

IMPACT OF ACCOUNTING INFORMATION SYSTEMS ON CORPORATE PERFORMANCE: AN APPLICATION OF AGENCY THEORY

Tuan Tran Trung^{*}, Anh Huu Nguyen^{**}

^{*} Corresponding author, National Economics University, Hanoi, Vietnam
Contact details: National Economics University, 207 Giai Phong Road, Hanoi, Vietnam
^{**} National Economics University, Hanoi, Vietnam



Abstract

How to cite this paper: Tran Trung, T. & Huu Nguyen, A. (2023). Impact of accounting information systems on corporate performance: An application of agency theory [Special issue]. *Corporate Governance and Organizational Behavior Review*, 7(3), 429–443.
<https://doi.org/10.22495/cgobrv7i3sip17>

Copyright © 2023 The Authors

This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0).
<https://creativecommons.org/licenses/by/4.0/>

ISSN Online: 2521-1889

ISSN Print: 2521-1870

Received: 05.10.2022

Accepted: 06.09.2023

JEL Classification: G30, M10, M40, M41, O30

DOI: 10.22495/cgobrv7i3sip17

Accounting information systems (AIS) provide appropriate information for managers to make decisions and improve corporate performance. When enterprises use appropriate AIS, enterprises can improve their corporate performance because the AIS can protect data, and assets, and generate useful information, thereby improving the decision-making process to achieve business goals (Akhter, 2022). Today, the need to apply appropriate AIS is increasing due to the influence of AIS on corporate performance (Al-Delawi & Ramo, 2020). This study is conducted to investigate AIS and the impact of AIS on the corporate performance of joint stock commercial banks in Vietnam. We employ both qualitative and quantitative methods for processing data collected from 22 joint stock commercial banks in Vietnam. The study sent 250 questionnaires to managers of joint stock commercial banks in Vietnam. The results reveal that there is a positive relationship between AIS and the corporate performance of joint stock commercial banks in Vietnam. In addition, research has also shown in more detail the relationship between AIS and corporate performance based on the application of agency theory. Based on the findings, some recommendations are proposed relating to AIS for enhancing the corporate performance of joint stock commercial banks in Vietnam.

Keywords: Agency Theory, Corporate Performance, Accounting Information Systems (AIS), Internal Controls, Managers

Authors' individual contribution: Conceptualization — T.T.T.; Methodology — T.T.T.; Resources — A.H.N.; Writing — Original Draft — T.T.T.; Writing — Review & Editing — T.T.T.; Visualization — T.T.T.; Funding Acquisition — T.T.T.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

Acknowledgements: This research is funded by National Economics University, Hanoi, Vietnam.

1. INTRODUCTION

The explosion of information technology in all fields has made business process change continuously, which has many advantages but also posed some challenges for joint stock commercial banks.

Therefore, managers of joint stock commercial banks in Vietnam must pay attention to information on business processes, which helps them make appropriate decisions and improve the corporate performance of business. The information is the output of accounting information systems,

which is one of the core information systems in joint stock commercial banks in Vietnam.

The concept of accounting information systems (AIS) was formed when information technology developed strongly. AIS is a system that includes information technology (IT) elements to form an information system (IS) to provide information to support decision-making in economic and financial activities (Hosain, 2019). The application of IT in accounting has profoundly changed the process of processing and providing accounting information. AIS is an information system that collects and records data on economic events in organizations (Khalid & Kot, 2021). AIS collect, analyze, and provide information to determine the financial position of the business, provide data for tax reports, as well as support decision-making in operations. Without an AIS, it is difficult for businesses to determine current performance and forecast future performance (Amidu et al., 2011; Saira et al., 2010).

AIS have created changes in the business model. These changes have forced enterprises to have an understanding of designing, developing, applying, and organizing suitable AIS. Today, the relationship between AIS and corporate performance has been investigated around the world, but there are still some limitations in Vietnam. There are many views in the world stating that there is a relationship between AIS and corporate performance and when applying the right AIS can improve corporate performance (Esmeray, 2016; Khalid & Kot, 2021; Akhter, 2022). However, there are also controversies on this issue (Amidu et al., 2011). Therefore, it is necessary to test and measure the influence and extent of AIS on the corporate performance of joint stock commercial banks in Vietnam are regarded as case studies. In addition, the research has also shown in more detail the relationship between AIS and corporate performance based on the application of agency theory.

There are 31 joint stock commercial banks in Vietnam, which are contributing to the development of Vietnam's financial market. Joint stock commercial banks in Vietnam are financial intermediaries, providing capital for operations and improving the performance of businesses. Besides, banks also have to increase their corporate performance. Joint stock commercial banks in Vietnam play an important role in allocating capital for economic activities, ensuring national financial safety, and contributing to the overall development of the economy. However, joint stock commercial banks in Vietnam are currently facing many difficulties in improving corporate performance. The corporate performance of some joint stock commercial banks in Vietnam is still weak. In particular, managers in joint stock commercial banks need to be provided with appropriate information to make decisions quickly and effectively. Building an AIS that provides appropriate information for managers, reduces costs, and improves corporate performance is a practical requirement of joint stock commercial banks in Vietnam. Therefore, it is necessary to scrutinize the impact of the AIS on the corporate performance of joint stock commercial banks in Vietnam as case studies. This study investigates the relationship

between the AIS and the corporate performance of joint stock commercial banks in Vietnam. The study uses qualitative and quantitative methods to process data collected from twenty-two joint stock commercial banks in Vietnam. The research uses a theoretical framework of AIS according to content approaches including six components of AIS. The results reveal that there is a positive relationship between AIS and the corporate performance of joint stock commercial banks in Vietnam.

