the sustainable development of rural energy and have calculated the weighting of each index using the AHP. Aras et al. (2004) have used the AHP to determine the most convenient location for the construction of a wind observation station on campus.

In this paper, the AHP method will be used to unify different criteria for decision making. As a multi-goals approach, AHP is generally applied in those decisions to be made with multiple criteria under an uncertain scenario. A complicated system can be precisely

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presented by a simple and clear hierarchical factor structure of which it is categorized on a basis that is concluded by experts and decision-makers (Saaty, 1980).

The aim of this paper is to present different criteria in business decision making and their implementation in practice. The solutions may be useful with strategic decision making which needs to be swiftly and appropriately defined.

In general, the main problem of this study is as follows: according to the hierarchical analysis process, what is the importance of the non-financial measures that affect investment decisions?

LITERATURE REVIEW

Non-financial measures and accounting

Most organizations use a wide range of data that is important to the organizational mission but falls outside the purview of the organization's financial function. Accountants typically have little to do with NFI documenting (for example) procedures for engineering experiments or biometric indicators for high-security employee IDs. What makes selected NFI the business of accountants or users of accounting information?

Many of the accounting research provides evidence that selected NFI can be used both to substitute for and to complement accounting information in tasks for which accounting is typically important, such as forecasts of future financial performance or evaluation of current performance. Accounting and NFI work together as a portfolio of measures, in which the value of using and refining accounting measures depends on the information properties of NF measures included in the portfolio, and the information value of any specific NF measure depends on the properties of accounting. In consequence, the accountant's tasks depend on the properties of NFI as well as of accounting information. Whether accountants should, for example, devote significant effort to developing financial measures of intellectual capital as an input to the valuation of knowledge-intensive firms depends on how cost-effectively NF measures such as patents and publications can provide the same information. In this case, accounting and NF measures are substitutes, and more informative NFI means less need for accountants to develop (or users to seek out) financial measures. In contrast, when NFI complements accounting, more use of NFI means 'more' use of accounting, because accounting is more valuable when used together with NFI than when used alone. For example, in Amir and Lev (1996), accounting earnings alone appear irrelevant to stock prices for wireless communication firms; but when NF measures of growth potential are included in the model, earnings become significantly value relevant. Similarly, in performance evaluation and reward systems, accounting earnings that are imperfect measures of employees' actions can be 'more' heavily weighted (that is, more dollars of reward can be provided for a given increase in earnings) when appropriate NFI is also included in the reward base (Feltham and Xie, 1994; Datar et al., 2001). In such cases, more informative NFI means that accountants can more confidently advocate the use of earnings (or other accounting) information in decision making, even though earnings is not a perfect measure of firm, business-unit, or individual performance.

Why non-financial reporting?

Market value versus book value

The market value of a company reflects the investors' perception of the company's present (and future) value, as manifested by stock prices. The book value, on the other hand, reflects the value of the company as reported in the official balance sheet (assets less liabilities, or net assets). It represents, in a way, the official company value and is reported to shareholders and the financial community. The market and book values were very close by the end of the 1970s. But gradually, the two were separated. In individual companies, for example, Microsoft, the estimated book value portion is around 9%, while for Coca-Cola it is around 7%. The portion of book value to market value is often so small that the relevance of the balance sheet has become questionable. It is, of course, crucial to understand the gap between market and book values. The market value comes from the intangible assets, such as the customer, human resource, partner, and brand assets. In order to understand the gap, there is an obvious need for relevant and reliable information on these intangible assets. Non-financial reporting aims at providing such information to the stakeholders, and in particular, to the present and future investors (Kristensen, 2001).

The Analytic Hierarchy Process

The Analytic Hierarchy Process (AHP), developed by Thomas Saaty (1980), allows decision makers to model a complex problem in a hierarchical structure showing the relationships of the goal, objectives (criteria), sub-objectives, and alternatives. Thus, a typical hierarchy consists of at least three levels, the goal(s), the objectives, and the alternatives. AHP enables decision-makers to derive ratio scale priorities or weights as opposed to arbitrarily assigning them. In so doing, AHP not only supports decision-makers by enabling them to structure complexity and exercise judgment, but allows them to incorporate both objective and subjective considerations in the decision process (Forman, 1990).

