Ranking of insurance companies in Iran using AHP and TOPSIS techniques

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Abstract

The importance of evaluating and ranking in economic and social processes is considered as a necessity for enterprises, so that we can create criteria for a healthy competition in the competitive environment. In this study, we have developed an evaluation model taking into account the indicators identified, in the assessment of seven insurance companies in the ranking and weighting these criteria and companies, the AHP and TOPSIS technique has been used. The results presented an ideal ranking, which can be used in future research with larger population.

Key words: insurance, ranking, AHP, TOPSIS

Introduction

Today, most organizations are operating in a competitive and dynamic environment in which Internal and external variables that are constantly changing, and these changes are very hard and difficult to predict, on the other hand, organizations are spending a lot of time and cost to prepare, formulate and implement their strategies, in order to achieve long-term goals and visions of the organization; therefore, knowing how much the organization has been effective in achieving these goals, and where is position of the organization in today's complex and dynamic environment, is important for managers and organizations. Performance evaluation is the most important strategic process, which while improving accountability, specifies the amount of the realization of objectives and programs of each organization. The remarkable thing is that

organizations recognize this very important issue, and provide necessary contexts to achieve development programs and obtaining necessary feedback from implementation of programs and also try to improve their performance. According to Kaplan and Norton (2007), organizations need to improve their performance in any environment that they operate, and should try to achieve excellence in the performance of their works, this reflects the fact that performance evaluation is always one of the challenging issues in management of organizations, and determination of appropriate indicators for assessing organizational performance to achieve goals and visions of the organization is important. Insurance industry, as a service section plays a compensation and protective role in the economy of each country, so that the successful operations of this industry creates motivation for other sectors of the economy, so to achieve this important issue in every economic, insurance companies, like any other company must have strong and successful performance in doing mission, goals and strategies. Insurance agencies to survive and achieve its objectives should be aware of environmental changes, provide the necessary coordination, that the control is device for achieving this knowledge, in other words, with the help of management and performance evaluation, management can be aware of how to achieve targets and do operations and be able for tracking and evaluating and modifying them as necessary Kaplan and Norton (2007)).The insurance industry, more than any other industry, may gain profit through establishment of relationship between performance evaluation and results and outputs; because foundation for the insurance industry is based on this basis that the interval between making routine decisions and desired outcomes is too long with delay, for example, the effectiveness and efficiency risk analysis f event, and issuing insurance policies until the accidents and damages caused be resolved is unclear. Occurring insurance accidents and settlement process of damages can take two to five years, and even, under certain conditions, this process can take a decade, so pay attention to establish relationship between the assessment criteria of results and functional guide is perhaps the most important parameters considered in the insurance industry. Here, having a combination of criteria of conductor 2 and function 3 is essential for motivating and evaluating performance of business Units (1992 Kaplan & Norton).In the past, due to the activity conditions of public companies and absence of and private sector in the market, a situation arose that led to the lack of discussion about the competition or the quality of services, so the insurer, had no choice and had to accept the conditions that were set. This aspect was not well in the insurance market, and given the current constraints on the expansion of the insurance industry and its proprietary market, fundamental reforms especially in regulation, how to ownership, breaking the monopoly and creation of competitive environment by allowing the establishment private insurance companies to growth and development of the insurance industry seemed indispensable, so in Tuesday, August 28, 2001, was issued a license to establish and operate private insurance companies. At the outset, given the history of public insurance companies in the insurance industry, and being new private insurance companies, and their lack of understanding, these companies have faced major issues and problems, some of them are:

➢ Being new and lack of experience

- ➢ Initial investment is minimal (compared to public insurance companies)
- ➢ Limited sales network
- ➢ Unknown brand and ...

Thus, according to the mentioned problems, and policies of government to improve the country's insurance industry, and creation of a competitive environment in the country, private insurance companies in addition to overcome these problems, must try to reach the opportunity equal to even higher than public insurance companies, and this will not happen unless with a proper performance management and its continuous improvement processes. Performance measurement systems as a means to measure achievement of organizational goals and determining the strengths and weaknesses of the organization, in order to take corrective actions to improve processes are of great importance for enterprise management, and each performance evaluation system has measures to performance evaluation, which the ability and suitability of the indicators in the effectiveness and efficiency of the model, are very important. The main components of each performance evaluation system are criteria of that system, because communication between the performance evaluation model by external and internal environment of organization by the indexes and criteria is established; in fact, a set of performance indicators, and the relationship between the results of which form the a performance evaluation model. Importance of role of indicators in proper evaluating the performance of the organization is evident.