The rest of this paper is structured as follows. Section 2 presents the literature review and theoretical framework. Section 3 discusses the analytical methods used to conduct the empirical research. Section 4 presents the results and discussion. Section 5 proposes some conclusions and possible recommendations for bank management.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1. Accounting information systems (AIS)

Control and management are supported by a combination of AIS with information systems in the technology age (Al-Delawi & Ramo, 2020). AIS are a combination of accounting theories with concepts of information and systems (Jarrah & Jarrah, 2022). An information system is a system that generates information for different users. This system consists of inputs, processes, and outputs (Bagranoff et al., 2009). Inputs are data from sources internal to the system and external to the system. Processing is the process of sorting, gathering, and classifying input data. Outputs are information useful for planning, decision-making, and control objectives by users. Thus, an information system is a system consisting of interrelated components in order to collect and process data into information, store and provide information to users. An information system can be thought of as a large system consisting of interrelated subsystems that collect, process, store, transform and provide information for planning, decision, and control information

An AIS is a collection of combined elements such as people, equipment, policies, and procedures that process information (Beg, 2018). AIS is a combination between AIS and analysis of AIS from a user perspective. An AIS is considered a method of managing accounting transactions (Jarrah & Jarrah, 2022). AIS deals with accounting data, the application of information technology, and corporate governance. AIS are related to accounting and business strategy. AIS collect, analyze, and provide information to determine the financial position of the business, provide data for tax reports, as well as support decision-making in operations (Amidu et al., 2011; Saira et al., 2010).

AIS play an important role in processing data and delivering information at different levels in organizations (Jarrah & Iskandar, 2019). AIS are related to enterprise resource planning, building structure, and enterprise performance. AIS support corporate governance during the financial crisis, and AIS support by providing useful information to investors. AIS are related to the data aspect, the user aspect, and the quality of accounting information.

Financial managers evaluate the organization's past performance and plan future performance based on the accounting and financial data of AIS (Jarrah & Almatarneh, 2021).

The combination of theories of information systems with accounting, assessment of the quality of accounting information, and research on factors affecting the quality of accounting data has been widely studied and has made many contributions to the theory of AIS. There is a relationship between AIS and enterprise resource planning (Spathis & Ananiadis, 2005).

There are more in-depth studies on AIS such as accounting behavior, perception, data quality, information quality, and knowledge-sharing ability in AIS. Studies that summarize the theory of AIS or new models of AIS (Belfo & Trigo, 2013; Budiarto et al., 2019; Worrell et al., 2013). There is a relationship between AIS and enterprise resource planning, information quality, and data quality data of AIS (Al-Hiyari et al., 2013; Prasad & Green, 2015).

An AIS is an information system that collects, processes, and stores data related to economic activities for decision-making in an enterprise. An AIS will provide information to managers in enterprises to determine current corporate performance and forecast future corporate performance (Amidu et al., 2011; Saira et al., 2010). AIS are the intersection of accounting and information systems. AIS use information technology to perform accounting transactions (Bagranoff et al., 2009; Romney & Steinbart, 2011). The AIS includes procedures for collecting, processing and providing useful information to users.

To succeed at work, managers will exploit information from AIS. Because an AIS is an information system that provides a lot of important information to be used by decision-makers (Ismail & King, 2005). The essence of AIS is to collect raw data, which is then presented as useful accounting information to users. An AIS is a system for collecting and processing data to provide relevant and reliable information to managers in making decisions related to planning and control activities (Romney & Steinbart, 2011). An AIS is a tool that includes components such as people and information technology to process data to provide for decision-making, planning, and monitoring (Alrabei, 2014). AIS is a system that provides information for managers to plan, control and evaluate related financial and accounting transactions (Emeka-Nwokeji, 2012). When applying the right AIS, it will help businesses plan better. From there, AIS will contribute to the creation of added value for the company by providing appropriate information within the business to support decision-making (Sori, 2009). Thus, according to previous studies, researchers believe that AIS has six elements including people, processes and instructions, data, IT infrastructure, software, and internal controls.

2.2. Elements of accounting information systems

In today's dynamic economy, information is considered an important asset. So businesses can control operations and improve performance by using AIS to make decisions quickly (Akhter, 2022). AIS consists of many components that are related to each other. The components of AIS are interrelated

and support each other to achieve a common goal (O'Brien & Marakas, 2010). AIS consists of six main elements: people, processes and instructions, data, hardware, software, and internal controls (Romney & Steinbart, 2011; Elsharif, 2019).

People: People are an important part of an AIS, which is a resource related to the design of AIS, data collection and processing, and distribution of information. People in AIS include system owners, system users, system designers, and system builders (Whitten & Bentley, 2007; Kuraesin, 2015).

Procedures and instructions: The procedures and instructions of AIS are manual or automated procedures and methods that are consistently used by the system to collect, store, retrieve, and process data into information (Belfo & Trigo, 2013; Elsharif, 2019). Procedures are specific methods for carrying out activities. Procedures are usually expressed in documents. Enterprises develop AIS to perform and control activities.

Data: Data is numbers, letters, or anything that can be used as input in the process of AIS. Any data related to a company's accounting is an entity of AIS (Romney & Steinbart, 2011; Elsharif, 2019). A database is a collection of files that are related to each other. The files in the database must not only be related to each other but must also be linked to other files (Whitten & Bentley, 2007).

Software: There are two main components of information technology: hardware and software. Software is a collection of components that perform special activities (Baltzan & Phillips, 2009). Software is a collection of computer programs created using commands. The software includes all instructions for the processing of information. The software includes not only operating instructions, and hardware manuals, but also information processing procedures for everyone. Software resources include system software, application software, and procedures (O'Brien & Marakas, 2010).

IT infrastructure: Hardware is all the physical devices used to process information. Hardware includes not only computers and other devices but also media (O'Brien & Marakas, 2010). Hardware in a computer system that is physically visible and can be touched. Hardware is a physical device, including parts such as memory, input devices, processors, and output devices that are used to collect, process, store, and retrieve data and information.

