Design of Financial Indicators Assessment Model for Iran Hospitals

Abasat MIRZAEI1, Seyed Jamaledin TABIBI2,*, Amir ASHKANNASIRIPOUR3,
Leila RIAHI4

1Ph.D Student, Health Services, Islamic Azad University, Science and Research Branch, Tehran, Iran.
2Professor of Health Services, Department, Faculty of Management and Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran;
3Associate Professor, Health Services Management Department, Islamic Azad University, Science and Research Branch, Tehran, Iran.
4Assistant Professor, Health Services Department, Islamic Azad University, Science and Research Branch, Tehran, Iran.

Received: 22.03.2015; Accepted: 29.05.2015

Abstract. Today, health system forms one of the greatest economic parts of the world and policy makers of health sector should take advantage of financial assessment indicators to find sufficient knowledge and understanding about costs and revenues of hospitals. The present study intended to offer a model for financial indicators assessment of hospitals in Iran in order to provide a filed for establishment of a systematic system of financial performance assessment of hospitals. 

Methodology: The present study consisted of a combination of two methods including hierarchy analysis and systematic review analysis. After extracting indicators of hospitals’ financial performance assessment, the proposed model was approved by using Analysis Hierarchy Process (AHP) and scholars group consisted of 62 person.

Findings: indicators were determined in a nine-group including indicators of profitability, liquidity, capital structure, quick ratio (Acid test), revenue, cost, proficiency, efficiency asset ratio (management) and other financial ratios and their sub-indicators were prioritized and weighted. Among mentioned indicators, highest priority was related to profitability indicator (.246) and lowest priority was related to other financial ratios (.010).

Conclusion: indicators of profitability, liquidity and capital structure had the highest weight. Indicators of financial performance assessment can determine financial state of hospitals, and identify Strengths and weaknesses of hospitals for strategic decision-making, and finally, it can be a comparison basis for different hospitals.

Keywords: Financial Indicators of Hospitals, Hospital Performance, Hospital Assessment, Financial Assessment

INTRODUCTION

Today, health systems form one of the greatest economic parts of the world. Universal health care costs constitute about 8 percent of Gross Domestic Production (GDP). In most developing countries about 5 to 10 percent of government’s expenditures have been devoted to the health sector (Shojaei Tehrani & Ebadi Fard, 2005), and nowadays, economic assessment of the performance of units providing health services have become an important subject and using results of assessment as a management tool that cannot be ignored, has been generalized for all managers in different levels of health system (Retzlaff-Roberts et.al, 2004). Managers of health sector are interested to know whether they manage is more efficient than other units? If there is difference, how much is the difference between their efficiency? Which promotion method of efficiency is better to be used to promote using sources? Which managers have better performance? Do
efficiency outcomes always result from manager’s performance? These questions and dozens of other questions represent the application of economic analysis management of health centers (Marschall & Flessa, 2008). Where the performance of the hospital is not evaluated and measured, definitely no action will be done for its improvement (Veillard et al, 2008); therefore, assessment and improvement of performance are two sides of a coin which will result in action for the former, and change for the later. Lack of an efficient system of performance assessment makes accountability of hospitals and performance improvement be delayed across the country. Today, designing a performance assessment system has become a necessary and urgent action (Groene et al, 2008).

In the past, performance of health organizations was assessed by therapeutic indicators and quality of services was only guaranteed by technical knowledge of professional medical employees and nurses; however, nowadays, health organizations are complex organizations that need a strong support of management in the field of economic performance assessment (Smith PC & Mossialos, E, 2008). Economic-financial analyses provide a logical and special framework for analyzing important subjects in health cares (Rezapour & Haqparast, 2006). Suarez, V. et al (2011) in a study entitled “Using Financial Indicators in Local Public Health Agencies” by examining procedure of using financial indicators in performance assessment of public health agencies considered reasons of lack of attention to financial indicators in performance assessment of public health agencies. Currently, scholars and scientists of management filed emphasize the importance and place of performance assessment models as one of the most reliable development indicators of societies and organizations and as an important and effective factor for achieving development aims in personal and social dimensions. Thus, one of the concerns of recent organizations is achieving a comprehensive, reliable and flexible method of performance assessment in order to receive exact and sufficient information about their current place by using such method and learn from previous errors by looking ahead (Imad, 2006).

Since efficiency is the most important and common business for assessing and measuring the performance of an economic firm such as hospitals, in the past few decades, consideration of performance of different parts of firms and economic units in a macro and micro level through efficiency measurement has attracted the attention of researchers (Qaderi, Goudarzi and Gohari, 2006). Therefore, due to the fact that in the health system, efficiency assessment is considered as the first step in performance assessment of different parts of Health department, it would be possible to provide a logical framework for distribution of human and financial resources in different parts by using efficiency assessment and measurement (Kontodimopoulos, 2006).

