



Effects of quality of accounting information system on profitability of guaranty trust bank PLC

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Abstract

The main objective of the study is to examine the effects of quality of accounting information system on profitability of Guaranty Trust Bank Plc Road Branch Kano state. This study used multiple regression and descriptive statistical techniques, i.e. using tables, frequencies, and percentages as well as mean and standard deviation to analyse the demographical features of the respondents while inferential statistics was used to determine the influence of independent variables (relevance, reliability, comparability, understandability, consistency and neutrality of accounting information system,) on the dependent variable (profitability), the study used SPSS version 22.0 to analyse the data. The result of the study revealed that all the six proxies of quality of accounting information system significantly influence profitability of Guaranty Trust Bank Plc, therefore the study recommends that accounting information management should be targeted more and seen as real reform in the banking industry so as to promote economic development in Nigeria. The study also recommends that the use of computerized accounting information systems effectively in all the company's activities so as to ensure the desired benefits of accounting information systems, which has many of the companies for which to sacrifice many of their resources in order to obtain these systems.

Keywords: relevance, reliability, comparability, understandability, consistency, neutrality, accounting information system and profitability

Introduction

In the past accounting processes are done manually through the use of separate ledgers to record financial transactions, it involves the use of books, supporting documents and papers to prepare financial statement. In a sole proprietorship that is probably developing, there might be minimal errors but for a large organization, these errors are likely not to be easily detected or can be unknown for a long period of time which could affect the company on the long run. Over the years, through gradual changes, accounting information system has been introduced which impacts the ways in which accounts are been prepared now. Information system has changed the way accounting tasks are processed; the green paper days are gone and businesses now have a centralized place where all accounting transactions are entered and saved as there is no need for cumulating large and long columns and searching for paper journals where an accounting computer software can perform all of these tasks.

Decision making focuses on the evaluation of two or more alternatives which leads eventually to a final choice. Accounting information on the other hand deals with the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by the users of the information. Onaolapo and Odetayo (2012) ^[25] identify accounting as the language of business as it records all transactions of an individual firms or bodies that can be expressed in monetary terms". Professional accountants occupy very key and important position in the business world today.

This makes accountants involved in the decision-making process of a corporate organization; the decision is based on relevant financial information and non-financial information.

The American Accounting association defines accounting information system as a subset of information system that produces many amounts of data that can be used by the decision makers within and outside the organization. Reliable, timely and correct accounting information plays a vital role in the management decision making and information technology is important for accounting information system for proving quality information.

The implementation of accounting information system is to produce timely, relevant and accurate information in order to aid organizational performance and to give an upper hand in the market environment. Many companies are beginning to consider and adopt accounting information system for their financial accounting and their reporting. However, as important and as useful as accounting information system is, some companies are not even aware about this information system and some organizations are not even ready to shift from the old accounting system to the new one. Also, improved organizational performance of the company is not still achieved and their business activity decisions are still unprofitable.

Objectives of the Study

The main objective of the study is to examine the effects of quality of accounting information system on profitability of Guaranty Trust Bank Plc Road Branch Kano state. The specific objectives are:

1. To identify the impact of relevance of accounting information system on profitability of Guaranty Trust Bank Plc.
2. To excess the effect of reliability of accounting information system on profitability of Guaranty Trust Bank Plc.
3. To investigate the influence of comparability of accounting information system on profitability of Guaranty Trust Bank Plc.
4. To examine the impact of understandability accounting information system on profitability of Guaranty Trust Bank Plc.
5. To investigate the impact of consistency of accounting information system on profitability of Guaranty Trust Bank Plc.
6. To excess the effect of neutrality of accounting information system on profitability of Guaranty Trust Bank Plc.

Hypothesis of the Study

The following null hypotheses would guide the study;

H₀₁: Relevance of accounting information system does not have significant impact on profitability of Guaranty Trust Bank Plc.

H₀₂: Reliability of accounting information system does not have significant impact on profitability of Guaranty Trust Bank Plc.

H₀₃: Comparability of accounting information system does not have significant impact on profitability of Guaranty Trust Bank Plc.

H₀₄: Understandability of accounting information system does not have significant impact on profitability of Guaranty Trust Bank Plc.

H₀₅: Consistency of accounting information system does not have significant impact on profitability of Guaranty Trust Bank Plc.

H₀₆: Neutrality of accounting information system does not

have significant impact on profitability of Guaranty Trust Bank Plc.