Internal controls: AIS requires an integrated internal control component to secure accounting data and prevent unwanted access and restrict access to authorized users to data areas (Alawaqleh, 2021). Internal controls in AIS are used to protect data. Protection procedures such as passwords or biometric identification. Internal control includes policies and procedures designed to align with AIS to protect the enterprise's data and assets from reasonable security. AIS contains not only company information but also employee or customer information. This data may include salary information, credit card numbers, etc. All data in the AIS must be encrypted. At the same time, when someone accesses a system, the system needs to record and monitor the access. The system should also be closely monitored with activity reports (Romney & Steinbart, 2011; Elsharif, 2019).

The above six elements are components of building an AIS. According to agency theory, it is necessary to improve overall corporate performance

to resolve conflicts between the parties in enterprises. Previous studies have shown that application of appropriate AIS has been improving corporate performance. It means that it is necessary to improve the application of the elements of AIS in order to improve corporate performance, satisfy the interests of the parties in enterprises, and resolve conflicts of the parties according to agency theory. The study is using items of the above six elements to investigate the impact of AIS on the corporate performance of banks.

2.3. Impact of accounting information systems on corporate performance

An AIS is a system that provides information to interested parties such as managers or investors by collecting, recording, processing, and reporting the economic and financial data of an organization (Akhter, 2022). The AIS is not only considered an important management method in the field of accounting, financial control, or information and technology but also affects the corporate performance of the business (Al-Delawi & Ramo, 2020). Today, corporate performance is being viewed as an important academic topic for research from different approaches. In previous studies, many researchers have studied the relationship of AIS applications with bank performance in different directions. Studies have also shown that corporate performance can be created by using its assets. At the same time, there is a relationship between the application of AIS and corporate performance (Ajanthan et al., 2013; Korir & Imbaya, 2013). Corporate performance is considered the result of the company's production and business activities using inputs such as raw materials and labor in a certain period of time. Corporate performance can be generalized as achieving business goals based on measures of output and the initial cost of inputs (Thrikawala, 2011). Corporate performance is conceptualized as the extent to which a firm's managers achieve their goals based on their plans laid out with the firm's input resources (Harash et al., 2013). There is a positive relationship between AIS and corporate performance. This means that businesses will have better corporate performance when they adopt a more suitable AIS. Because when businesses adopt more appropriate AIS their managers will make more accurate decisions (Kwarteng & Aveh, 2018).

The corporate performance of the company can be measured by different measures such as financial measures or composite measures. If a business uses financial measurement, the financial measure includes financial indicators such as ROA, ROI, etc. The composite measure uses financial (objective) and non-financial measures (Watson, 2007; Dowling & Helm, 2006; Thrikawala, 2011). Financial ratios may be compiled from financial data of accounts or may be collected in the company's financial statements such as profit and loss statements or balance sheets. However, it is not enough for businesses to only use financial ratios to measure corporate performance. Therefore, enterprises should use non-financial indicators in combination with financial indicators to measure the corporate performance of enterprises to ensure that corporate performance is measured closely to the activities of

enterprises (Petersen & Schoeman, 2008). "Financial and non-financial indicators used to measure Operational Performance include three aspects as Financial performance indicators such as ROA, ROE, and ROL...; Shareholders' profit indicators such as EVA, total profit of shareholders...; Indicators of market performance such as market share, sales..." (Richard et al., 2009, p. 722). In addition, non-financial indicators are considered by researchers as subjective performance measures of firm performance (Petersen & Schoeman, 2008). Organizational performance includes both financial and non-financial indicators such as return on investment (ROI), return on sale (ROS), machine capacity utilization, customer satisfaction, and product quality. The use of non-financial indicators will provide a comprehensive measure of a company's performance. These indicators complement financial indicators, which are collected from accounting data, which will provide a clearer view of customers or competitors. Non-financial indicators also help the company achieve more sustainable profitability (Hoque & James, 2000). Therefore, in this study, the corporate performance of the enterprise shall be measured by results or effectiveness. Corporate performance is a broader concept that deals with whether established tasks or plans have been carried out or achieved. Meanwhile, efficiency is a more complex concept that deals with the comparison between the inputs and outputs of a process or between the results achieved and the costs that have occurred. The corporate performance of the company is measured by financial indicators and non-financial indicators. These indicators are selected to be used depending on the type of business to assess all typical activities of a business, helping to improve the corporate performance of the whole enterprise.

According to agency theory, to resolve conflicts between parties within banks, it is necessary to improve the overall corporate performance of the banks. There are many different approaches to improving corporate performance. According to previous studies, researchers believe that when applying an appropriate AIS, the corporate performance of enterprises can be improved. There is a positive impact between AIS and the corporate performance of businesses (Ha, 2020). There is a positive relationship between AIS and corporate performance (Ismail & King, 2005). AIS has a positive impact on businesses through better adapting to the changing environment and better managing transactions. Satisfaction of users is positively related to corporate performance. Managers need to improve their qualifications, knowledge, and skills to be able to build strategic vision and AIS in line with the strategy. AIS has been providing useful information for making the right decisions and improving corporate performance. AIS is known as a management tool integrated with information technology to support the control of economic and financial transactions of enterprises (Salehi et al., 2010). AIS is an information system that helps companies set budgets and control their operations by providing actual data and budgets (Grande et al., 2011). AIS is an information system that helps to better manage resources and control costs. From there, it will improve the corporate performance of the company (Saira et al., 2010).

