

ACCOUNTING INFORMATION SYSTEMS (AIS) AND EFFECTIVE PERFORMANCE: THE CONTEXT OF SELECTED PHARMACEUTICALS COMPANIES IN BANGLADESH

Rehana Fowzia‡

Abstract

Information age has changed the way in which traditional accounting systems work. AIS have tended to historically mirror the development trend from the years of the manual accounting processes. AIS can generate several types of information including accounting and non-accounting information for enhancing organizational performance. The aim of this study is to investigate the value of accounting information systems (AIS) for effective performance in top ten pharmaceutical companies of Bangladesh in 2018 (according to the performance shown in annual reports, 2017). In this study it is assumed that the effective performance is a function of the financial performance (quantitative), performance management and organizational performance (qualitative). The findings from empirical data show that on an average the AIS is effective in top ten pharmaceutical companies in Bangladesh. Also there is a strong relationship between AIS and financial performance, between AIS and performance management and between AIS and organizational performance. Indeed, Accounting Information Systems (AIS) is vital to all organizations to improve organizational performance.

Keywords: *Accounting information systems (AIS), Financial performance, Performance management, Organizational performance, Pharmaceutical companies.*

Introduction

Accounting Information Systems (AIS) are a tool which, when incorporated into the field of Information and Technology systems (IT), are designed to help in the management and control of topics related to organization's economic-financial area. But the stunning advance in technology has opened up the possibility of generating and using accounting information from a strategic viewpoint (El Louadi, 1998).

The effectiveness of an organization depends upon how well the information system performs its functions. It is an assembly of several sub systems of AIS which deal with data collection, transaction, processing, validating, analyzing and storing the information in databases. It is designed within a framework that emphasizes profit planning, performance planning and control at all levels.

‡Associate Professor, Department of Business Administration, Stamford University Bangladesh.

Largely, the quality of information depends on the reliability, form of reporting, timeliness and relevance to the decisions. Effectiveness of AIS also depends on the perception of decision makers on the usefulness of information generated by the system to satisfy informational needs for operation processes, managerial reports, budgeting and control within the organization (Nwinee et al., 2016).

Some researchers (e.g., Masa'deh, Tayeh, Al-Jarrah & Tarhini, 2015) argued that since the Accounting Information Systems (AIS) have been an important concern to the business community (Abbasi et al., 2015; Masa'deh, 2013; Shannak et al., 2010), as it is not only helps firms recognize the potential benefits from investments in IT (Alkalha et al., 2012; Altamony et al., 2012), but also improves the business performance (Abu-Shanab et al., 2015). However, it is known that no single measure of performance could fully account for all aspects of firm performance (Ibrahim et al., 2010; Masa'deh & Shannak, 2012; Obeidat et al., 2013). Moreover, although firm performance has been assessed using a diversity of measures, there is no universal guideline regarding the appropriate choice. Researchers measure performance objectively and/or subjectively, where objective measurements depend upon profit and financial data, and subjective measurements rely on managerial assessments. On the other hand, some researchers used both methods to ascertain firm performance, which enhances the reliability of their conclusions.

Prior researches have shown that accounting information systems adoption does increased firm's performance, profitability and operations efficiency in Malaysia, Spain, Finland, Pakistan and Iran (S. Kharuddin, Z. Ashhari and Nassir, 2010; E. Grande, R. Estebanez and C. Colomina, 2010; Gullkvist, B., 2002; R. Kouser, A. Awan, G. Rana and F. Shahzad, 2011; H. Sajady, M. Dastgir and H. Hashem Nejad, 2008). In United Arab Emirates (UAE) information society and the new computer tools have allowed the companies to make better use of their accounting systems in their relations with suppliers and customers. In the same way the development of the AIS and electronic banking allows the companies to save a lot of time in their transactions (www.ameinfo.com). Thus, the present study attempts to provide some clarification of the relationship between AIS design and performance especially on financial performance (quantitative), performance management and organizational performance (qualitative) in top ten pharmaceutical companies of Bangladesh in 2018 (according to the performance shown in annual reports, 2017).

The structure of this article is as follows: Section 2 reviews the relevant literature and develops hypotheses about relationships between AIS design and performance especially on financial performance (quantitative), performance management and organizational performance (qualitative). Section 3 describes the empirical methodology. Section 4 presents the results from the statistical analyses of hypotheses. Finally, section 5 presents the conclusion of this study, provides the limitations of the current study, and points out some directions for further research.

Literature Review

Sambasivam and Assefa (2013) evaluated the effectiveness of AIS on the performance of Ethiopian manufacturing industries. The results revealed that AIS design and implementation enhanced the quality of financial reports and financial transaction processes which led to better decision making by managers and brought efficiency in internal control systems. Samuel (2013) in the project entitled, "Impact of Accounting Information Systems On Organizational Effectiveness Of Automobile Companies in Kenya" found out the impact of Accounting Information Systems on the organizational effectiveness in selected Automobile Companies in Kenya. The findings of the study showed that there was a relationship between AIS and organizational performance.