Empirical Literature Review

Hertati, *et al.*, (2021) ^[31] examine how the successful application of accounting information systems on financial reporting performance was produced by various government agencies in Indonesia. This study uses causality and population verification methods in this study are the district and city governments in the provinces of Papua and West Papua. The sampling technique uses a census so that all members of the population become research samples. The results of this study show empirical evidence that the successful application of accounting information systems and financial reporting performance is transparent and accountable. However similar study can be replicate in other country.

Al-Dalaïen and Dalayeen (2018) ^[5] investigate the impact of accounting information system on the profitability of selected commercial banks in Jordan. Data was collected through self-administered questionnaires from 206 employees and analyzed with the application of linear regression. The findings highlighted that there is a significant impact of accounting information system on the profitability of banks under study.

Agbaje, Busari, and Adeboye, (2014) ^[2]. Examined the extent to which accounting information management has enhanced the profitability of Nigerian banks. In the model specified, accounting information on Liquidity, credit quality, cash flow, wage rate, exchange rate and Inflation rate are the Jointly Pre-determined variables while, Profitability the Determined variable. The work involves the use of Ordinary Least Square (OLS) Regression technique to fit a realistic model into the collected time data, and several model's validity techniques such as Coefficient of determination (R²), Multiple Correlation coefficient(r), Durbin-Watson, Akaike info Criterion (AIC), Schwarz Criterion (SWC) and F-statistic were employed to validate this model. The model was also tested for Stationary using Unit Root test and Augmented Dickey Fuller (ADF) while Hypothesis tested to validate the theoretical background on banking Profitability as it is affected by accounting information management. The result revealed that accounting information had impacted significantly on the growth of Profitability in Nigerian banking industry has observed in the R² of 80.24%, Correlation coefficient of 0.90, Durbin-Watson of 1.76, AIC of 7.48, SWC of 7.87 and F-result of 43.13 with significance value of 0.000034. Also, the Stationary test carried out for the model shows that there is a short run relationship at First Difference between Profitability and all the explanatory variables considered in this research.

Muhindo, Mzuza and Zhou (2014) ^[24] examine the impact of accounting information systems on profitability level of small-scale businesses in Kampala city. Uganda, East Africa. The Major problem identified was that, most small-scale businesses do not have accounting information systems which result into continuous low performance levels. Descriptive method was used where qualitative data was collected. Secondary data was collected to analyze the impact of accounting information systems on profitability level of small-scale businesses. Research findings revealed that most small-scale businesses do not apply accounting information systems which result into low profits. In addition to that, the findings show that there is a positive relationship between

accounting information systems and profitability level of small-scale businesses. Accounting plays an important role in our economic and social systems especially in its management and great work it does in facilitating management decision making process. This study therefore recommends that small scale businesses should adopt these systems in their business management. The Government and policy makers should come up with policies and guidelines that will facilitate the implementation of these systems in the business environment. Such policies could include tax waivers or tax reductions on equipment to be used in these systems.

Ahmad (2013)^[3] discusses the issue of financial growth and profitability in industrial companies contributes in the Hashemite Kingdom of Jordan using two indicators: return on equity, return on assets, as measures of the performance of companies on a regular basis. The two ratios were calculated each one according to mathematical equations that follow standards (FASB). The study found that the results were contrary to many previous studies in this framework, and therefore, the results of this study cannot be generalized, and therefore cannot say that the accounting information systems do not affect the performance of the companies, as the companies in Jordan continues to suffer from a lot of problems in the application of accounting systems.

Soudani (2012)^[27] investigate usefulness of accounting information system (AIS) for effective organizational performance. AIS is the whole of the related components that are working together to collect, store and disseminate data for the purpose of planning, control, coordination, analysis and decision making. Therefore, impact of AIS on elements of organizational performance such as: performance management and financial performance is examined. The results of this study show that although AIS is very useful and have effect on organizational performance to listed companies in Dubai financial market (DFM) but, there is no relationship between AIS and performance management.

Kouser, *et al.*, (2011)^[20] intends to find the effects of Accounting Information system (AIS) on profitability of Pakistani firms. It investigates whether there is any difference between adopters and non-adopters of accounting system. The sample data have been taken from sixty-six of public listed companies on Karachi Stock Exchange (KSE) by purposive sampling dated from 2005 to 2009 period. Study used the four variables. Independent variable is ROA which measures profitability. Two independent variables are Leverage and Firm Size. Leverage is quantified using debt ratio and firm size is measured by taking natural logarithm of total assets. These independent variables are taken on the basis of high availability as determinants of profitability. Study intends to check the overriding role of accounting system on this relation, so AS acts as intervening variable in the study.

