THE ROLE OF ACCOUNTING INFORMATION SYSTEMS IN MAKING INVESTMENT DECISIONS

Emad Eldin Mahmoud ALI EID, PhD. Professor
The Higher Institute for Computer Science and Business Administration
Alzarka, Damietta, Egypt
E-mail: emadeid1973@hotmail.com

Abstract:
The Accounting Information Systems is necessary for the business organizations managers to take as a basis for their making decisions.
The role of the accounting information is to assist in the selection of investment opportunities that can achieve the maximum profitability in the long run.
The analysis presented in the present paper is based on predictions that help the decision makers in choosing among available alternative investment opportunities.

Keywords: *accounting information systems, investment decisions*

JEL Classification: *M16, M41*

Introduction

The Accounting Information Systems and their resulting data in administrative decisions have occupied the forefront of the accounting periodicals in the recent years. This is justified by the fact this data highlights the efforts exerted in its preparation, which makes it necessary for the business organizations managers to take as a basis for their making decisions.
The role of the accounting information in administrative decisions is limited to helping the decisions makers to predict the value of the variables of the decision models which they follow.
On the other hand, the role of the accounting information varies in making investment decisions related to the acquisition of long-term assets as a result of the fact that the capital available for investment is a limited economic resource, which requires the use of an analytical performance tool to assist

in the selection of investment opportunities that can achieve the maximum profitability in the long run.

This tool is represented in the capital budgets that involve many tools such as the payment period, the average return on investment, the net present value and the internal rate of return.

In the light of the different elements of these tools, the role of the accounting information is different in each of them.

The Research Problem:

The role of the accounting Information Systems and their resulting data in making administrative decisions have occupied the forefront of the accounting periodicals. This concern has, in the recent years, been justified by highlighting the efforts exerted in the preparation of the data on which the business organizations managers base their decisions.

These managers pay special attention to the investment decisions related to the acquisition of the long-term assets due to its far-reaching effects on the operations of these organizations. Thus, the making of these investment decisions involves the use of the capital budgets as an analytical tool ensuring the selection of investment opportunities that can achieve the maximum profitability in the long run.

The importance of the investment decisions raises a question about the role of the accounting information in making these decisions and the different extent of this role from that of the other administrative decisions. The objective of this research is to investigate the various aspects of this question.

Accounting Information Systems:

The activities of business organizations that involve the collection, compilation, tabulation and distribution of data are considered information systems where information is defined as the knowledge extracted from the analysis of the data generated by these systems. In this regard, there must be a differentiation between the formal and informal systems of information.

The formal systems are the sources of information illustrated in the organizational structures of the business organizations, while the informal systems are the sources of information that are not shown by these structures.

The responsibility for the design of accounting information systems lies with the accountants as system analysts who identify the decision makers' needs of the data and the design of the data elements that increase the potential benefit to be used in making decisions about the cost of the data preparation and distribution.

The manual accounting systems were the sole source of information in the business organizations. There were other activities such as marketing and production which contained informal devices that collected and distributed the data special to each operation; thus the main function of the accounting information systems was to summarize the data coming from the informal devices for the completion of the data needs of administrative decisions makers.

In the light of that the fact that most of the situations that generate the accounting data are the transactions, this data was mostly of a financial nature and was chronologically entered.

However, with the development in the use of electronic computers and the expansion in the application of the analytical quantitative methods in dealing with the administrative problems, there have appeared many of the formal information sub-systems which provide the accounting information systems with the data inputs and distribute the data to the activities of other departments.

As a result, the managers of business organizations have become in direct contact with the sub-systems to obtain their needs of data of various activities.

In other words non-accounting data with varying degrees of appropriateness for the administrative decisions have become available for the managers of business organizations.

In this field, the American Accountants' Association has proposed appropriateness as a key criterion for assessing the accounting data.

For the accounting data to be characterized with appropriateness, its impact or expected impact must be its involving alternatives in the situations of making decisions.