There is a positive relationship between the adoption of AIS to corporate performance (Grande et al., 2011). Businesses should use an appropriate AIS to improve a company's operational performance (Ali et al., 2012). If the enterprise uses the application of an information system inefficiently, it will lead to lower operating performance of the business (Ismail & King, 2005). Therefore, businesses need to make detailed budgets and have a process to apply an appropriate AIS to make decisions on AIS implementation. Resources and experience in using AIS should be considered when applying AIS. Managers need timely, relevant accounting information to make accurate decisions. It determines the success or failure of the business. Therefore, it is necessary to have a strategy for using AIS (Amidu et al., 2011; Grande et al., 2011). When moving to new and more modern AIS, businesses need to set goals from AIS adoption. These goals need to be achieved when using this new accounting information system (Lallo & Selamat, 2014).

AIS provide the right information to support timely decision-making in banks (Alrabei, 2014). Corporate performance is significantly improved when enterprises apply AIS in their business compared to enterprises that do not apply AIS. At the same time, the application of AIS maintains better competitiveness (Saira et al., 2010). There is a positive relationship between AIS and corporate performance. When applying AIS appropriately, the banks will be provided with the necessary information, improving corporate performance (Grande et al., 2011). When banks have improved profitability but no corresponding soundness, it can be detrimental to the economic growth of the whole national economy. Therefore, banks need to apply appropriate AIS that provide appropriate information to support decision-making to improve sustainable performance (Pham, 2020). The reliability, relevance, and timeliness of AIS have a positive influence on corporate performance. (Pairat, 2012).

When applying AIS, the assets and resources of the business will be secured. AIS will also improve future performance by providing relevant information. AIS influences the planning, control, and management functions of the enterprise (Al-Fasfus & Shaqqour, 2018). The using of AIS affects the growth rate of profits and revenue of enterprises (Esmeray, 2016). AIS is considered a management method to support businesses to survive and develop in a fiercely competitive economic environment. The use of AIS can improve the performance and capacity of the business. Some characteristics of AIS such as reliability, and relevance affect the application of AIS in enterprises (Harash et al., 2014). Thus, researchers believe that there is a relationship between AIS and corporate performance. Besides, some studies argue about the relationship. According to agency theory, it is necessary to improve overall corporate performance to resolve conflicts between the parties in enterprises. This study is exploring the relationship between AIS and the corporate performance of joint stock commercial banks as case studies. The study is going to provide a basis for the banks to resolve

conflicts between parties theory by improving the overall corporate performance of banks according to the agency.

2.4. Agency framework

Agency theory is one of the theories that have an important impact on the social sciences. This theory studies and offers solutions from different perspectives to resolve conflicting interests between parties. These parties include the principal and the representative. Accordingly, agents will receive work authorization from the principal. Agency theory is widely applied in the study of economic science in particular and social science in general (Linder & Foss, 2015). This theory is formed from the interpretation of conflicts of interest that can arise between actors in the same organization or an economic relationship (Jensen & Meckling, 1976). Accordingly, conflicts of interest always occur in the organization, because each subject pursues maximization of individual interests instead of towards common goals. To resolve this conflict, the researchers found that there are two theoretical trends: positive agency theory and behavior agency theory. Positive agency theory resolves conflicts based on building contracts between the parties (Eisenhardt, 1989a, 1989b; Fama & Jensen, 1983). Behavior agency theory resolves conflicts between parties based on the analysis of behavior and motivation to reconcile interests by moving towards common interests (Pratt & Zeckhauser, 1991; Wiseman & Gomez-Mejia, 1998). It is mean that when the corporate performance is improved, it is going to enhance the interests of each party in the business, resolving the conflict of interest between representative obligations of managers and business owners.

Thus, according to agency theory, to resolve conflicts between parties within banks, it is necessary to improve the overall corporate performance of the banks. There are many different approaches to improving corporate performance. According to previous studies on AIS, elements of AIS, and corporate performance of enterprises, researchers believe that there is a relationship between AIS and corporate performance.

This study investigates the impact of AIS on the corporate performance of joint stock commercial banks in Vietnam as case studies. The independent variable is AIS and the dependent variable is the corporate performance of joint stock commercial banks in Vietnam. The model in Figure 1 describes the effective mechanism of AIS on the corporate performance of joint stock commercial banks. It shows how the dimensions of AIS impact on corporate performance of joint stock commercial banks. Based on their underlying rationale, the following sections present detailed propositions related to these relationships. When this relationship is discovered, the bank's managers are going to have a basis to improve the application of elements of AIS. From there, it is helping to improve the overall corporate performance of banks, resolve conflicts between the parties within banks according to agency theory, and promote the development of banks.

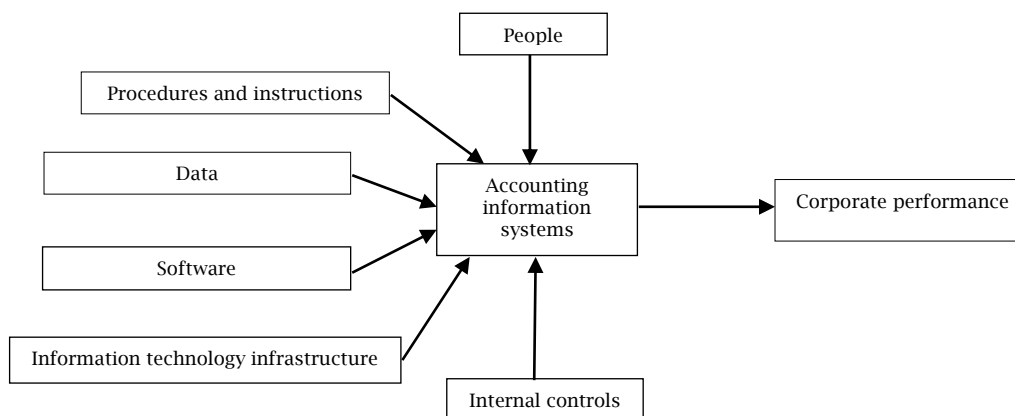
3. RESEARCH METHODOLOGY

3.1. Research model

Thus, according to previous studies on AIS, elements of AIS, and corporate performance of enterprises, researchers believe that there is a relationship between AIS and corporate performance. This study investigates the impact of AIS on the corporate performance of joint stock commercial banks in Vietnam. The independent variable is AIS and

the dependent variable is the corporate performance of joint stock commercial banks in Vietnam. The AIS is composed of different elements. According to previous studies, AIS has six elements including people, processes and instructions, data, IT infrastructure, software, and internal controls (Baltzan & Phillips, 2009; Whitten & Bentley, 2007; Elsharif, 2019; Kuraesin, 2015). We have designed a research model based on previous studies and interviews with experienced experts as shown in Figure 1.