In most cases, the priority ranking of the various measures is not uniform across all decision makers at all levels, that is, different constituencies (such as departments or divisions) hold different opinions as to the

relative importance of the measures. When opinions differ about ranking measures is where the AHP comes into its own. Whereas something like DELPHI technique seeks resolution by iterative polling until consensus is reached, the AHP user asks constituents (via a questionnaire) to make a sequence of pairwise comparisons of the measures, and the comparisons then are analyzed via a mathematical model to establish the relative priorities of the measures (usually taking the geometric mean of the answers for each specific question), after which another algorithm is applied to establish the final ranking of the decision objectives or alternatives (that is, the different strategies, departments or divisions). The results then are synthesized to determine the overall importance of each alternative in achieving the main (overall) goal. The pairwise comparisons are quantified using the standard one-to-nine AHP measurement scale (Saaty, 1980).

The AHP is ideally suited to help resolve certain problems that arise when multiple criteria are used in performance evaluation. For example, the pairwise comparisons for measure(s) priority can be done using a ratio scale. This facilitates the incorporation of non-quantitative measures into the evaluation scheme, since it forces participants to translate all criteria into relative priority structures based on the scale. Thus, using the AHP means that non-quantitative assessments can be combined with quantitative assessments in rating a unit or an individual.

The AHP has been widely and successfully applied in a variety of decision-making environments (Hazed, 1986; Zopounidis and Doumpos, 1997, 1998, 1999a, b, 2000). AHP is a suitable approach for undertaking quantitative as well as qualitative analysis (Saaty, 1980). The approach differs from other multi-criteria as subjective judgments are readily included and the relevant inconsistencies are dealt with appropriately (Chan and Lynn, 1991). The application of the AHP is based on the following principles (Saaty, 1994):

1. Decomposition: A complex decision problem is decomposed into a hierarchy with each level consisting of a few manageable elements; each element is further decomposed and so on.
2. Prioritization: It involves pairwise comparisons of various elements residing at the same level with respect to an element from the upper level of the hierarchy.
3. Synthesis: The priorities are pulled together through the principle of hierarchic composition to provide the overall assessment of the available alternatives.
4. Sensitivity analysis: The stability of the outcome is determined by testing the best choice against ‘what-if’ type of change in the priorities of the criteria.

The AHP provides a measure called the consistency ratio (CR) to check the consistency of judgment. Inconsistency is likely to occur when decision-makers make errors or exaggerated judgment during the process of pairwise comparisons. A consistency ratio of 0.1 is considered as the acceptable upper limit. If the consistency ratio is greater than 0.1, then the decision-makers have to re-evaluate their judgments in pairwise comparisons until the ratio becomes finally less than 0.1.

Strengths

The advantages of AHP over other multi criteria methods are its flexibility, intuitive appeal to the decision makers and its ability to check inconsistencies (Ramanathan, 2001). Generally, users find the pairwise comparison form of data input straight forward and convenient.

Additionally, the AHP method has the distinct advantage that it decomposes a decision problem into its constituent parts and builds hierarchies of criteria. Here, the importance of each element (criterion) becomes clear (Macharis et al., 2004).

AHP helps to capture both subjective and objective evaluation measures. While providing a useful mechanism for checking the consistency of the evaluation measures and alternatives, AHP reduces bias in decision making.

The AHP method supports group decision-making through consensus by calculating the geometricmean of the individual pairwise comparisons (Zahir, 1999). AHP is uniquely positioned to help model situations of uncertainty and risk since it is capable of deriving scales where measures ordinarily do not exist (Millet and Wedley, 2002).

Weaknesses

Despite the popularity of the AHP, many authors have expressed concern over certain issues in the AHP methodology. Many researchers have long observed some cases in which ranking irregularities can occur when the AHP or some of its variants are used. This rank reversal is likely to occur, for example, when a copy or a near copy of an existing option is added to the set of alternatives that are being evaluated.

The AHP method can be considered as a complete aggregation method of the additive type. The problem with such aggregation is that compensation between good scores on some criteria and bad scores on other criteria can occur. Detailed, and often important, information can be lost by such aggregation.