Grande, Estébanez, and Colomina (2011)^[10]. Empirically measure the relationship between the use of the Accounting Information Systems (AIS) by the Small and Medium Sized Enterprises (SMEs) in Spain, and firms' improved performance indicators and productivity. This empirical study is based on a survey carried out among small and medium-sized firms to ascertain the extent to which development and implementation of accounting information systems had taken place, and subsequently an analysis was made as to how much this introduction may impact on improvement in outcome indicators and productivity. As interesting results, we have found that there is a positive

relationship among the SMEs that use AIS for fiscal and bank management and better performance measures. This research provides value added in accounting literature given the scarcity of works dealing with the relationship between the application and use of AIS and performance and productivity indicators in SMEs in Spain.

It is important to note that most of these studies on AIS and performance were conducted outside Nigeria, the few once conducted in Nigeria were not conducted in Guaranty trust Bank Plc and the studies produced contradictory results, hence, these necessitate the need for conducting similar research by employing a more robust methodology.

Methodology

Research Design

This study employs the survey design as its research approach. The survey design deals with opinion of respondents through primary data collection method. It is considered appropriate for this study as it seeks to evaluate the effects of accounting information system on profitability of a company (A case study of Guaranty Trust Bank Plc Bello Road Branch Kano state).

Population of the Study

The population of the study consists of all staffs of accounting and auditing departments at Guaranty Trust Bank Plc Bello Road Branch Kano state. A total of 23 staffs from both junior and senior category constitute the population of the study. Hence, since the population is small the study intended to use all the 23 staffs as respondents of the study.

Source and Method of Data Collection

This field survey was supported by the use of structured questionnaires using close-ended and five Likert scale questions. The questions in the questionnaire were formulated in order to achieve the research objectives and to answer the research questions. Also, sample of other questionnaires in the related research area were consulted in order to come up with the questions. The questions in the instrument were designed into two section, section A is the Respondent's demographic information whereas, section B measure the variable of the study namely profitability, relevance, reliability, comparability, understandability, consistency and neutrality of accounting information system.

Technique for Data Analysis

This study used descriptive and inferential statistics. Data analysis for this study employed the multiple regression as in Previous studies conducted by Shajahan, Moorthy, Sivakumar, and Selvakumar, (2017), descriptive statistical techniques used tables, frequencies, and percentages as well as mean and standard deviation were used to analyse the demographical variable of the respondents while inferential statistics was used to determine the influence of independent variables (relevance, reliability, comparability, understandability, consistency and neutrality of accounting information system,) on the dependent variable (profitability), the study used SPSS version 22.0 to analyse the data.

Data presentation and Analysis

Questionnaire Administration Feed Back

The survey was started with the administering of questionnaire to the respondents. A total of 23 copies were

purposely administered in line with specifications indicated in Chapter Three. After due follow up, 21 copies of the questionnaire were returned. This indicates that 98% success was recorded in the administration of the questionnaire, thereby giving the process credibility.

Demographic Feature of the Respondents

The survey questionnaire requires respondents to answer four demographic features reflecting their gender, age group, marital status and level of education. This section summarises the general frequency distribution of respondents on different demographic items as shown in Tables 1.

Table 1: Socio-Demographic Information

Variables	Options	Frequency	Percentage
Gender	Male	12	57
	Female	9	43
	Total	21	100.0
Age Group	18-39	14	67
	40-59	5	24
	60 and above	2	9
	Total	21	100.0
Marital Status	Single	13	61
	Married	8	39
	Total	21	100.0
Level of Education	Diploma	3	14
	B.Sc./ HND	15	71
	Postgraduate	3	15
	Total	21	100.0

Source: Field survey data (2021)

The descriptive summary of demographical feature of the respondents displayed in Table 1 above shows that 57(12%) of the respondents are male while 9(43%) are female, while in term of age group 14(67%) of respondents aged 18-39 years, 5(24%) of the respondents are 40-59 years and also 2(9%) of the respondents are within the age bracket of 60 and above. A total of 13(61%) of the respondents are single; 8(39%) are married. Consequently, on the level of education, 3(14%) hold diploma certificate as at the time of the study, 15(71%) acquired B.Sc./HND certificate, 3(15%) obtained postgraduate certificate.