Figure 1. Model of the impact of accounting information systems on corporate performance



To test the research hypotheses, based on the above research model and previous studies, the expected linear regression equation is designed as follows:

$$CP = \alpha + \beta_1 \times PE + \beta_2 \times PI + \beta_3 \times DT + \beta_4 \times SW + \beta_5 \times IF + \beta_6 \times IC + \varepsilon \quad (1)$$

where, CP = corporate performance; PE = people; PI = procedures and instructions; DT = data; SW = software; IF = information technology infrastructure; IC = internal controls; ε = accidental error.

3.2. Research hypotheses

AIS is composed of different elements. There are six elements including people, processes and instructions, data, hardware, software, internal controls in an AIS (Romney & Steinbart, 2011; Elsharif, 2019). According to agency theory, to resolve conflicts between parties within banks, it is necessary to improve the overall corporate performance of the banks. There are many different approaches to improving corporate performance. This study was conducted to provide an understanding of the impact of AIS on the corporate performance of joint stock commercial banks in Vietnam. The following hypotheses are adopted:

H1: There is no statistically significant impact of using the People element on the corporate performance of joint stock commercial banks.

H2: There is no statistically significant impact of using the Procedures and Instructions element on the corporate performance of joint stock commercial banks.

H3: There is no statistically significant impact of using the Data element on the corporate performance of joint stock commercial banks.

H4: There is no statistically significant impact of using the Software element on the corporate performance of joint stock commercial banks.

H5: There is no statistically significant impact of using the IT infrastructure element on the corporate performance of joint stock commercial banks.

H6: There is no statistically significant impact of using the Internal Controls element on the corporate performance of joint stock commercial banks.

3.3. Measure of variances

3.3.1. Dependent variable

The dependent variable is the corporate performance of joint stock commercial banks in Vietnam. Corporate performance can be measured using financial and non-financial indicators based on previous studies (Watson, 2007; Dowling & Helm, 2006; Thrikawala, 2011). Inheriting previous research, corporate performance in this study was measured by appraising five dimensions of performance including return on investment (ROI), return on equity (ROE), return on total assets (ROA), net interest margin (NIM), and customer satisfaction. This measure was used by Hoque and James (2000) in their research based on the theory of balanced scorecard (Kaplan & Norton, 1992) and has been used by many authors in their research, such as Abernethy and Lillis (1995) and Merchant (1981). The respondents were asked to indicate their bank's corporate performance compared to their competitors or based on the mean corporate performance of banking sectors along the above five dimensions on a Likert scale from 1 = weak to 5 = very good. The Cronbach alpha test technique will be performed to test the reliability of the scale to ensure that the scales are reliable or not.

3.3.2. Independent variables

The independent variable is the AIS of joint stock commercial banks in Vietnam. Inheriting previous research, (Baltzan & Phillips, 2009; Whitten & Bentley, 2007; Elsharif, 2019; Kuraesin, 2015) this research used the measure consisting of 32 items, which measures six elements of the application of AIS. The respondents were asked to indicate their bank's application of AIS along the above six dimensions on a five-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree. The Cronbach alpha test technique will be performed to test the reliability of the scale to ensure that the scales are reliable or not.

Table 1. Results of the reliability test

Variables	Number of items	Cronbach's alpha value
People (PE)	5	0.746
Procedures and instructions (PI)	5	0.788
Data (DT)	6	0.812
Software (SW)	5	0.735
IT infrastructure (IF)	6	0.763
Internal controls (IC)	5	0.801
Corporate performance (CP)	5	0.830

Source: Authors' calculations.

Results of Table 1 show each item with the corresponding Cronbach's alpha value in the questionnaire when testing the reliability of the scale with SPSS software. The reliability testing technique is tested with observed variables of the aspects of the independent variable of the AIS by Cronbach's alpha test. Similarly, Cronbach's alpha test technique is also used to test with the observed variables of the dependent variable of corporate performance. The test results show that Cronbach's alpha of aspects of the independent variable and dependent variable are both greater than 0.7. Thus, the observed variables are reliable. It indicates that the questions corresponding to variables in the questionnaire are reliable. Further testing methods can extract the necessary information from responders to test research hypotheses.

3.4. Data collection, sample, and processing

To test the research hypotheses, qualitative and quantitative research methods are employed to collect, process data, and present research results. We interviewed experts, a technique of qualitative research, to tailor questions to variables in the questionnaire. Next, the synthesis and analysis techniques of qualitative methods are carried out to identify and measure independent variables, dependent variables, and the relationship between the independent and dependent variables in the context of commercial banking. Research results of previous studies are inherited in this process by the qualitative research method. Then, the techniques of quantitative methods are employed to test the research hypotheses based on the collected data. We used SPSS 22 software in the quantitative research method.