Ahmad and Alrjoub (2014) in the research paper entitled, "The Extent of the Application of the Commercial Banks in Aqaba for Modern Methods of Accounting Information Systems" examined the relationship of accounting information systems on the performance of commercial banks and found that accounting information systems had a significant impact on administrative

decisions taken by managers in selected banks. Odero (2014) did a research with the objective of establishing the consequence of AIS quality on firm's financial performance of SMEs. The researcher concluded that there was a very strong positive connection between AIS quality with financial performance of SMEs.

Onaolapo, A. and Odetayo, T. (2015) examined the effect of accounting information system on organizational effectiveness with special reference to selected construction firms in the Ibadan metropolis. Specifically, the study examined the effects of accounting information on quality of financial reports and decision-making. The results showed that accounting information systems had an effect on organizational effectiveness.

Ali, Bakar and Omar (2016) carried a study with the objective of investigating the effect of Accounting Information Systems (AIS) on organizational performance and the moderating effect of organizational culture in the relationship between AIS success factors and organizational performance in the Jordanian banking sector. This study evidenced that organizational culture helped to increase performance by interacting with information quality, data quality and system quality.

Khan (2017) in the research titled, "Impact of Accounting Information System On The Organizational Performance: A Case Study Of Procter And Gamble" examined the impact of accounting information systems on the organizational performance in Procter and Gamble. The findings highlighted that there was a significant impact of accounting information systems on the organizational performance in the company under study.

Rehab (2018) investigated the impact of AIS on organizational performance (cost reduction, improving quality and effective decision making) in Saudi's SMEs. Findings proved that using an AIS had a significant impact on organizational performance

generally and on all its dimensions including cost reduction, improving quality and effective decision making.

Al-Dalaien and Khan (2018) conducted a research to examine the impact of accounting information system on the financial performance of selected real estate companies in Jordan. The findings highlighted that there was a significant impact of accounting information systems on the financial performance in the company under study.

Research Design

Objectives of the study:

- To measure the effectiveness of AIS in top ten pharmaceutical companies of Bangladesh.
- To assess the relationship between AIS and financial performance (quantitative) in top ten pharmaceutical companies of Bangladesh.
- To evaluate the relationship between AIS and performance management in top ten pharmaceutical companies of Bangladesh.
- To appraise the relationship between AIS and organizational performance (qualitative) in top ten pharmaceutical companies of Bangladesh.

Hypothesis of the study:

- H_1 = AIS is effective.
- H_2 = There is a relationship between AIS and Financial performance.
- H_3 = There is a relationship between AIS and Performance management.
- H_4 = There is a relationship between AIS and Organizational performance.

Research Methodology of the study:

- Sample size :
This study has considered total 10 pharmaceutical companies in Bangladesh which are in top position in 2018 according to the performance shown in annual reports, 2017. These are:
 1. Square Pharmaceuticals Ltd.
 2. Incepta Pharmaceuticals Ltd.
 3. Beximco Pharmaceuticals Ltd.
 4. Renata Ltd.
 5. Opsonin Pharma Ltd.
 6. Eskayef Bangladesh Ltd.
 7. ACI Ltd.
 8. Aristopharma Ltd.
 9. Healthcare Pharmaceuticals Ltd.
 10. ACME Laboratories Ltd.

- Data collection:

This study is mainly based on primary data. A structured survey questionnaire has been used. In the questionnaire, 7-point likert measurement scale has been applied where 7 indicates “strongly agree” and 1 indicates “strongly disagree.” Secondary sources are different local and international published articles, websites, seminar papers dealing with AIS.

- Data analysis:

Data have been analyzed by reliability test and one sample t test.

- Study period:

Time period of the study was April to June, 2018.

Empirical result and Analysis of the data

Description of the Demographic Profile of the Sample:

According to the results of the demographic part of the questionnaire, the summary information about the profile of the respondents is : in terms of education, 5 percent of the respondents had PhD/Professional degree, 50 percent had Masters degree and 45 percent had Bachelors degree. To conclude, majority of participants in this study had Masters degrees. In terms of experience, 25 percent of the responses had less than 4 years, 50 percent had between 5 to 9 years and 25 percent had more than 10 years of experience.

Measurement variables and Testing hypothesis:

Variables under AIS:

- The data storage contributes to the integrity of the financial reporting process.
- The data storage in sufficient details to accurately and fairly reflect company asset.
- The implementation of data collection could save shareholder’s money and time.
- Data processing has capable of making a difference in a decision by helping managers to form predictions about the outcomes of past, present, and future events to evaluate financial performance in organization.
- Data processing caused the improvement of the quality of the financial reports and facilitated the process of the company’s transactions.
- The automated data collection speed up the process to generate financial statements and overcome human weaknesses in data processing.