Descriptive Analysis of Variable

Descriptive statistics of variable of the study were also evaluated, presented and discussed. Specifically, five variables were analyzed to determine their mean, standard deviation as well as the minimum and maximum values. Table 2 provides a summary of the descriptive statistics of the study.

Table 2: Descriptive Statistics of Variables

Descriptive Statistics					
Variable	No items	Min	Max	Mean	SD.
Profitability	6	Statistic 1.00	Statistic 5.00	Statistic 4.8712	Statistic 0.74582
Relevance	3	1.00	5.00	4.6761	0.45469
Reliability	3	1.00	5.00	3.9383	0.55109
Comparability	3	1.00	5.00	4.2139	0.43258
Understandability	3	1.00	5.00	4.7216	0.23258
Consistency	3	1.00	5.00	4.2336	0.66578
Neutrality	3	1.00	5.00	4.8133	0.43558

Source: Field survey data (2021)

Table 2 shows that the mean and standard deviation for profitability were 4.8712 and 0.7458, respectively. This suggests that first bank ended to have high level of profitability. Table 2 also indicates that the mean for relevance was 4.6761, with a standard deviation of 0.4547, suggesting that the first bank outcomes in term of relevance as high. Furthermore, the results show a moderate score for reliability (Mean = 3.9383, Standard deviation = 0.5511) also a high score for comparability with mean and standard deviation of 4.2139 and 0.43258, understandability score also is high 4.7218 with standard deviation of 0.23258, consistency mean is high with a mean of 4.2336 and standard deviation of 0.66578 lastly high score of mean and standard deviation of neutrality were 4.8133 and 0.43558 respectively.

Regression Results

In this section the study employed the multiple regression model using ordinary least square (OLS) estimator, to examine the impact of independent variables on the dependent variable.

Table 3: Linear Multiple Regression

Variable	Coef.	p-value	(95% Conf. Interval)	Sig
Relevance	0.494	0.000	0.451	0.452***
Reliability	0.643	0.002	-0.542	0.120***
Comparability	0.854	0.001	0.322	0.001***
Understandability	0.794	0.000	0.521	0.232***
Consistency	0.763	0.002	0.232	0.120***
Neutrality	0.784	0.001	0.662	0.341***
R-squared	0.764	Number of observation		21
F-test	4.657	Prob > F		0.000

***p<0.01,**p<0.05

Source: Field survey data (2021)

The results in Table 3 of the R squared indicate that it is estimated that the predictors of profitability explain (0.764 = 76.4 percent) of its variance. In other words, the error variance of profitability is approximately (0.236= 23.6 percent).

Testing of Hypothesis

Relevance and Profitability

The hypothesis of this study was formulated as: Relevance of accounting information system does not have significant impact on profitability of Guaranty Trust Bank Plc. The result in Table 3 shows that the influence of relevance on profitability is positive (0.494 i.e., 49.4%) and statistically significant (P<0.05). Therefore, the Null hypothesis was rejected and the first objective of this study is achieved, hence relevance of accounting information positively influences profitability of Guaranty Trust Bank Plc. This finding is consistent with previous results by Hertati, *et al.*, (2021) [31] and Al-Dalaien and Dalayeen (2018) [5].

Reliability and Profitability

The hypothesis of this study was formulated as: reliability of accounting information system does not have significant impact on profitability of Guaranty Trust Bank Plc. The result in Table 3 shows that the influence of reliability on profitability is positive (0.643 i.e., 64.3%) and statistically significant (P<0.05). Therefore, the Null hypothesis was rejected and the first objective of this study is achieved, hence reliability of accounting information positively influences profitability of Guaranty Trust Bank Plc. This finding is

consistent with previous results by Hertati, *et al.*, (2021)^[31] and Al-Dalaïen and Dalayeen (2018)^[5].

Comparability and Profitability

The hypothesis of this study was formulated as: comparability of accounting information system does not have significant impact on profitability of Guaranty Trust Bank Plc. The result in Table 3 shows that the influence of comparability on profitability is positive (0.854 i.e., 85.4%) and statistically significant ($P < 0.05$). Therefore, the Null hypothesis was rejected and the first objective of this study is achieved, hence comparability of accounting information positively influences profitability of Guaranty Trust Bank Plc. This finding is consistent with previous results by Hertati, *et al.*, (2021)^[31] and Al-Dalaïen and Dalayeen (2018)^[5].