With AHP, the decision problem is decomposed into a number of subsystems, within which and between which a substantial number of pairwise comparisons need to be completed. This approach has the disadvantage that the number of pairwise comparisons to be made, may become very large ($n(n-1)/2$), and thus become a lengthy task (Macharis et al., 2004).

Another important disadvantage of the AHP method is the artificial limitation of the use of the 9-point scale.

Sometimes, the decision-maker might find difficult to distinguish among them and tell for example whether one alternative is 6 or 7 times more important than another. Also, the AHP method cannot cope with the fact that alternative A is 25 times more important than alternative C.

Review of related studies

Proposals to supplement conventional accounting with the use of nonfinancial information (NFI) have exerted a powerful appeal in recent years. Balanced scorecards and similar performance measurement systems have been advocated intensively and are widely used by organizations (for example, Eccles et al., 2001; Kaplan and Norton, 2001b, c, 2008). Business risker strategic-systems audits, which rely on NFI to understand the client's business, have been put forward as a way to conduct efficient high-quality audits in a challenging economic and regulatory environment (Bell et al., 2002; Peecher et al., 2007). Financial analysts use NFI to forecast earnings and stock prices (Dempsey et al., 1997; Chandra et al., 1999; Rajgopal et al., 2003; Peecher et al., 2007), and the Financial Accounting Standards Board (FASB) has considered mandating the reporting of nonfinancial measures along with traditional financial statements (FASB, 2001; Maines et al., 2002; Upton, 2001).

Recent evidence, however, suggests that high initial expectations about the value of NFI were not fulfilled in many instances. NFI appeared particularly value relevant (that is, associated with stock prices) for Internet firms in the later 1990s, but this value relevance fell significantly (not to zero, however) after the end of the Internet bubble (Demers and Lev, 2001; Rajgopal et al., 2003).

Many firms that adopted NFI-based incentive systems subsequently discarded them (for example, 42% in the sample analyzed by HassabElnaby et al. (2005). Recent research on business risk audits has reported considerable unwillingness by auditors to rely on NFI-based approaches (Knechel, 2007; Curtis and Turley, 2007). After relatively intensive consideration at the beginning of the decade, the FASB has not acted to mandate NFI reporting.

METHODOLOGY

This study was a survey research. The AHP technique of solving problem, which explicitly recognizes and incorporates the knowledge and expertise of the participants in the priority setting process making use of their subjective preferences was used as the research methodology. In order to gather usable data, a questionnaire was designed. Cronbach's alpha was used for ascertaining the validity of the questionnaire with the current status and confidence of 0.79. The data used in the study were the response of academics from the fields of accounting and economics, and investment managers that are professional experts.

The population of this study consists of academics from the fields of accounting and economics and investment managers. A total of 130 persons of this population were selected using random sampling technique to ensure a good representation of the population. A questionnaire was designed using non-financial measures that were obtained from literature review and corporate disclosure.

Developing the model

Model formulation

This research uses AHP method for ranking and analysis of non-financial measures. Nine steps for data collection as recommended by Saaty (1980) are: (1) defining problem, (2) listing relevant criteria, (3) list all possible criteria, (4) building hierarchical structure, (5) designing AHP questionnaire, (6) establishing pair comparison matrix, (7) computing eigen value and eigen vector, (8) consistency indicators and ratios, (8) weight value of hierarchy, and (9) extract the critical factors associated with the problem to be solved.

The process for this study is illustrated in Figure 1.

Establishing hierarchical structure

To establish AHP model in this research, relevant measures to be used were concluded through literature review and Delphi interview, and are shown as an hierarchical structure in Table 1.

Importance weight of factors of respective hierarchy

In order to collect data for this study, surveys were conducted with academics from fields of accounting and economics, and public investment managers from Iran as professional investors.

AHP model in this study

The overall objective of this evaluation is to examine which measures are more important in decision-making. Under this objective, the model may consist of evaluation criteria and sub-criteria. The criteria and sub-criteria used here are those non-financial items that were gotten from corporate disclosure practices of several companies across different industry sectors. This study has a typical three-level AHP model. All the criteria and sub-criteria are compared among themselves. A list of 20 non-financial measures was generated according to corporate disclosure practices of several companies across different industry sectors (Table 2).