Preparing transparent financial reports is one of the most important cases which have been created by implementation of accrual accounting at Iran Universities of Medical Sciences and Health Services. Due to the fact that such reports are offered to authorities and policy makers on time, they can help planning and budgeting remarkably (Abolhalaj & Ramezanian, 2010). For making decisions about allocation of resources and its control and confidence of effective and efficient use of resources under their authority, managers need accounting information as one of the most important tools for decision-making. Moreover, financial reports as the most important goal of the government reporting provide the possibility of managers’ financial accountability (Abolhalaj et al, 2012).

At the present time, performance assessment in Iran hospitals is basically focused on legal requirements and achievement of goals according to accreditation standards of hospitals, and other internal assessments are done in form of a case and based on specific needs or in form of outspread in different parts of hospitals. Finally, it is stated that as some hospitals face the problem of hospital revenue insufficiency for supplying their fixed, current and developing costs and staff managers have difficulty in identifying financial performance quality of such centers in the field of revenue supply, in addition to offered services and due to the complexity of existing processes in cost system of hospital revenue, interference of heads of hospitals when scientific patterns are not obeyed, in such hospitals it would not be possible to improve decision-making about development processes of management and centered resources and also revenue would not
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be increased. Thus, the project of identifying proposed indicators in financial performance assessment of hospitals and modeling such indicators to identify successful and unsuccessful hospitals and promoting financial performance of hospitals are necessary and inevitable.

Aim: the main aim in the present study is to offer a model of financial performance assessment for Iranian hospitals in order to provide a filed for establishment of a systematic system of hospitals’ financial performance assessment.

Methodology: the present study consisted of a combination of two methods of hierarchy analysis and systematic review analysis. For codifying theoretical foundations of the study, systematic review analysis was used; based on obtained results and after extracting financial indicators of hospitals’ performance assessment, then the study continued in form of multi-criteria decision-making techniques, by using a designed questionnaire and applying analysis hierarchy process (AHP) and the proposed model was approved. Experts group included 62 person of known individuals from academic experts and experienced professors or successful managers and experienced experts that most of them were responsible for decision-making of assessment system of financial performance especially in Medical Sciences Universities and Social Security organization.

Findings: according to research findings, 77.5% of research participants were male and hospital managers form a major proportion of participants with 59.6 percent; financial experts and authorities of Health and Medical Education Ministry formed the lowest proportion with 8.15 percent; job experience of participants was equal to 11.48 ±5.37 as well as their age average was equal to 42.63 ±8.35. Among the 9 effective financial components on financial performance, participants believed that the highest priority was related to profitability indicators (.246) and lowest priority was related to factor of other indicators (.010).

Among previous studies, those factors and infrastructures related to assessment of hospital financial indicators presented separately and in the next stage by using opinions of professors and scholars of this field and factors that had the most effect on hospitals’ financial indicators assessment were selected. In AHP process, first, aim, standards and sub-standards were determined (diagram 1).

Diagram 1. Aim and main standards in analysis hierarchy process.

Table (1) shows paired comparison matrix and based on it, total score of each component was observed inform of raw data obtained from the samples that to achieve deeper results, it was approved by normality test.
Table 1. Paired comparison matrix of effective components on financial performance.

<table>
<thead>
<tr>
<th></th>
<th>Profitability indicator</th>
<th>Liquidity indicator</th>
<th>Capital structure indicators</th>
<th>Quick ratio</th>
<th>Revenue indicators</th>
<th>Cost indicators</th>
<th>Efficiency indicators</th>
<th>Asset efficiency ratios</th>
<th>Other financial ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability indicator</td>
<td>1.00</td>
<td>21.00</td>
<td>-11.00</td>
<td>3.00</td>
<td>21.00</td>
<td>-3.00</td>
<td>17.00</td>
<td>-5.00</td>
<td>19.00</td>
</tr>
<tr>
<td>Liquidity indicator</td>
<td>0.05</td>
<td>1.00</td>
<td>3.00</td>
<td>15.00</td>
<td>-17.00</td>
<td>-11.00</td>
<td>-23.00</td>
<td>-23.00</td>
<td>11.00</td>
</tr>
<tr>
<td>Capital structure</td>
<td>-0.09</td>
<td>0.33</td>
<td>1.00</td>
<td>-9.00</td>
<td>21.00</td>
<td>-5.00</td>
<td>-25.00</td>
<td>-23.00</td>
<td>13.00</td>
</tr>
<tr>
<td>indicators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Quick ratio (acid test)</td>
<td>0.33</td>
<td>0.07</td>
<td>-0.11</td>
<td>1.00</td>
<td>27.00</td>
<td>-7.00</td>
<td>-17.00</td>
<td>-21.00</td>
<td>17.00</td>
</tr>
<tr>
<td>Revenue indicators</td>
<td>0.05</td>
<td>-0.06</td>
<td>0.05</td>
<td>0.04</td>
<td>1.00</td>
<td>19.00</td>
<td>21.00</td>
<td>17.00</td>
<td>17.00</td>
</tr>
<tr>
<td>Cost indicators</td>
<td>-0.33</td>
<td>-0.09</td>
<td>-0.20</td>
<td>-0.14</td>
<td>0.05</td>
<td>1.00</td>
<td>-21.00</td>
<td>15.00</td>
<td>17.00</td>
</tr>
<tr>
<td>Efficiency indicators</td>
<td>0.06</td>
<td>-0.04</td>
<td>-0.04</td>
<td>-0.06</td>
<td>0.05</td>
<td>-0.05</td>
<td>1.00</td>
<td>17.00</td>
<td>21.00</td>
</tr>
<tr>
<td>Asset efficiency ratios</td>
<td>-0.20</td>
<td>-0.04</td>
<td>-0.04</td>
<td>0.05</td>
<td>0.07</td>
<td>0.06</td>
<td>0.05</td>
<td>1.00</td>
<td>21.00</td>
</tr>
<tr>
<td>Other financial ratios</td>
<td>0.05</td>
<td>0.09</td>
<td>0.08</td>
<td>0.06</td>
<td>0.06</td>
<td>0.06</td>
<td>0.05</td>
<td>0.05</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Corresponding author. Email: sjtabibi@yahoo.com