The population of this study was joint stock commercial banks in Vietnam. There are 31 joint stock commercial banks in Vietnam, which are contributing to the development of Vietnam's

financial market. The list of 31 joint stock commercial banks in Vietnam is collected from the website of the Vietnam State Bank (<https://www.sbv.gov.vn>). Joint stock commercial banks in Vietnam are financial intermediaries, providing capital for operations and improving the performance of businesses. Joint stock commercial banks in Vietnam play an important role in allocating capital for economic activities, ensuring national financial safety, and contributing to the overall development of the economy. In fact, the process of restructuring the banks according to the government project in the past time showed the charter capital of joint stock commercial banks has increased with a good growth rate. By March 2022, the charter capital of the joint stock commercial banks division reached VND430,999 billion, an increase of 2.1% compared to March 2021. In the system, there are 10 joint stock commercial banks with charter capital from VND9,000 billion to more than VND40,000 billion, of which Vietinbank has the highest charter capital, followed by BIDV, Vietcombank, Sacombank, MB, Eximbank, SCB, SHB, ACB, etc. The total value of assets in joint stock commercial banks has also increased sharply since the banks deeply participated in the integration process. Considering the period of 2021–2022, the scale of total assets of joint stock commercial banks in Vietnam has increased from VND1,069 trillion (2009) to VND8,210 trillion (2022), 6.5 times higher than the end of the year. In December 2022, reaching about VND10,700 trillion.

Based on the information on the bank's website, information posted on the stock market, and Google's website, the result gathered is 31 joint stock commercial banks in Vietnam. From researching an overview of 31 of these banks, the authors selected a sample. The banks have been numbered from 1 to 31, and then it is arranged under the posting criteria on total average assets. Next, this research is using a simple random method by using the rand between function in Excel to select 20 banks to put in the sample. We are sending questionnaires to managers of different levels to each joint stock commercial bank in the sample.

To evaluate, measure, and analyze aspects of AIS, company performance, and the relationship of AIS to company performance, data are collected from the literature review. First of all, previous research papers on similar research problems were selected for review. This technique will provide an overview of key discussions related to the research problem. After that, we interviewed a member of the management board, board of directors, head of departments from 4 joint stock commercial banks, and two lecturers who have much experience in AIS and corporate performance of joint stock commercial banks on Vietnam's high-ranking economic universities. All interviewed individuals have experience in research on AIS and corporate performance. The attributes of the characteristics of the AIS and corporate performance of the joint-stock commercial banks as well as of interviewees will be evaluated and analyzed from the data of the recorded interviews.

Data were gathered by the interviews based on structured questionnaires (see Appendix). To reach the research targets, researchers in the world and in

domestic about AIS implemented to gather information from bank administrators, including members of the management board, board of directors, and heads of departments. Based on the practical situation in Vietnam, in this study, a questionnaire was designed and distributed to different bank administrators of joint stock commercial banks in Vietnam, including members of the management board, board of directors, and head of departments. We have sent on average 13 questionnaires to different bank administrators of joint stock commercial banks in Vietnam. The study sent 250 questionnaires to managers of joint stock commercial banks in Vietnam. We received 105 responses from 20 joint stock commercial banks. The responses received were all valid and 105 responses collected from 20 banks were responses. The collected data meets the required sample to reach 95% of the statistical results (Hair et al., 1998; Thọ, 2012). From the responses received, the collected data will be checked for compliance information, synthesized, and analyzed according to the process quantitative method to achieve research objectives according to the following steps:

Step 1: Encrypt data, declare, and import data on Excel files.

Step 2: Data processing by using SPSS 22.0 software including descriptive statistics, exploratory factor analysis (EFA), and linear regression model.

4. RESULTS AND DISCUSSION

4.1. Descriptive analysis

In this section, descriptive analysis was used to analyze the demographic data and to identify information about the characteristics of participants in the study population. In the beginning, it is necessary to indicate the structure in demographic information such as age, education level, and experience years for the participants in this study. The results of age analysis indicate that 8.6% of participants were aged between 20 and 29 years old, 27.6% of participants were aged between 30 and 39 years old, 39% of participants were aged between 40 and 49 years old, 24.8% of participants were aged more than 50 years old.

The results of the experience years analysis also reveal the experience years of participants. This study was distributed to about 41% of participants who have over 20 experience years, about 41.9% of participants have between 11 and 20 experience years, about 11.4% of participants have between 5 and 10 experience years, and about 5.7% of participants have less than 5 experience years. The results of the level of education analysis present descriptive statistics for the level of education of respondents. This study was distributed to about 61% of participants who have bachelor's degrees, about 32.4% of participants have master's degrees, and about 6.7% of participants have doctorate degrees. The results of the demographic analysis show that the members of the selected study sample have good experience, which is consistent with this study. They have sufficient knowledge and experience to understand the research topic of AIS and operational performance. Therefore, their opinions are valuable when answering

the questionnaire. Data were gathered through interviews based on structured questionnaires.

The results from Table 2 show that the highest arithmetic average of respondents' responses to items of AIS (3.59) for item IC4 which shows a high level of agreement. The lowest arithmetic average was (2.41) for item DT2 which indicates a low degree of approval.