The AHP model was formed in a three-level hierarchical structure:

Level I: The objective - Factors influencing investment

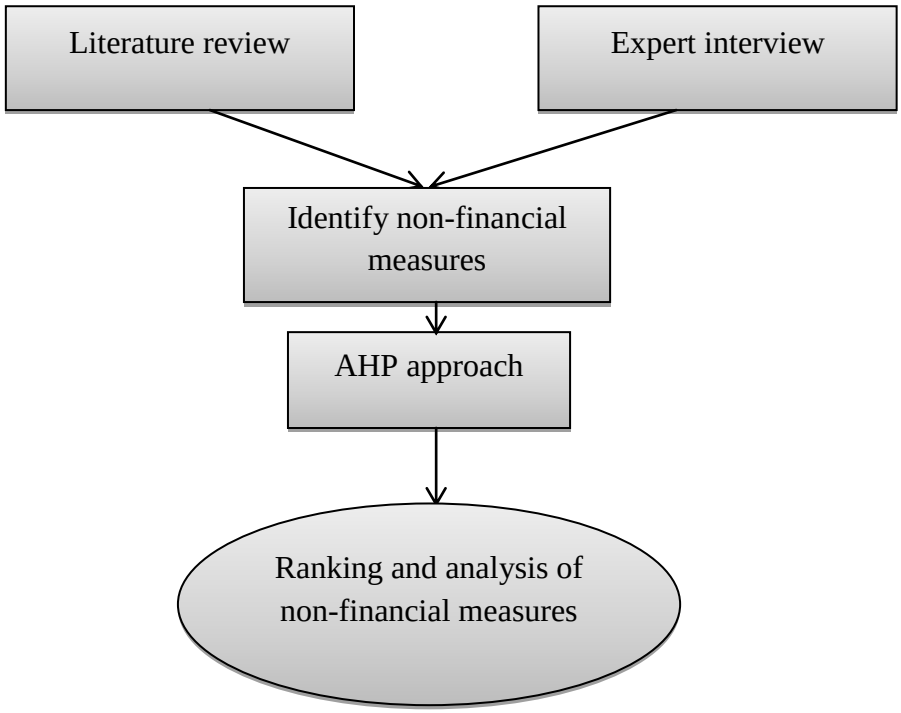

Figure 1. Research process.

Table 1. The standard AHP measurement scale.

Ratio	Term	Explanation
1	Equal importance	Two activities contribute equally to the objective
3	Moderate importance	Experience and judgment slightly favoured one activity over another.
5	Essential or strong	Experience and judgment strongly favoured one activity over another.
7	Demonstrated importance	An activity is strongly favored and its dominance is demonstrated in practice
9	Extreme importance	The evidence favoring one activity over another is of the highest possible order of affirmation

decisions.
Level II: The main criteria considered necessary to achieve the objective.
Level III: Sub-criteria that will lead to the achievement of the objective.

The AHP model of the company is illustrated in Figure 2.

The second level of the models was formed using corporate disclosure practices .The third level was formed using the identified twenty most important non-financial measures.

ANALYSIS TECHNIQUE

The data generated through the questionnaire were analyzed with the aid of the AHP software package “Expert Choice”. Bio data of the participants are shown in Tables 3 and 4. Expert choice is a computer software package that performs the computation required by the AHP. It is a system for the analysis, synthesis and justification of complex decisions and evaluations. With respect to the goal, these factors span a descent tree of criteria, sub-criteria, factors and alternatives. Expert choice uses the supplied data to device global priorities and informs the user of the consistency of the relative comparisons fed it. The evaluation process starts at the second level. The non-financial measures were compared pairwise to assign square matrix. These statements of pairwise comparisons can be summarized in a square matrix. In the square matrix, the values of the diagonal elements are the ones since any criterion, when compared with itself must be of equal importance in making the promotion decision. The assigned scales were subsequently processed using the Expert Choice

Table 2. List of the most important criteria.

