The managers' utilization level of management accounting information in decision making

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Abstract: Background and Purpose - This paper seeks to answer this question that whether the managers of Daroupakhsh company's subsidiaries use the management accounting data in their decision makings. Materials and Methods - After investigating the issue, designing relevant questionnaires and analyzing the results with statistical methods and SPSS software, and also interviewing people and reviewing the environment and the performance indicators in accounting, it was identified that essentially in these companies the managers do not use management accounting data in their decision makings and their status in accounting performance evaluation is not evaluated as favorable either. The statistical society of this study consisted of 92 middle to senior managers from Abu-Rayhan, Exir, Damlaran, Daroupakhsh, Razak, and Zahravy pharmaceutical companies, of which, based on statistical methods, 67 people were selected as the sample society. However, in order to increase the accuracy of sampling and the results, 3 were added to the sample society.

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1. Introduction

Results of the decisions and annual performance of a company are discussed over a multi-hour session, attended by the majority of shareholders and owners of the company, which is called the general assembly, and since awareness of important events that have occurred is the legal right of shareholders, companies' managers must respond to all raised questions comprehensively and transparently. If decisions are made based on relevant information and documentation, complete, on time, and valid, the responses will have a reliable and dependable foundation. On the other hand, due to the managers' responsibilities for the facilities and resources belonging to shareholders, negligence in making the correct and effective decisions cause the available resources not to be optimally utilized.

The importance of these issues is to the extent that forces the management to use all effective Information in decision making and since the decision making process in industrial corporations is very complex, accurate and efficient decisions require an effective information system. The most important information system in each company is the management accounting system, which, by providing information in various fields, leads to awareness in the decision making process and plays a leading role in success, promotion of objectives, and achievement of an excellent performance. Because of this, the present study is to examine the effects of management accounting system's data on the decisions of managers of pharmaceutical companies.

1.1. Statement of the problem and research objectives

The optimal levels of international standards in terms of competitiveness, quality, and export, combined with effective and efficient production and improvement of productivity, and efficient function of management science's findings, are achieved through implementation of management information systems, particularly the management accounting information system, for decision making.In today's world of business, one of effective factors in the competition market is customer satisfaction and achieving this important objective requires having high effectiveness, high efficiency, and high productivity in product quality, and reducing the costs, and since the major part of management accounting systems' information are for control and reduction in costs, and better production with competitive cheaper prices is also a factor for success in market, the appropriate and effective use of management information systems in planning, budgeting, and particularly in decision making seems necessary. The main problem that is discussed in this study is whether the inadequate turnover in selected companies from Daroupakhsh is due to lack of management accounting information utilization in their decision makings. Therefore, in this study it is attempted that by evaluating the level of selected companies' managers' use of management accounting information in their decision makings, their performance is evaluated according to management accounting indicators.

2.1. Hypothesis, time, and place of study:

The assumption in this study is that Daroupakhsh's selected companies' managers do not consider management accounting information in their decision makings. The study is based on data collected between the beginning of fiscal year 1381 and the end of fiscal year 1385 in a number of pharmaceutical companies including Exir, Daroupakhsh, Aburaihan, Zahravi, Damlaran and Razak pharmaceuticals.

2. Material and Methods

In research methodology this study is descriptive and in research goals it is a practical one. In descriptive research the researcher tries, without any manipulation and subjective judgments, to report and to deduce exact results. But in a practical study, after a controlled, experimental, and critical systematic study of the phenomena, the possible relationships between these phenomena are guided by theories and hypotheses.

1.2. Statistical society

Statistical society of this study includes all middle to senior level managers of Abureyhan, Exir, Damlaran, Daroupakhsh, Razak, and Zahravy pharmaceutical companies that contains 92 people.

2.2. Statistical sample and sampling method:

Considering the size of statistical society in this study and based on the statistical correspondent related to determination of sample society, selected sample volume was chosen to include 67 people, and to increase the validity of the study 3 people were added to the statistical sample.Since managers had to be chosen as representatives of all six of the aforementioned companies, stratified random sampling was used. Therefore in this study, classes, consisting of six pharmaceutical companies, and the number of samples selected from each company were as follows:

Table1: It has shown samples selected based on stratified random sampling

Company	Society Volume	Sample Volume
Aburayhan	8	6
Damlaran	8	6
Daroupakhsh	38	28
Exir	15	13
Razak	12	9
Zahravi	11	8
Total:	92	70

3.2. Data collection methods

The main instrument used to evaluate the variables in this study is questionnaire. So a questionnaire was designed based on Likert's five-point scale, including 25 questions.