Table 2. Descriptive statistics of accounting information systems

Items	N	Minimum	Maximum	Mean	Std. Dev.
PE1	105	1.00	5.00	3.4476	0.99982
PE2	105	1.00	5.00	3.5048	1.01075
PE3	105	1.00	5.00	3.3429	1.03616
PE4	105	1.00	5.00	3.4000	1.04329
PE5	105	1.00	5.00	3.5143	1.02013
PI1	105	1.00	5.00	3.3619	1.23354
PI2	105	1.00	5.00	3.4667	1.24086
PI3	105	1.00	5.00	3.3333	1.24550
PI4	105	1.00	5.00	3.4286	1.20780
PI5	105	1.00	5.00	3.4667	1.16905
SW1	105	1.00	5.00	3.5905	1.19852
SW2	105	1.00	5.00	3.5714	1.19982
SW3	105	1.00	5.00	3.5238	1.20970
SW4	105	1.00	5.00	3.5238	0.91036
SW5	105	1.00	5.00	3.4667	1.29397
DT1	105	1.00	5.00	3.5524	1.15176
DT2	105	1.00	5.00	2.4190	1.45959
DT3	105	1.00	5.00	3.5143	1.13607
DT4	105	1.00	5.00	3.5143	1.18577
DT5	105	1.00	5.00	3.4952	1.09302
DT6	105	1.00	5.00	3.5238	1.15272
IF1	105	1.00	5.00	3.0095	1.39708
IF2	105	1.00	5.00	3.4381	1.06450
IF3	105	1.00	5.00	3.0857	1.20985
IF4	105	1.00	5.00	3.4095	1.03492
IF5	105	1.00	5.00	3.3143	1.12928
IF6	105	1.00	5.00	3.4476	1.07400
IC1	105	2.00	5.00	3.5524	0.90915
IC2	105	2.00	5.00	3.6286	0.90146
IC3	105	1.00	5.00	3.5810	0.92799
IC4	105	2.00	5.00	3.6952	0.87841
IC5	105	1.00	5.00	3.5905	0.91667

Source: Authors' calculations.

The results from Table 3 show that the highest arithmetic average of respondents' responses to items of corporate performances is (3.86) for item CP1 which shows a high level of agreement. The lowest arithmetic average was (3.71) for item CP4 which indicates a high degree of approval.

Table 3. Descriptive statistics of corporate performance

Items	N	Minimum	Maximum	Mean	Std. Dev.
CP1	105	1.00	5.00	3.8667	1.10128
CP2	105	1.00	5.00	3.8286	1.13050
CP3	105	1.00	5.00	3.7333	1.21106
CP4	105	1.00	5.00	3.7143	1.22250
CP5	105	1.00	5.00	3.7333	1.19508

Source: Authors' calculations.

4.2. Exploratory factor analysis (EFA)

In order to analyze the impact of AIS on the corporate performance of joint stock commercial banks in Vietnam, this study used exploratory factor analysis (EFA) to determine the possible factors in the linear regression model. The results of the EFA of AIS of joint stock commercial banks in Vietnam are as follows:

Table 4. KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy	0.839	
Bartlett's test of sphericity	Approx. Chi-square	3856.173
	df	496
	Sig.	0.000

Source: Authors' calculations.

Table 4 shows the results of Bartlett's test, $p\text{-value} = 0.000 < 0.05$ and $KMO \text{ test} = 0.839 > 0.5$, meaning that the items of joint stock commercial banks in Vietnam are related to each other and are statistically reliable.

Table 5. Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings			Rotation sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	11.102	34.693	34.693	11.102	34.693	34.693	4.766	14.893	14.893
2	3.741	11.689	46.382	3.741	11.689	46.382	4.642	14.507	29.400
3	3.426	10.706	57.088	3.426	10.706	57.088	4.276	13.363	42.763
4	2.902	9.067	66.156	2.902	9.067	66.156	4.175	13.048	55.811
5	2.597	8.115	74.270	2.597	8.115	74.270	4.129	12.902	68.714
6	2.107	6.584	80.854	2.107	6.584	80.854	3.885	12.141	80.854

Source: Authors' calculations.

Table 5 shows that there are six factors collected, describing 80.854% variation from the collected data. To determine the extracted factors to test the research hypotheses, the Varimax rotation technique is used. When rotating the factors, the results of rotation by Varimax

rotation technique are obtained with six elements of the AIS and are named under the properties of the component variables: people (*PE*); procedures and instructions (*PI*); data (*DT*); software (*SW*), IT infrastructure (*IF*); internal control (*IC*). The loading factors of the six factors are shown in Table 6.

Table 6. Rotated component matrix^a

Items	Component					
	1	2	3	4	5	6
PE1	-	-	-	-	0.867	-
PE2	-	-	-	-	0.852	-
PE3	-	-	-	-	0.869	-
PE4	-	-	-	-	0.829	-
PE5	-	-	-	-	0.797	-
PI1	-	0.718	-	-	-	-
PI2	-	0.797	-	-	-	-
PI3	-	0.804	-	-	-	-
PI4	-	0.720	-	-	-	-
PI5	-	0.724	-	-	-	-
SW1	-	-	-	-	-	0.784
SW2	-	-	-	-	-	0.816
SW3	-	-	-	-	-	0.879
SW4	-	-	-	-	-	0.591
SW5	-	-	-	-	-	0.883
DT1	0.893	-	-	-	-	-
DT2	0.627	-	-	-	-	-
DT3	0.876	-	-	-	-	-
DT4	0.819	-	-	-	-	-
DT5	0.830	-	-	-	-	-
DT6	0.880	-	-	-	-	-
IF1	-	-	0.706	-	-	-
IF2	-	-	0.833	-	-	-
IF3	-	-	0.644	-	-	-
IF4	-	-	0.765	-	-	-
IF5	-	-	0.781	-	-	-
IF6	-	-	0.734	-	-	-
IC1	-	-	-	0.792	-	-
IC2	-	-	-	0.848	-	-
IC3	-	-	-	0.764	-	-
IC4	-	-	-	0.761	-	-
IC5	-	-	-	0.766	-	-

Source: Authors' calculations.

Table 7 shows the results of Bartlett's test, $p\text{-value} = 0.000 < 0.05$ and $KMO \text{ test} = 0.680 > 0.5$, meaning that the items of corporate performances are related to each other and are statistically reliable.

Table 7. KMO and Bartlett's Test

Kaiser-Meyer-Olkin measure of sampling adequacy	0.680	
Bartlett's test of sphericity	Approx. Chi-square	649.835
	df	10
	Sig.	0.000

Source: Authors' calculations.

To know how many factors are extracted from items of corporate performance, it is necessary to do a factor analysis.