No.	Criterion	Sub-criterion
1	Variables related to situation of company	Export of goods
2		Corporate structure and shareholders
3		Nature of stocks (profitable spread)
4		How to advertise companies
5		The competitive position of the company and overall industry
6		Achieving the stated goals
7		Express corporate plans and outlook
8		Expression of the major risks of company
9	Company information governance	Board Structure
10		Salary and bonuses of CEO and board
11		Independent auditor and statutory auditor
12	Information strategy	Domestic market (market development)
13		Continuous improvement in the quality of services
14		Management fees (to reduce the current costs)
15	Report in relation to the increase in welfare, health and education staff	Safety issues such as participation in workshops
16		Environment, including regular environmental inspections
17	Social performance reporting	Energy reports company
18		Regulations governing environmental impact
19	Reporting and risk analysis firm	Risks arising from exchange rate fluctuations
20		Liquidity risk

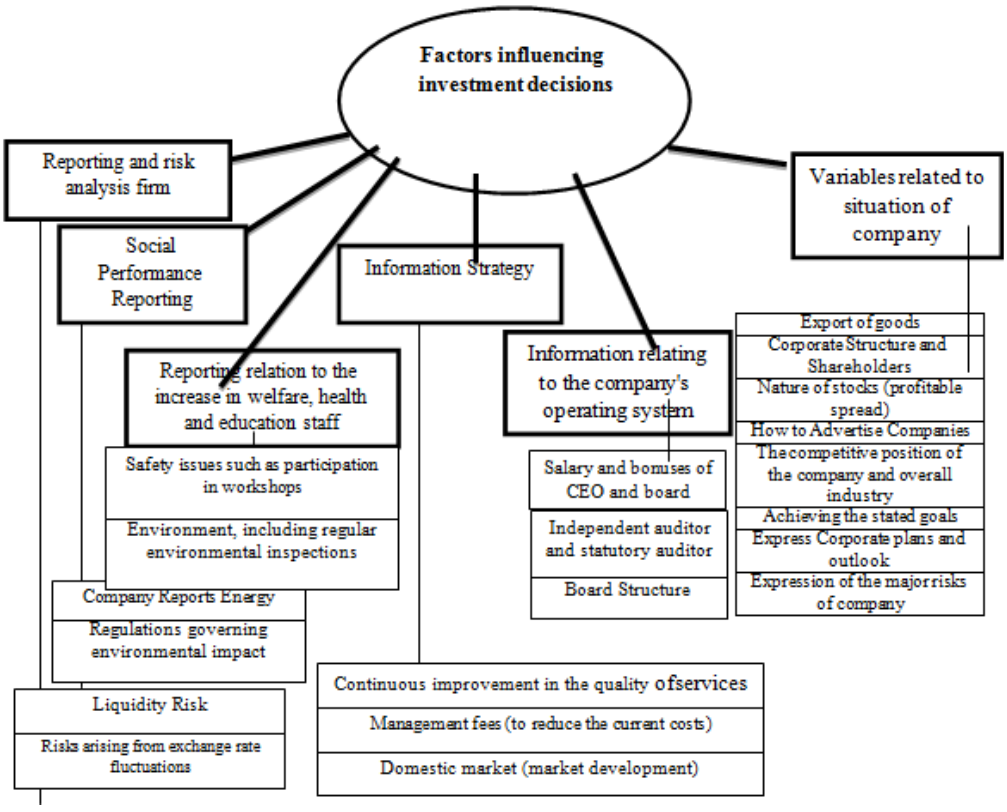

Figure 2. AHP model of the company.

Table 3. Bio data of the participants (gender).

	Participant	Frequency	Percent	Valid percent	Cumulative percent
Valid	Female	10	13.9	13.9	13.9
	Male	62	86.1	86.1	100.0
	Total	72	100.0	100.0	

Table 4. Bio data of the participants (major).

	Variable	Frequency	Percent	Valid percent	Cumulative percent
Valid	Accounting	31	43.1	43.1	43.1
	Economic	32	44.4	44.4	87.5
	Management	3	4.2	4.2	91.7
	Other	6	8.3	8.3	100.0
	Total	72	100.0	100.0	

Table 5. The weights for non-financial measures.