For the design of questions, theoretical foundations in the field of management accounting was used and on these basis, meaning wise, the questionnaire was divided into twelve parts as follows:

1. Management accounting objectives, questions 1-4
2. Balanced scorecard, questions 5-8
3. On time inventory management, question 9
4. Total quality management, question 10
5. Continuous improvement, questions 11-13
6. Coast management system, questions 14-16
7. Modeling, question 17
8. Reengineering, question 18
9. Cost behavior, question 19
10. Budgeting, questions 20-23
11. Activity-based costing, question 24
12. Organizational status of management accounting

To make data collection more accurate and reliable, each respondent was interviewed separately and face to face so that all of them have the same conception of the questions.

On the other hand, in a quantitative evaluation, these companies performance was studied using performance appraisal indicators in management accounting. Then, considering each of these companies as an investment center, their performance was studied using the important variables of return on investment (ROI) and residual income (RI).

4.2. Reliability and validity of research

To increase the validity of research, the design questionnaire, and the measurement indicators used, the opinions of advising and consulting professors and study of related articles and books were benefited from.The reliability (stability) of a questionnaire means that if this study is conducted again by another person or by the same researcher, at other times and places, the same results are achieved. Usually, the validity coefficient ranges from zero (no correlation) to +1 (perfect correlation). In this study, Cronbach's alpha was used to calculate the reliability of the questionnaire. The alpha level obtained with SPSS software is 88%, indicating acceptable validity of the questionnaire.

5.2. Methods of data analysis

To assess the research hypotheses, the most important and most efficient statistical exam is the one-sided t-test and since the selected sample has over 30 people, the t-test has become a Z test:

$$Z = \frac{\bar{x} - \mu}{\frac{Sx}{\sqrt{n}}}$$

On the other hand, to confirm the results of the Z test, binomial test with a ratio of 0.6 was used. Analyzing the findings of this study has been done with techniques and methods of inferential statistics and to describe some characteristics of the sample the usual methods of descriptive statistics such as frequency tables, calculation of average indicators, and bar charts have been used.

6.2. Definition of management accounting and its difference from financial accounting

1.6.2. Management accounting as defined by the American Management Accounting Association is expressed as follows:

Management accounting is the process of identifying, measuring, collecting, regulating, analyzing, and presenting financial information to managers for planning, evaluation, operations control, ensuring optimal use of resources, and responsibility for how the resources are used. Management accounting also includes the preparation and presentation of financial reports to users outside the scope of organization's management, such as shareholders, creditors, and legal and governmental authorities. This definition is also approved and accepted by other professional bodies including the Certified Management Accountants Association of England and the International Federation of Accountants is also. Based on this definition ,it can be said that financial accounting is a subset of management accounting. The following table outlines the differences between financial accounting and management accounting.

Table 2: differences between financial accounting and management accounting

Management accounting	**Reference**	**Financial accounting**
Domestic users: employees and managers	The main users of the reports	External users: shareholders, creditors, and legislators
On demand internal reports	Reports	Financial statements, quarterly and annual reports
Specific objectives for specific decisions	Reports' objectives	General objectives
Concerning the business units, very detailed and Descriptive, beyond clerical accounting, standards are related to decisions and do not follow accounting principles	Reports' content	Related to the whole business , very general, limited to clerical accounting and cost information, and follows the principles of accounting
No independent auditors	Control process	Auditing by independent auditors

7.2. The main role of management accounting information

Management accounting information usually plays three important roles in the organization, which are: 1- Problem solving 2- Concluding and reporting 3- leading. On the role of problem solving, with a comparative analysis of study results and operational estimates, the appropriate solution or solutions are presented to managers so that they can make the best decision. For concluding and reporting, the necessary and evaluated information is delivered, in a timely manner, to all levels of management and the managers are informed of the past performances, the results, and what to do next. And in place of leading, it guides the managers towards opportunities.