For the purpose of this research appropriateness is identified by the relative benefit of the data in predicting the value of the variables in the decision models which the decision-makers rely on in making their administrative decisions.

Elements of Administrative Decisions Analysis:

Egery, Gedeky and Nabet proposes an analysis of the theory by the relationship between the accounting data and the process of decision making.

This basis of this analysis is that this process involves three main components:

A) The Decision Inputs
B) The Decision Outputs
C) The Decision Model.

The decision inputs are the factors upon which the decision makers base their decision-making. These are the decisions made by the managers of the business organizations. The decision model is represented in the relationship between the decision and the combination of its inputs.

In this regard, the analysis differentiates between the main and the alternative inputs of the decision. The main inputs denote those inputs on which the decision makers would like to base their making of administrative decisions. The alternative inputs indicate the inputs they actually take as a basis for their decision-making as long as they reflect the main input. The decision makers often use the alternative inputs to facilitate the decision-making process, especially when the cost of obtaining main inputs is high.

The Role of the Accounting Information in the Administrative Decisions

As highlighted by the above analysis of the elements of administrative decisions, the accounting information is only one input of these decisions. In the light of the fact that one of the main purposes of the preparation and distribution of the accounting data is to help decision-makers to predict the value of the variables of the decision models on which they rely because such prediction of the value of the variables is the cornerstone in the decision-making .The role of accounting information systems is limited to producing data of economic nature upon which the decision-makers predict the value of the variables in the decision models that they adopt.

In trying to identify the administrative decision-makers' needs of appropriate data, the accountants face the problem identifying the decision models they rely on, the variables these models involve as well as the weight given to them. In the light of the influence of the decision makers' objectives, awareness and previous experiences on the selection of their decision models Bever, Kennelly and Arc argue that this identification of the decision models exceeds the scope of the present human capacity.

Hence, the accountants, in their attempt to identify the needs of the decision-makers of appropriate data, resort to proposing action models for the decision-makers. Through the analysis of these proposed models they can derive the data set which is relatively more appropriate. This method is called the task analysis method which is criticized for being subjective in its dealing with the problem of identifying the needs of the decision makers of the appropriate accounting data.

In the light of this, some accountants proposed providing the decision makers with a variety of detailed data that allow them to determine the decisions they make and the selection of the appropriate data. However, this alternative method is not free from criticism of the task analysis where there

is a need for setting a standard by which the accountants can determine what data must be supplied for decision makers in business organizations.

The Nature of the Investment Decisions:

The capital available for investment is a source whose cost represents the minimum return on investment. Despite the inadequate return of some investments to cover their costs, the expected profitability of such investments sometimes increases their cost, which requires the use of an analytical tool to assist in the selection of the investment opportunities that can achieve the maximum profit in the long run. This analytical tool is represented in the capital budget.

This analysis of investment opportunities is based on the use of its associated cash flows where these flows are divided into outflows and inflows. The outflows are represented in the cash payments while the inflows include the cash resulting from the increased volume of activity or from the cost savings. Additional cash investments in the elements of the working capital are regarded a part of the cash outflow. Also, the amount of cash generated by the sale of these investments at the end of their productive life is a part of the cash inflow.

The Role of Accounting Information in Investment Decisions

The analysis of the investment opportunities indicates the methods used in the evaluation of these opportunities. This analysis is based on predictions that help the decision makers in choosing among available alternative investment opportunities. The most common methods used in the analysis of the investment opportunities are as follows:

First: The Payback Period Method:

This method refers to the length of time taken by the cash inflows to cover the cash outflows. The implicit assumption here is that the investment whose inflows cover its outflows in a faster and better way than the ones that take longer time.

This method is in common use due to its easiness especially for the investments that yield a fast return of cash, in addition to its being used as an indicator of the degree of investment risks.