No.	Criterion	Weight	Sub-criterion	Weight
1	Variables related to situation of company	0.238	Export of goods	0.173
2			Corporate structure and shareholders	0.199
3			Nature of stocks (profitable spread)	0.203
4			How to advertise companies	0.118
5			The competitive position of the company and overall industry	0.104
6			Achieving the stated goals	0.080
7			Express corporate plans and outlook	0.069
8			Expression of the major risks of company	0.053
9	Information relating to the company's operating system	0.264	Board structure	0.614
10			Salary and bonuses of CEO and board	0.268
11			Independent auditor and statutory auditor	0.117
12	Information strategy	0.189	Domestic market (market development)	0.528
13			Continuous improvement in the quality of services	0.333
14			Management fees (to reduce the current costs)	0.140
15	Reporting relation to the increase in welfare, health and education staff	0.135	Safety issues such as participation in workshops	0.750
16			Environment, including regular environmental inspections	0.250
17	Social performance reporting	0.109	Energy reports company	0.800
18			Regulations governing environmental impact	0.200
19	Reporting and risk analysis firm	0.065	Risks arising from exchange rate fluctuations	0.667
20			Liquidity risk	0.333

software package.

As can be seen in Table 3, 86% of participants are male and 14% are female. This rate is due to the fact that majority of the population are male and it is normal. It can be seen in the table that from the sample, percent of economic major is 44.4% due to the fact that this major is more than other majors in this study's population.

ANALYSIS OF RESULTS

This study proceeds by making comparisons between criteria and sub-criteria, a pair at a time to determine the relative weights. Table 5 presents the overall scores for the non-financial measures.

Figure 3. Priorities with respect to weights for criterion.

Figure 4. Priorities with respect to weights for sub-criterion.

Figure 5. Priorities with respect to weights for sub-criterion.

Figure 6. Priorities with respect to weights for sub-criterion.

It can be seen in the table the overall scores for the non-financial measures. Information relating to the company's operating system with the weight of 0.264 has highest score among others. After that information relating to the company's operating system, information strategy, reporting relation to the increase in welfare, health and education staff, social performance reporting and reporting and risk analysis firm are the next category. This study finds information about the overall situation of the company very important measures that one company can disclose in statement, and the company should disclose this information efficiently.

Figure 3 shows priorities with respect to weights for criterion. As shown in Table 5, information relating to the company's operating system with the weight of 0.264 has the highest score among others and other measures are in the next category.

Figures 4 to 9 show priorities with respect to weights for sub-criterion. It can be seen that information about energy reports of company with weight of 0.8 has the highest score among others and information about expression of the major risks of company has the lowest scores.

According to this study's results, it was found that in

Figure 7. Priorities with respect to weights for sub-criterion.

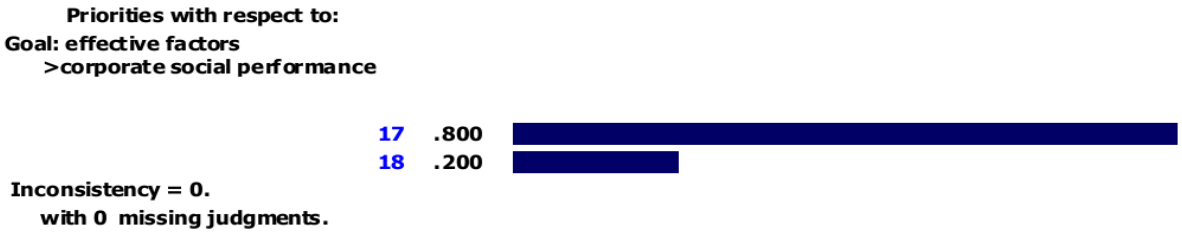

Figure 8. Priorities with respect to weights for sub-criterion.

Figure 9. Priorities with respect to weights for sub-criterion.

priorities with respect to weights for criterion, information relating to the company's operating system with weight of 0.264 is the most important measure that investors are willing to disclose. After that information about the overall situation of the company, information strategy, reporting relation to the increase in welfare, health and education staff, social performance reporting and reporting and risk analysis firm are in the next categories. About the sub-criterion, this study concludes following the ranking that was taken from their weights. Table 6 shows the ranking for non-financial measures (sub- criterion). According to this table, this study finds that these factors are more important and companies should consider them in company disclosure.