Understandability and Profitability

The hypothesis of this study was formulated as: understanding of accounting information system does not have significant impact on profitability of Guaranty Trust Bank Plc. The result in Table 3 shows that the influence of understanding on profitability is positive (0.794 i.e., 79.4%) and statistically significant ($P < 0.05$). Therefore, the Null hypothesis was rejected and the first objective of this study is achieved, hence understanding of accounting information positively influences profitability of Guaranty Trust Bank Plc. This finding is consistent with previous results by Hertati, *et al.*, (2021)^[31] and Al-Dalaïen and Dalayeen (2018)^[5].

Consistency and Profitability

The hypothesis of this study was formulated as: consistency of accounting information system does not have significant impact on profitability of Guaranty Trust Bank Plc. The result in Table 3 shows that the influence of consistency on profitability is positive (0.763 i.e., 76.3%) and statistically significant ($P < 0.05$). Therefore, the Null hypothesis was rejected and the first objective of this study is achieved, hence consistency of accounting information positively influences profitability of Guaranty Trust Bank Plc. This finding is consistent with previous results by Hertati, *et al.*, (2021)^[31] and Al-Dalaïen and Dalayeen (2018)^[5].

Neutrality and Profitability

The hypothesis of this study was formulated as: neutrality of accounting information system does not have significant impact on profitability of Guaranty Trust Bank Plc. The result in Table 3 shows that the influence of neutrality on profitability is positive (0.784 i.e., 78.4%) and statistically significant ($P < 0.05$). Therefore, the Null hypothesis was rejected and the first objective of this study is achieved, hence neutrality of accounting information positively influences profitability of Guaranty Trust Bank Plc. This finding is consistent with previous results by Hertati, *et al.*, (2021)^[31] and Al-Dalaïen and Dalayeen (2018)^[5].

Conclusions

In the light of the summary of the major findings of the study, the following conclusions are drawn:

1. The relevance of accounting information increases the level of profitability of First Bank Nigeria Plc.
2. The reliability of accounting information increases the level of profitability of First Bank Nigeria Plc.

3. The comparability of accounting information increases the level of profitability of First Bank Nigeria Plc.
4. The understandability of accounting information increases the level of profitability of First Bank Nigeria Plc.
5. The consistency of accounting information increases the level of profitability of First Bank Nigeria Plc.
6. The neutrality of accounting information increases the level of profitability of First Bank Nigeria Plc.

Recommendations

In the light of the conclusion of the study, the following recommendations are made:

1. Accounting information management should be targeted more and seen as real reform in the banking industry so as to promote economic development in Nigeria.
2. It is also recommended that the government should come up with policies and guidelines that will facilitate the implementation of these systems in the small-scale business environment. Such policies should include tax waivers or tax reductions on equipment to be used in these systems. Policy makers should be provided with information in assessing the relationship between accounting information systems and profitability of small business, hence making better policies regarding information technology facilities.
3. It is also necessary for business organizations to adopt the use of other measures of profitability like cost profit volume analysis since it is more user-friendly and easily adaptable in the small scale businesses.
4. Work on the training of users of accounting information systems in Nigerian businesses and increase their efficiency can exploit these systems, including that will benefit the companies and interest in addition to the need for increased attention to the mechanism of the development and implementation of these systems.
5. Increased emphasis by managers on the use of computerized accounting information systems effectively in all the company's activities so as to ensure the desired benefits of accounting information systems, which has many of the companies for which to sacrifice many of their resources in order to obtain these systems.

References

1. Abu-Jarad IY, Yusof NA, Nikbin D. A review paper on organizational culture and organizational performance. *International journal of business and social science*, 2010, 1(3).
2. Agbaje WH, Busari GA, Adeboye NO. Effects of accounting information management on profitability of Nigerian banking industry. *International Journal of humanities social sciences and education (IJHSSE)*. 2014; 1(9):100-4.
3. Ahmad AY. The ability of accounting information systems to support profitability and growth (Industrial Sector-Jordan Companies). *European Journal of Business and Management*. 2013; 5(19):173-9.
4. Miller A, Boehlje M, Dobbins C. Key financial performance measures for farm general managers. West Lafayette, IN: Purdue University Cooperative Extension Service Publication ID-243. 2001, 5.
5. Al-Dalaïen BO, Dalayeen BO. Investigating the impact of accounting information system on the profitability of Jordanian banks. *Research Journal of Finance and*