Special Issue: Technological Advances of Engineering Sciences

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According to research findings, all indicators and sub-indicators were prioritized from the viewpoint of scholars (diagram 2).

**Diagram 2.** Priority of all indicators and sub-indicators.

Overview of input research indicators for assessment of hospitals’ financial performance is presented in the following figure.

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*Corresponding author. Email: sjtabibi@yahoo.com

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DISCUSSION AND CONCLUSION

Various studies have been done with the aim of identifying, designing and using financial indicators for hospitals in which financial indicators have been selected due to their defined unique features of that hospital. This matter, due to the difference between hospitals in mission and goals, methods of financial afford, needs of the supported population, methods of reimbursement of insurance companies, type of property and issues like this is an evident matter (Janati et al, 2014). Generally, in the field of financial performance assessment, each new method is codified with the aim of improving and solving problems of previous models (Vandenberg, 2003).

In a study by Love et al (2008), despite the fact that they obtained 13 indicators with the mean of 4 or higher in the two dimensions, 6 indicators were identified as the most important financial indicators for decision-makers of health care. In a study by Pink et al (2006), 9 indicators in 5 performance dimensions were introduced as the key indicators for acute care hospitals. In a study by Watson, management information systems of Canada (MIS) was accepted as a data source for calculating and comparing financial indicators in acute care hospitals of Manitoba state (Watson et al, 2002). Also in a study about Tabriz city, in order to achieve real value of each indicator in Health and Education Hospitals of Tabriz Medical Sciences University, the “new financial system” was used as an information source in each hospital (Janati et al, 2014).
Barak studied incremental information content of cash and accrual ratios for performance assessment of organizations (Brak, 2010). In a study by Holms et al, final indicators were classified into 6 dimensions of profitability, liquidity, capital structure, revenue, cost and efficiency (Pink et al, 2006). In the present study, identified indicators were classified in 9 areas of profitability indicator, liquidity indicator, capital structure indicators, quick ratio (acid test), revenue indicators, costs indicators, efficiency indicators, asset efficiency ratio (Management) and other financial ratios and their sub-indicators were also determined. Time interval considered for choosing related articles was different from some studies; additionally, in Pink’s study, introduced indicators were considered in other industries that in this study, studies in the health filed were only considered and there were some differences between this study and the present study in this respect. Differences are more in number of extracted indicators in each group and this subject does not necessarily represent a basic difference between studies. Indicators such as profitability, liquidity, revenue and cost in a hospital area are among indicators which were addressed similarly in all studies. 

In the present study, it was concluded that identifying appropriate indicators for assessment of financial performance in hospitals was stated in form of important role of assessment and functionality of using each separate group of indicators in terms of functional use for ranking countries’ hospitals. When comparing, nature of hospitals should be considered. For instance, comparing hospitals with medical mission with hospitals with education, research and medical mission may undermine comparison basis. 

When using hospitals’ financial indicators and generalizing data for comparing state of hospitals’ financial performance, some limitations should be considered which include: the difficulty of comparing various organizations due to possible differences in organizational mission, accounting methods, effect of inflation and content difference of ratios among different hospitals. Heads of hospital can benefit from the proposed model in this study to understand financial performance of their hospital better compared to other hospitals that have similar features and design necessary amendatory actions. It is suggested that managers and policy makers of hospitals promote efficiency of hospitals by focusing on outcomes through using the proposed model and better understanding of financial performance measures and make a health care system with a dynamic management.

REFERENCES