Variables under Financial Performance:

- Return on Investment = (Gain from investment – Cost of investment) ÷ Cost of investment.
- Return on Asset = Net income ÷ Total assets
- Return on Equity = Net income ÷ Shareholders' equity
- Profit Margin = (Net income ÷ Revenue) × 1

Variables under Performance Management:

- Lower labor cost.
- Lower reporting cost.
- Increase to retain valued employees.
- To increase company's competitive position.
- To speed up interactive control systems.

Variables under Organizational Performance:

- Effective inventory management.
- Increase employees' quality and contribution.
- Increase mandatory social responsibility performance.
- Increase voluntary social responsibility performance.
- Increase employee stewardship.

The Cronbach's Alpha is used to measure the reliability of the instruments. According to Sekaran (2003), in general, reliability coefficient less than 0.60 are considered as poor, those in the range of 0.70 are acceptable and those above 0.80 are considered as good. The result of the reliability test (Table-1) is as follows:

Table-1: Reliability Statistics

Measures	Cronbach's Alpha	N of items
AIS	.9254	6
Financial Performance	.8412	4
Performance Management	.7161	5
Organizational Performance	.6200	5

According to Flynn (1992), the effectiveness of AIS can be received providing management information to assist concerned decisions with regard to the successfully managing of corporations. To measure the effectiveness of AIS, six (6) variables have been considered. The results (Table-2) show that the implementation of AIS is effective in sample companies at 5% level of significance.

Table-2: Effectiveness of AIS

Statements	Significance
The data storage contributes to the integrity of the financial reporting process.	.001
The data storage in sufficient details to accurately and fairly reflect company	.001

asset.	
The implementation of data collection could save shareholder's money and time.	.043
Data processing has capable of making a difference in a decision by helping managers to form predictions about the outcomes of past, present, and future events to evaluate financial performance in organization.	.001
Data processing caused the improvement of the quality of the financial reports and facilitated the process of the company's transactions.	.007
The automated data collection speed up the process to generate financial statements and overcome human weaknesses in data processing.	.007

Financial managers need the financial and accounting data provided by AIS to evaluate the firm's past performance (such as ROI, ROA, ROE and profit margin) and to map future plans. According to Table-3 the hypothesis H_2 examines the link between AIS and financial performance. AIS is significantly related to the financial performance of sample companies. Therefore, the second hypothesis is accepted. It means accounting information systems cause to have better financial performance.

Table-3: Relationship between AIS and Financial performance

Financial performance	Significance
Return on Investment (ROI)	.042
Return on assets (ROA)	.001
Return on equity (ROE)	.010
Profit margin	.001

With reference to Table - 4, the hypothesis H_3 is also accepted because there is a strong relationship between AIS and performance management at 5% level of significance regarding four cases except lowering labor cost. The reason behind it is the most portion of the total labor cost is fixed.

Table-4: Relationship between AIS and Performance management

Performance management	Significance
Lower labor cost.	.444
Lower reporting cost.	.001
Increase to retain valued employees.	.001
To increase company's competitive position.	.001
To speed up interactive control systems.	.001

As Table-5 shows, the hypothesis H_4 is acceptable. It means that there is a positive relationship between AIS and organizational performance. Thus, it can be said that AIS improves both quantitative performance as well as qualitative performance simultaneously.

Table-5: Relationship between AIS and Organizational Performance

Performance management	Significance
Effective inventory management.	.041
Increase employees' quality and contribution.	.001
Increase mandatory social responsibility performance.	.001
Increase voluntary social responsibility performance.	.013
Increase employee stewardship.	.001

Conclusions and Suggestions for Further Research

From generalization of the results, measuring research objectives based on the opinions of the respondents, it is found that on an average the AIS is effective in top ten pharmaceutical companies in 2018 of Bangladesh. Also there is a strong relationship between AIS and financial performance, between AIS and performance management and between AIS and organizational performance. It is highly admissible that at present, without using technology, effective performance is not possible. The findings also imply that nowadays pharmaceutical companies have a strong tendency to use information technology to improve their both financial and non-financial performance.

Like all empirical studies, the present study also has its own limitations due to the methodology employed. Use of questionnaire to collect data always has also its own limitations, since responses could be biased because of the thinking of their own organization's image. Despite the above limitations, this research has provided useful information in paving the way for future research in this area. Since in Bangladesh, recently increasing demand for AIS, as an effective tool in managing the organizations, has prevailed, this research could provide a supportive evidence for the implementation of AIS. Therefore, avenues for future research could be the effects of user participation on the implement of AIS, analysis of effectiveness of AIS on performance.

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