However, this method is criticized for its negligence of the time factor for the money and profitability achieved after the payback period as well as the value of investments as scrap at the end of its life productivity. As a result of calculating the payback period by dividing the cash outflow of the investment by the annual cash inflow in case of equal flows, or by the average cash inflow in case of their being unequal. The role of the accounting information under this method is restricted to helping the

prediction of both the investment outflows as well as the annual cash flows from the investment returns.

Secondly: The Inverted of the repayment period Method:
The inverted of the repayment period is calculated by dividing the interior annual cash flow to the exterior cash flow for investment.
As in the way of repayment period, the auditing information rule in this way is to help with the prediction of all exterior cash checks for investment and the upcoming flows.

Thirdly: the average of return on investment Method
The average of annual return is in the annual net profit after the tax that the investment achieves by subtracting the investment depreciation burden from its net annual interior flow, although the discount of investment depreciation burden maybe good for the valuation of the audited net profit after achieving it as like this discount could be questionable for the prediction of the future benefits for investment. The average of return is often calculated on investment by dividing the annual net profit the resulted from the original investment cash that includes everything related to having the long term and rolling assets and initial costs to activate the sales, and the other elements that the original investment requires them as neglecting any of them may cause misleading results.
And there is alternative way to calculate the return average on investment by dividing the annual return average after the tax on investment average instead of just dividing on the original investment, and according to that the investment average is calculated by adding the account of investment as a scrap at the end of its productive life to the account of the original investment that is in published data in the leverage posts, so it is often pointed to it with the accounting way. And this way distinguishes that it is easy to follow the expenses parts that are related to it as it is provided in accounting books.
However, there is something not good at it and that is neglecting the part of time to money as two different investments may have the same return average despite the difference of timing in cash flow of each other .and there is no doubt that observance of time for money will lead to prefer the investment that occurs cash flows much more in the first years of its life.

Fourthly: the current net value method:
The current net value for investment refers to the difference between the current value due to its interior flows and the current value of its exterior cash flows .and it is calculated by discounting the cash flows that are related to investment by using discount rate like the likely average of capital cost

which is the base rate to the return of investment, and the using of the likely average of capital cost is justified as the variety of financing sources of business organizations takes into account, and the difference of the cost of each of it, at this issue, these sources can be classified basically in the perfect shares, high ones and bonds.

The perfect shares cost is calculated by dividing the mentioned annual coupon in this shares to the market value of the share and the normal shares cost is also calculated by dividing the predicted coupon to the market value of the share. But the likely average of the capital cost is calculated by adding the multiplication the ratio of each and every financing source in the cost of each of it.

And beneath the way of current net value, the use of the current value index for investment that is calculated by dividing the current value of interior cash flows to the current value of its exterior flows. And this proof is useful to arrange invest mental opportunities alternatives according to its profit prefacing to test the alternative which achieves maximum profit at the long term .and the current net value is distinguished that it takes into account the value of time for money but there is something not good at it that may lead to misleading results if it is used in analyzing investment opportunities with various productive life, as the alternative that accomplishes the highest current net value maybe its life long enough to the limit that another alternative prefer its productive life shorter despite its least profit. Also if investment become in analysis situation on various exterior cash flows as investment that achieves the highest current net value maybe not necessarily be the best investment alternative especially if this investment has huge exterior cash flows. from all of that we can summarize that the parts that each and every source of finance and its likely average depend on it and also the interior and exterior cash flows for each alternative of investment opportunities and its current net value that are documented to the data which the auditing system provides it.

Fifthly: The interior return Method:

The rate of the interior return indicates to the rate which in it, the current value of incoming cash flows equals to its exterior cash flow. In another meaning, the interior rate of return of investment at this rate that the current net value becomes zero in it. Though the likely average cost of capital flow does not interfere in the calculation procedures of the interior rate of return to any of invest mental opportunities, but the resulted interior rate of return to the likely average of capital cost due to evaluating the investment opportunities. As the interior rate of return is more than the likely average of capital cost means the profit of invest mental opportunities, on contrary if the interior rate become less than the likely average of capital cost.