8.2. Activities related to management accounting

Activities related to management accounting are:

1. Explaining and describing production and non-production costs and how they should be reported on financial statements
2. Costs calculation for creating a service or manufacturing a product
3. Determination of cost behavior as an activity level and analysis of their relations with production volume and profits in an organization
4. Help the management in profit planning and regulating these programs in the structure of budget
5. Creating foundations for controlling costs by comparing actual results with planned objectives and standard costs
6. Collect and presentation of information for management decision making
7. Determination of price for internal and external trading

9.2. Basis of cost management in management accounting

To perform their duties effectively, managers require information. A very important type of information is the information concerning cost, for instance, questions like the following should be considered by the management:

a) What costs exist in the manufacture of a product or creation of a service?
b) If production volume is reduced, will the costs decrease?
c) How can costs be best controlled?

Generally, the costs used by management can be divided into two categories a) The production costs including direct costs of materials and labor costs b) Periodic costs

In this study after analyzing management accounting topics and management models, containing activity based costing, activity based management (ABM), in time inventory management system (Just In Time), balanced scorecard, continuous improvement including target costing, Kaizen costing, modeling, reengineering, total quality management, and theory of constraints - and deviation surveys, the aim was to clarify the capacity of management accounting in helping managers with decision making.

10.2. Nature and definition of decision making:

Decision making is the selection of the best solution among the available options in order to achieve one or more specific objectives. Decision making involves a complete process in which the objectives are set, the tasks are defined, the solutions are studied, the choices are made, and the projects are developed.

11.2. Decision making stages

Decision making stages can generally be described as follows:

1. Observation
2. Problem Identification
3. Goal Setting
4. Understanding the Problem
5. Solution Nomination
6. Solution Assessment
7. Solution Selection
8. Solution Implementation
9. Control

12.2. Decision making process

Professor Herbert Simon divides the decision making process stages:

a) Browsing: At this stage all the situations that require decision making are identified with the help of available data, and since management accounting provides information from both extra-organizational and intra-organizational levels to decision makers, it plays an important role in this phase.
b) Designing: At this stage, with selection and comparison of data and figures and determination of their correlations, past completed events are studied and predictions are made about the possible future results of ongoing and unfinished ones.
c) Selection: At selection stage all possible solutions are analyzed and, after studying the probable outcome of all solutions, either one of the solutions is accepted as the most favorable, or a new one has to be thought of.

13.2. The place of decision making in management

As it is known, the content of a manager's job varies with such factors as the size of organization, the level of management, and the manager's specific tasks. However, managers perform several important tasks, some of whom may be more important than the others. Similarly, the type and nature of made decisions can vary depending on the decision maker's position in the organization. So decision making is an important part of management.

Harrison believes management to be decision making, meaning that management is synonymous with decision making.

14.2. Types of decision making in management:

Not all managers make similar decisions, because their different positions in the organization and different duties require different decisions. One way of classifying decision making is to determine which people are responsible for them, and consequently organization's decisions are viewed from two directions, each divided into two general categories as described below:

i. Strategic decisions and Operational decisions

   Operational decisions are those that are directly connected to the work process and the running operations of the organization and often involve a specific part of the organization. Whereas strategic decisions affect the future of the whole organization, have long term effects and importance, and cannot be decided through common procedures. The latter, because of the fast environmental and technological changes, are also prone to having a higher rate of error.

ii. Structured and Unstructured decisions

   In structured decision making, the problems' structure is clear and possible solutions are well-defined, therefore the decision maker has sufficient knowledge of the problem and decision making procedures, and in other words, decisions can be planed. But in an environment where the goals are uncertain and solutions are not specified, unstructured decisions have to be dealt with.

Performance appraisal in management accounting, considering responsibility accounting

Responsibility evaluation accounting refers to the different concepts and tools that enable management accountants to assess the performance of related sectors and individuals and to ensure the coordination of objectives. Responsibility accounting is a part of management accounting which includes collection and reporting of costs and related incomes and helps the managers in their routine decisions.

Of course some people consider responsibility while equivalent to budgeting, whereas in the nature of performance reports and controllable and uncontrollable circumstances they differ. In reality, management accounting by studying controllable and uncontrollable revenues and costs with responsibility accounting is after presenting the management with solutions to increase revenues and reduce costs.