Organizations in the design and selection of performance measures must comply with the principles and framework, criteria must be designed so that they can ensure the efficiency and effectiveness of performance appraisal system; but in most cases, organizations have been neglected at this stage, and most of the criteria are chosen, which don't have ability to measure and evaluate various internal and external aspects, and they can't reveal major and long-term problems of organization, which has been away from the comments(Kaplan and Norton, 2007). In the past, organizations use financial measurement systems to better manage the performance, in the industrial revolution, financial control systems to monitor the situation and use of asset and strategic allocation, seemed enough, but in this century, according to change the existing paradigm and placement agencies and institutions of production / services in the information age, there is a need to redesign measurement systems, because, in the current era, financial indicators alone do not reflect the performance of the organization and do not guarantee long-term success. The Balanced Scorecard[1] method is one of the new tools that will help organizations to measure

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[1]The **balanced scorecard** (**BSC**) is a strategy performance management tool - a semi-standard structured report, supported by design methods and automation tools, that can be used by managers to keep track of the execution of activities by the staff within their control and to monitor the consequences arising from these actions.

The critical characteristics that define a Balanced Scorecard are[2]

- its focus on the strategic agenda of the organization concerned
- the selection of a small number of data items to monitor
- a mix of financial and non-financial data items.

their performance (Alvani2001).Performance measurement systems, in fact, are the strongest and most vital management systems in modern organizations management. Without these systems, strategic decision making and evaluation of the implementation strategies and performance evaluation of organization processes is impossible. In strategic planning, performance measurement systems are only the systematic tools of planners for creating and understanding between levels and different units of organization and strategy transfer to a lower level of organization (Hoph et al, 1999) In this study, we tried to given the importance of the services provided and activities of private insurance companies based on four aspects of BSC (financial, market, customer, internal processes and development), to explore and identify indicators and performance measures of private insurance companies by determination of the importance degree of each of them to provide an evaluation model for these companies.

Insurance companies from different directions are different from each other, these companies can be grouped based on a range of activities (local or international markets), the field of activities (direct or reinsurance), type of activity (life insurance, property insurance, or mixed insurance), the amount of regulatory that applies to them and other elements. It is natural that such diversity is also associated with a variety of organizational patterns and diversity goals. However, the nature of insurance activity regardless of the variety and shapes requires certain specialized operations will be conducted. Insurance companies operating in three fields of vocational (technical), financial activities and administrative services are severable. The main distinction of the institutions or organizations, and also is common among insurance agencies, initially, technical activities and somewhat their financial activities approach. Insurance companies do different processes for their professional practices, but referring to existing literature considering that experts in this field agree on these operations (the oppressed, 2002)

- ➢ Determination of Rate
- ➢ Production
- ➢ Insurance
- ➢ Settlement of damages
- ➢ Investment

Activities listed in all insurance companies are not run at the same level. Various factors have role in the dominance or lack of dominance insurance companies to showcase operations successfully. Responsibilities of each of the fields listed are in charge of a particular area in the organization, so a brief explanation about each of them seems to be necessary:

Determination of Rate

Insurance rate is price per unit of insurance that is sold, and like any other price, the cost function is considered. It is important to note that pricing in the insurance and determination of final price of insurance good unlike other products is performed on the basis of statistical estimations and forecasts.

Production

One of the critical tasks insurers is to attract sufficient policyholders; otherwise, the company would not continue. This function is called "production", and is synonymous with sales operations in non-insurance organizations. Insurance is something invisible good, and as long as the insurance is not sold, that does not externally, therefore, giving up name of production to sale, does not much meaningless.

Insurance

Settlement of damages

This means the administration of compensation claims made by policyholders, including damage reported assessment, settlement of losses and settlement with insurer.