The interior return method is distinguished by taking into account the value of time for money. but there is something not good at it and that what it does by making implicit assumptions to re-invest the investment opportunities net profit at the same rate of the profit of this opportunities, while the way of the current net value assumes to re-invest the profits on the base of the likely average of capital cost. A lot of accountants think that the second assumption is more approachable to the fact.

Results and Recommendations

<u>**First:**</u> **Results:**
1. Accounting information is considered one of the inputs for the administrative decisions and its role is confined to helping the decision-makers to predict the value of the decision variables models that they rely on in connection with the preference/trade-off between economic alternative uses of limited resources.
2. While the accountants face the problem of identifying the needs of makers of administrative decisions of appropriate accounting data which they would take to identify the mechanism of decision models they rely on, the variables those models involve and the weight of each of them. This matter gets increasingly complicated as a result of the choice being influenced by the decision-makers objectives, awareness and previous experiences. The factors vary between individuals. Some accountants have the view that identifying the models which the decisions makers rely on are beyond the present human scope of capacity.
3. Investment decision making which is related to the acquisition of long-term assets involve using the tool of capital budgets as an analytical tool that helps in the selection of investment opportunities that can achieve the maximum profitability in the long run. The analysis of investment opportunities is based on the use of the associated cash flows which is divided into outflows and inflows. The outflows are mainly related to the acquisition of these assets, while the inflows mainly include the flows resulting from the increased volume of the activity or from the cost savings flows.
4. The preference/trade-off between the investment opportunities is based on the use of several methods of payback period, the inverted payment period, the inverted payback period, the average return on investment, the net present value and the internal rate of return, which is different in each case in the role of the accounting information.

Second: Recommendations

1. It is necessary to use the average return on investment method which is based on the accounting data published in the financial statements, the rest of the analysis methods are based on the use of cash flows. In the method of the payback period as well as in the inverted payment period, the role of the accounting information is confined to helping to predict the cash outflows and the cash inflows associated with each of the investment opportunities.

2. The role of the accounting information in the method of the net present value is confined to assisting in the calculation of the net present value of each of the investment opportunities. Such calculation is based on using the weighted average cost of capital which takes into account the multiplicity of the funding sources in business organizations and the differences in the cost of each of them. In this regard, the cost of both sources of funding and the weighted average cost of capital are considered accounting information.

3. The method of the internal rate of return where the present value of outflows for each of the investment opportunities are equal, the weighted average cost of capital, which represents the minimum return on investment is not included in the calculation of the internal rate of return, despite comparing it with the rate of internal rate of return in the process of preference between the alternative investment opportunities.

Reference

1- Dr. Ahmed Ragab Abd Elal "Modern entrance in Management Accounting" Beirut: University House 2002 page no 74

2- Dr. Ahmed Ragab Abd Elal " Op.Cit " page no 75

3- American Accounting Association, "Report of Committee on Accounting and Information Systems, **"*The Accounting Review*"** (Supplement to Vol. X LVI, 2011), P-290.

4- Dolph Matz, Othel J. Curry, and Milton F. Usry, Cost Accounting: Planning and Control, 5th ed. (Cincinnati, Othio: South - Western Publishing Company, 2014), pp. 771-772.

5- Joel S. Demski, "Decision - Performance Control, **"The Accounting Review"** (October, 2012), pp. 676-677.

6- Thomas R. Prince, Information Systems for Management Planning and Control (Himewood, Illinois: Richard D. Irwin, Inc., 2014), 2.o pp. 15-27.

7- William H. Beaver, John W. Kennelly, and William W. Voss, "Predictive Ability as a Criterion for the Evaluation of Accounting Data, **"The Accounting Review** (October, 2014 p. 679.

8-　Yuji Ijiri, Robert K. Jaedicke, and Kenneth E. Knight, **"The Effects of Accounting Alternatives on Management Decisions. "Research in Accounting Measurement".** ed. by Robert K. Jaedicke, Yuji Ijiri, and Oswald Nielsen (American Accounting Association, 2013 pp. 187-190.