15.2. The main criteria for performance measurement in management accounting

There are three different criteria for evaluation of a company's, as an investment center, performance in management accounting, which are as follows:

1. Return On Investment
   It is defined as:
   ROI= Income/Invested Capital
2. Residual Income
   This indicator studies the company's investment in new assets and the managers use it to determine at what cost rate these assets have been obtained. It is calculated by:
   RI=ICI-(IC*II)
   RI=Residual Income
   ICI=Investment Center Income
   IC=Invested Capital
   II=Imputed Interest
3. Economical Value Added
   The latest criterion for evaluation of an investment center's performance is Economical Value Added which is:
   EVA= Operational Income after tax-[(Investment Assets-Running Debts)-Weighted Average Cost of Capital]

3. Results

The results of this study can be divided into the two following groups:

A. Results from the questionnaires' information
   a. After conducting two statistical tests and gaining confidence with the accuracy of the results, it was made apparent that the managers in the reviewed companies have not utilized management accounting information in their decision makings.
   b. Considering that management accounting is a scientific and documented process of identifying, measuring, analyzing, interpreting, and organizing information for decision making, planning, evaluation, and operations control in line with organizational objectives, decision makings of managers in the reviewed companies are not based on scientific methods and are likely to have been made based on experience and past practices.
   c. The managers' responses to how the decisions have been made, did not have a reliable and dependable basis in scientific methods, and this constitutes a lack of optimal application of available resources and national wealth. It seems that the use of scientific techniques and information systems in the pharmaceutical industry, because of its nature and type of production, is higher than other domestic industries ,but this study indicates the absence of scientific standards in decision makings.
   d. The state of all 12 parts of the questionnaire was studied with the Friedman test and the calculation of average response in the five-level Likert spectrum and the following results were obtained:
      i. The companies completely neglected the processes' reengineering and activity based costing method, which is the main point in management accounting's data production. There was also no sign of these companies' utilization of available On-Time management systems, which have revolutionized the production planning, sales, and warehousing in companies.
      ii. The company, staff, and managers' activities' productivity measurements have not been performed with scientific methods, and have been probably made based on conceptual and experiential assumptions and personal opinions.
   e. Continuous improvement approaches, including target costing and Kaizen costing, have a negligible share in the decisions of managers.
   f. As for total quality management, the primary measures have been apparently adopted, but there is still a long way to international standards.

B. The results from performance evaluation indicators

After studying the indicators such as return on investment (ROI) and its average between the discussed companies during the years of 1381 and 1385, a profit of around 17% was witnessed that is about the same as the return on risk-free bank deposits and governmental participation and savings bonds, and does not sound like a reasonable turnover. Meanwhile, as the charts below show, there is a sharp increase in sales and a relative growth in profits over these years, but the rate of ROI performance indicator after an increase in 82, compared to its previous year, decreased in 83 and this rate did not experience much change during 84 and 85. This means that despite increased sales and profitability, the assets have not been optimally utilized in these companies.

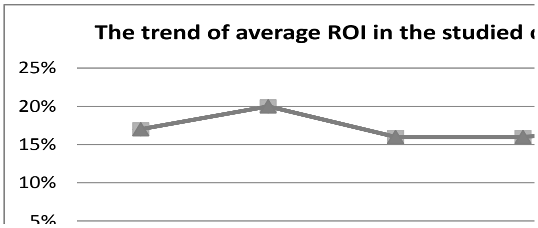

Fig1: The trend of average ROI in the studied companies

The RI indicator, which is measured in terms of currency and is considered a relatively strong indicator in the assessment of investment units' performance, has been negative in most of these companies. A look at this indicator's average shows that in spite of an improvement in 82, compared to its previous year, years 83 and 84 suffered from a significant drop, until in 85 it improved again. This shows that the RI indicator's rise and fall has been random and the management has not noted it.

In other words, although the companies have enjoyed a relative increase in profits during the 5-year period, considering the market situations, this increase has not met the shareholder's expectations and the companies' status based on performance evaluation indicators in management accounting is also assessed as unfavorable. Interestingly, the managers of these companies have paid special attention to the financial variables such as sales and profits that have a direct relationship with the organization's operations and are exposed to the beneficiaries whereas the management accounting indicators that reflect the actual performance of the company and are not significantly exposed have received little attention. The following chart is based on the average RI of the companies.

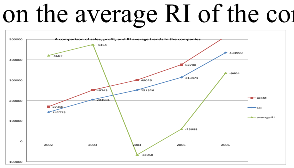

Fig 2: A comparison of sales, profit, and RI average trends in the companies

4. Discussions

Considering the aforementioned results, and to achieve greater successes, the following practical suggestions are presented for these companies' managers:

- Introduction to general and practical concepts of management accounting through expert consultants and instructors
- Proper implementation of management accounting's practical concepts, such as total quality control, activity based costing, continuous improvement, and on-time inventory system, in the organization.
- Initiation of an independent management accounting unit in the organization and employing specialists

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