- Accounting. 2018; 9(18):110-8.
6. Badescu M, Garces-Ayerbe C. The impact of information technologies on firm productivity: Empirical evidence from Spain. *Technovation*. 2009; 29(2):122-9.
 7. Chenhall RH, Morris D. The impact of structure, environment, and interdependence on the perceived usefulness of management accounting systems. *Accounting Review*, 1986, 16-35.
 8. Dozier K, Chang D. The effect of company size on the productivity impact of Information Technology Investments. *Journal of Information Technology Theory and Application (JITTA)*. 2006; 8(1):5.
 9. Gerdin J, Greve J. Forms of contingency fit in management accounting research-a critical review. *Accounting, organizations and society*. 2004; 29(3-4):303-26.
 10. Grande EU, Estébanez RP, Colomina CM. The impact of Accounting Information Systems (AIS) on performance measures: empirical evidence in Spanish SMEs. *The international journal of digital accounting research*. 2011; 11(1):25-43.
 11. Grande E, Imbimbo M, Sacco E. Simple model for bond behavior of masonry elements strengthened with FRP. *Journal of Composites for Construction*. 2011; 15(3):354-63.
 12. Gul FA. The effects of management accounting systems and environmental uncertainty on small business managers' performance. *Accounting and business research*. 1991; 22(85):57-61.
 13. Hertati L, Antasari R, Nazarudin N, Fery I, Azwari PC, Safkaur O. Top Management Support Functions in Higher Education Management Accounting Information Systems. *Ilomata International Journal of Tax and Accounting*. 2021; 2(1):1-6.
 14. Hertati L, Widiyanti M, Desfitrina D, Syafarudin A, Safkaur O. The effects of economic crisis on business finance. *International journal of economics and financial issues*. 2020; 10(3):236.
 15. Hertati L, Zarkasyih W, Suharman H, Umar H. The effect of human resource ethics on financial reporting implications for good government governance (survey of related sub-units in state-owned enterprises in SUMSEL). *International Journal of Economics and Financial Issues*. 2019; 9(4):267.
 16. Hitt LM, Brynjolfsson E. Productivity, business profitability, and consumer surplus: Three different measures of information technology value. *MIS quarterly*, 1996, 121-42.
 17. Hitt LM, Brynjolfsson E. Productivity, business profitability, and consumer surplus: Three different measures of information technology value. *MIS quarterly*, 1996, 121-42.
 18. Huber GP. A theory of the effects of advanced information technologies on organizational design, intelligence, and decision making. In *Knowledge, Groupware and the Internet*. Routledge, 2009, 221-254.
 19. Kanakriyah R. The Effect of using accounting information systems on the quality of Accounting Information according to users perspective in Jordan. *European Journal of Accounting, Auditing and Finance Research*. 2016; 4(11):58-75.
 20. Kouser R, Awan A, Rana G, Shahzad F. Firm size, leverage and profitability: Overriding impact of accounting information system. *Journal of Management and Business Review*. 2011; 1(10):58-64.
 21. Lee YW, Strong DM. Knowing-why about data processes and data quality. *Journal of Management Information Systems*. 2003; 20(3):13-39.
 22. Markus ML, Pfeffer J. Power and the design and implementation of accounting and control systems. *Accounting, Organizations and Society*. 1983; 8(2-3):205-18.
 23. Maroto-Valer MM, Lu Z, Zhang Y, Tang Z. Sorbents for CO2 capture from high carbon fly ashes. *Waste Management*. 2008; 28(11):2320-8.
 24. Muhindo A, Mzuza MK, Zhou J. Impact of accounting information systems on profitability of small scale businesses: A case of Kampala City in Uganda. *International Journal of Academic Research in Management (IJARM)*. 2014; 3(2):185-92.
 25. Onalapo AA, Odetayo TA. Effect of accounting information system on organisational effectiveness: a case study of selected construction companies in Ibadan, Nigeria. *American Journal of Business and Management*. 2012; 1(4):183-9.
 26. Rahayu P, Mulyani S, Miswadi SS. Pengembangan pembelajaran IPA terpadu dengan menggunakan model pembelajaran problem base melalui lesson study. *Jurnal Pendidikan IPA Indonesia*, 2012, 1(1).
 27. Soudani SN. The usefulness of an accounting information system for effective organizational performance. *International Journal of economics and Finance*. 2012; 4(5):136-45.
 28. Susanto A, Chang Y, Ha Y. Determinants of continuance intention to use the smartphone banking services: An extension to the expectation-confirmation model. *Industrial Management & Data Systems*. 2016; 116(3):508-25.
 29. Xu F. Numerosity discrimination in infants: Evidence for two systems of representations. *Cognition*. 2003; 89(1):B15-25.