Conclusion

In most industries, the book value of a company does not reflect the actual market value of the company. The market and book values were rather close by the end of the 1970s, but since then the picture has changed dramatically. The market value comes from the intangible assets, such as the customer, human resource, partner, and brand assets. In order to understand the gap, there is an obvious need for relevant and reliable information on these intangible assets. Non-financial reporting aims at providing such information to the stakeholders, and in particular, to the present and future investors.

Non-financial reporting practices have become an integral part of the business operations of most corporations. The AHP provides a convenient approach for solving complex MCDM problems in engineering. It should be noted that there is a software package, called Expert Choice (1990), which has significantly contributed to the wide acceptance of the AHP methodology.

The decision-makers may make the pairwise comparison with the help of a computer software package, for example, the Expert Choice (2004). The software, which has been developed by Saaty, the founder of AHP technique, is able to execute each phase of the evaluation and then synthesize these judgments. It is also able to check the consistency ratio (CR) for the pairwise comparisons of each level automatically.

This paper presents a structured framework for

Table 6. The ranking for non-financial measures (sub-criterion).

Sub-criterion	First weight	Second weight	Final weight	Rank
Board structure	0.614	0.264	0.162096	1
Safety issues such as participation in workshops	0.75	0.135	0.10125	2
Domestic market (market development)	0.528	0.189	0.099792	3
Energy reports company	0.8	0.109	0.0872	4
Salary and bonuses of CEO and board	0.268	0.264	0.070752	5
Continuous improvement in the quality of services	0.333	0.189	0.062937	6
Nature of stocks (profitable spread)	0.203	0.238	0.048314	7
Corporate structure and shareholders	0.199	0.238	0.047362	8
Risks arising from exchange rate fluctuations	0.667	0.065	0.043355	9
Export of goods	0.173	0.238	0.041174	10
Environment, including regular environmental inspections	0.25	0.135	0.03375	11
Independent auditor and statutory auditor	0.117	0.264	0.030888	12
How to advertise companies	0.118	0.238	0.028084	13
Management fees (to reduce the current costs)	0.14	0.189	0.02646	14
The competitive position of the company and overall industry	0.104	0.238	0.024752	15
Regulations governing environmental impact	0.2	0.109	0.0218	16
Liquidity risk	0.333	0.065	0.021645	17
Achieving the stated goals	0.08	0.238	0.01904	18
Express corporate plans and outlook	0.069	0.238	0.016422	19
Expression of the major risks of company	0.053	0.238	0.012614	20

determining the key non-financial measures using the analytic hierarchy process (AHP). The AHP is utilized due to its ability for taking into account both the quantitative and qualitative measures.

The main objective of this study is to determine the most effective non-financial criteria and prioritize them. It was found that in criterions, variables that are related to situation of company are more important among others with weight of 0.271. After that information relating to the company's operating system, information strategy, reporting relation to the increase in welfare, health and education staff, social performance reporting, and reporting and risk analysis firm are the next category. This study finds information about the overall situation of the company as very important measures that one company can disclose in statement, and company should disclose this information efficiently.

Finally, making investment decision is not an easy task because it carries with itself the risk of uncertainty. Only a detailed analysis of all aspects of investment can make a rational decision. Using an illustrative example, this study confirmed applicability of the proposed framework to make better decision in the sense of risk minimization through selection of the best alternative.

RECOMMENDATIONS

The goal of this research was to better assess both the supply and demand of non-financial reporting in the current investment climate. It is believed that the results of this study offer academics, investors, corporations and regulators a clearer picture both of investor desires for nonfinancial information and the ways in which various forms of reporting are used. A proposal is therefore made that companies should use the result of this study for making the best disclosure in their report.

LIMITATIONS

In this study, we had some limitations. AHP was criticized for not providing sufficient guidance about structuring the problem to be solved, forming the levels of the hierarchy for criteria and alternatives, and aggregating group opinions when team members are geographically dispersed or are subject to time constraints. Team members may carry out rating items individually or as a group. As the levels of hierarchy increase, so does the difficulty and time it takes to synthesize weights. One remedy in preventing these problems is by conducting “AHP Walk-throughs” (that is, meetings of decision-making participants who review the basics of the AHP methodology and work through examples so that concepts are thoroughly and easily understood). On the other hand, this study encountered some difficulties when the data were been gathered. Some of the samples did not respond to the questionnaire completely; as such, some data were missed.

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