Investment

Premium received from policyholders are not immediately consumed for losses, depending on the type of insurance remain long time for insurance companies. The total amount of the premium are collected with reserves and invested by insurance companies. Investment income, are considered as an important factor in the success of insurers. This income in one hand is considered as an important variable in the process of setting rates and at the same time, insurers' financial wealth, especially in the field of life insurance is based on it. Usually specialized departments of insurance companies are responsible for the task of promoting the aforementioned operations. These offices, along with other administrative and support offices are constituents of insurance companies. About insurance companies can also be argued that an organizational template and sample unit is not the panacea to all problems. These companies like other businesses, consciously or unconsciously (during the course of evolution of the institution) select and utilize the combination of elements in the form of a single organization. These compounds make possible resolve problems arising from activities in the various environments. External manifestation of such a choice in a variety of organizational structures which are used known as the task organization names, or structure based on product-market, regional organization or hybrid structure, can be identified. By using brief description given about the specific operations of insurance companies, several points can be extracted. The importance of this discussion is that it has an impact on the important points in main elements of organizational structure includes focus (and decentralization), specialization (specialization), Matching (standardization) and shape (block):

In the insurance sector, insurance companies are facing with inconsistency in information in process that leads to their decision-making. It could be lead to something like "wrong choice" or "moral hazard". The other hand, the method of determining the price in insurance is generally based on statistical calculations and estimations, which necessarily, the uncertainty is not enough. Insurance is an intangible product, so the buyer cannot check it, and its utility value

cannot be determined with complete accuracy, so providing this product in sales time and support of the product at the time of the settlement of a damage need high-quality service. The "middleman" factor in the form of branches, insurance agents or brokers, plays a decisive role in the success of the company, ie, the importance of channels of distribution, how organization and their control is far more than other services. This issue shows the importance of selecting, training and motivating staff. In addition to the above, two other points are important, first most insurance companies during the two decades have been away from product-oriented organizations into customer-oriented organizations quickly. In this changing situation, actors of the insurance industry particularly consumers, legislators and staff have a key role. Another, environment of these companies is increasingly more complex and dynamic. Environments with consistency and stability which provided possibility of product-oriented for the companies were now replaced by the turbulent and dynamic environments and they have become competitiveness to a strategic issue for the companies. Above points and issues have a direct impact on the organizational structure of insurance companies and the changes arising in these structures (*Mousseau, V.; Slowinski, R. ,1998)*.

Insurance is a financial intermediation process, because the production cycle is reversed in it, ie, individuals pay the price for services before receiving it. Gross premiums are used to pay fees of insurance company representatives and administrative costs of the insurance company. Final services of the insurance company is done at the time of damage, so compensation to the insured people is considered as service or output of a insurance company (*Chien-Chih,Yu ,2004)*. Since the losses do not occur necessarily on the year in which the premium is received, technical reserves represent liabilities of the insurance company to insurer; in determining the types of reserves the company uses one of the two basic techniques:

Capitalization Technique

In this technique, the company to protect its ability against future obligations, stores a part of the premium, for example, in life and pension insurance, this technique is used. Although insurance is not intended to save funds (at least in the usual sense of this term, which the transfer of purchasing power is from one time to another time), is insurance contracts, which are based on this technique, medium- or long time reserves be provided, which is Investable in productive areas that their duration is equal to the length of the contract matures.

Compensation Techniques

In this technique, the premiums collected during a year are used to cover immediate losses at the same period; in simple terms, the reserves of company are the damages that has to be settled, but are not paid during the financial or budget year. In this case, insurance operations may lead to the creation of short-term reserves.

Participation of the insurance industry in the national economy through investment of technical reserves in all financial and real assets will be realized. Return on these investments is another important source for insurance companies. Insurance companies can increase their net worth through reinvest a part of (or all) of the proceeds of the performance of each company in each year. Proceeds of the insurance operations are realized when income from premiums is over the

necessary funds to pay all expenses and compensation, and there are suitable reserves to fulfill obligations towards policyholders.

Literature

Research conducted in MADM, both in Iran and in other countries are summarized in Table 1, And also the conceptual model presented in Figure 1.

Table 1. Similar research conducted

| Researcher	Year	Research topic	The results
Pourkazemi and Najafi	2006	Ranking civilian stores, with an emphasis on education standards and creativity, using MADM techniques	Easy access to performance measures and major decisions such as the development of stores, and the prioritization of women, improve staff efficiency and better determine and remedy the problems
Hawkins and Adams	1974	Goal programming model for capital budgeting	They proposed a goal programming model. Ideal planning was an approach in which a multi-objective capital budgeting issues were considered. In this approach, the weight and importance of multiple objectives with respect to the preferences of decision makers are considered.
Reveces and L. S. Franz	1985	Multi-objective linear programming, interactive simplification	Given the difficulty of measuring the preferences and priorities of the decision-making, they proposed multi-objective linear programming, interactive simplified (Simplified Interactive Multiple Objective Linear Programming). In this model the interaction processes by a decision maker to identify priorities were presented.
Khorshid, Taslimi, Karolox, badie and Jafarnejad	2004	Ranking and selection of research projects under the fuzzy group decision by using TOPSIS method	Providing a real application for ranking and selection of projects in Telecommunication Research Center in Iran
G.A. Mendoza and H. Marthins	2006	Multi-criteria decision analysis in natural resource management	The limitations of the traditional model are criticized and according to multiple criteria decision making in the planning of resource management and forests, a solution for the problem is presented.
James W Rudge et al	2013	Distribution of Health selected resources for responding to pandemic influenza in Cambodia's	Identify disparities in the distribution of limited health care resources distributed across Cambodia and Cambodia, which is readily available.
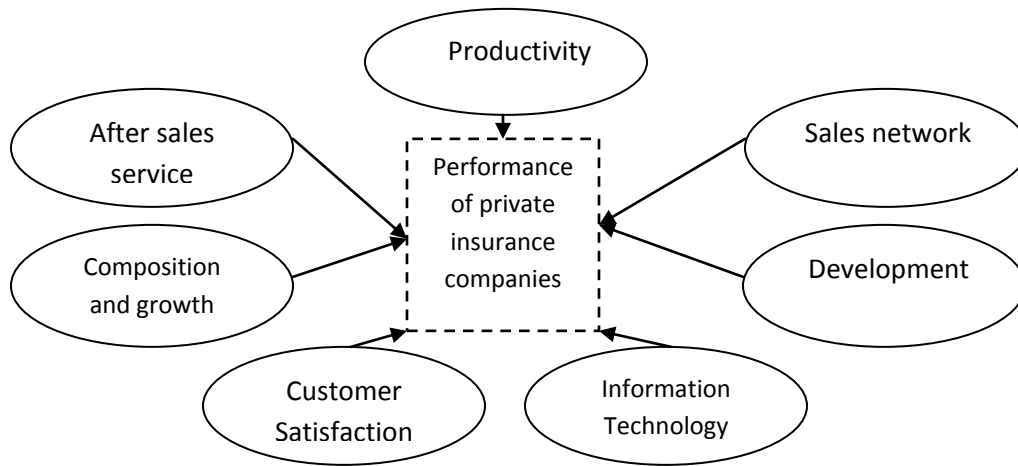
Figure 1: Hoph, RH,et al, 1999.

The method of the study

In this study, we tried to weighting criteria by the experts and using AHP techniques weighted and then in survey we tried to rank the seven insurance companies by using TOPSIS technique. Results of weighting for seven indexes according to the method of AHP that is extracted from EXPERT CHOICE software are as the following figure 2:

Figure 2: Result of AHP

In the analysis of statistical results obtained about the factors related to the prioritization evaluation criteria of insurance companies, the highest weight is related to productivity, and the

lowest index is related to sales network. Due to the weights extracted, we tried to rank the insurance companies by using the TOPSIS technique.

Results of ranking are as follows (Table 2):

Table2: Results of ranking

0.642253	IRAN
0.584679	ASIA
0.477003	PASARGAD
0.43602	DEY
0.320089	MOALLEM
0.302297	KARAFARIN
0.241472	PARSIAN

Conclusions

In this study, we could solve a ranking problem as optimal by using combination of multi-objective decision-making techniques, in the previous studies, this important issue was achieved, but according to the various metrics, quality of ratings cannot be compared to previous research. Therefore, in future research, we can achieve a comprehensive model and pattern, and we can rank in the larger community with more companies.

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