Table 8 shows that in the results of factor analysis, only one factor has been named as corporate performance, which explained 81,693% of the data variation. The loading factor of the factor is shown in Table 9.

Table 8. Total variance explained

Component	Initial eigenvalues			Extraction sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	4.085	81.693	81.693	4.085	81.693	81.693
2	0.448	8.951	90.644	-	-	-
3	0.363	7.270	97.914	-	-	-
4	0.067	1.344	99.257	-	-	-
5	0.037	0.743	100.000	-	-	-

Source: Authors' calculations.

Table 9. Component matrix^a

Items	Component
	1
CP1	0.923
CP2	0.899
CP3	0.870
CP4	0.909
CP5	0.916

Source: Authors' calculations.

4.3. Regression model analysis

To test the hypotheses of the model of AIS on corporate performance of joint stock commercial banks in Vietnam, this study is using multiple linear regression model for analysis of collected data from the study sample. The results of the data analysis are presented below.

Table 10. Model summary

Model	R	R-square	Adjusted R-square	Std. Error of the estimate	Change Statistics					Durbin-Watson
					R-square change	F change	df1	df2	Sig. F change	
1	0.772a	0.596	0.572	0.69102	0.596	24.141	6	98	0.000	2.040

Source: Authors' calculations.

Table 10 shows the result $R^2 = 0.596$, which means that 59.6% of the variation of the dependent variable can be explained by the change of the independent variables in the model based on the collected data. This means that corporate performance is explained by 59.6% of the variation of the independent variables of AIS. The linear regression model was built to fit the dataset up to 59.6%. Durbin-Watson value = 2.040 approximately 2, which meant no autocorrelation superlative chain.

Table 11. ANOVA

Model	Sum of squares	df	Mean square	F	Sig.
Regression	69.166	6	11.528	24.141	0.000b
Residual	46.796	98	0.478	-	-
Total	115.962	104	-	-	-

Source: Authors' calculations.

The analytical results from Table 11 show that the model was built with statistical meaning by testing $F = 24.141$, $p\text{-value} = 0.000 < 0.05$, rejecting the null hypothesis (H_0): $\beta_j = 0$, the model developed in accordance with the general.

Table 12. Coefficients

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity statistics	
	B	Std. error				Tolerance	VIF
(Constant)	0.390	0.359		1.086	0.031		
PE	0.216	0.077	0.206	2.822	0.006	0.773	1.294
PI	0.141	0.064	0.159	2.210	0.029	0.796	1.256
SW	0.201	0.062	0.232	3.217	0.002	0.794	1.260
DT	0.188	0.066	0.202	2.860	0.005	0.825	1.212
IF	0.166	0.071	0.168	2.329	0.022	0.793	1.261
IC	0.290	0.084	0.246	3.447	0.001	0.806	1.241

Source: Authors' calculations.

From the results of collinearity statistics in Table 12, the researchers such as Hair et al. (1998) and Thọ (2012) and other authors have said that $VIF > 10$ will occur multicollinearity. The independent variables of the accounting information system in the model all have $VIF < 10$, which satisfies the condition of multicollinearity. This means that the independent variables of the AIS have no multicollinearity. The model coefficients β_j are $p\text{-value} < 0.05$, which means that disproves the null hypothesis (H_0): $\beta_j = 0$. This means that the coefficients β_j are significant in the model. Thus, this model is appropriate

From the results of coefficients in Table 12, the regression model would be:

$$CP = 0.390 + 0.216 \times PE + 0.141 \times PI + 0.201 \times SW + 0.188 \times DT + 0.166 \times IF + 0.290 \times IC + \varepsilon \quad (2)$$

Thus, through the above regression model can be seen that there is a positive relationship between AIS and the corporate performance of joint stock commercial banks in Vietnam, which means that the more we applied elements of AIS, the higher the corporate performance of banks will be. The research results show that all six elements of AIS have a positive effect on corporate performance. This means that the higher level of application people is, the greater the corporate performance of the banks is. The higher level of application of procedures and instructions is, the greater the corporate performance of the banks is. The higher level of application of data, the greater

the corporate performance of the banks is. The higher level of application of the software, the greater the corporate performance of the banks is. The higher level of application of information technology infrastructure, the greater the corporate performance of the banks is. The higher level of application of internal controls, the greater the corporate performance of the banks is. Thus, according to agency theory, to resolve conflicts between parties within banks, it is necessary to improve the overall corporate performance of the banks. To improve corporate performance, managers at joint stock commercial banks in Vietnam should fully and extensively apply elements of AIS.

5. CONCLUSION

Improving corporate performance is always the goal of joint stock commercial banks in Vietnam. To improve corporate performance, banks use different management tools, including AIS. This study is done for investigating the impact of AIS on the corporate performance of joint stock commercial banks in Vietnam. The results show that there is a positive relationship between AIS and the corporate performance of joint stock commercial banks in Vietnam. It means that there is a statistically significant impact of using the people element, procedures, and instructions element, data element, software element, information technology infrastructure element, and the internal controls element on the corporate performance of joint stock commercial banks. Research has also shown more detail about the relationship between AIS and corporate performance based on the application of agency theory.

REFERENCES

1. Abernethy, M. A., & Lillis, A. M. (1995). The impact of manufacturing flexibility on management control system design. *Accounting, Organizations and Society*, 20(4), 241-258. [https://doi.org/10.1016/0361-3682\(94\)E0014-L](https://doi.org/10.1016/0361-3682(94)E0014-L)
2. Ajanthan, A., Balaputhiran, S., & Nimalathashan, B. (2013). Corporate governance and banking performance: A comparative study between private and state banking sector in Sri Lanka. *European Journal of Business and Management*, 5(20), 92-100. <https://ssrn.com/abstract=2381188>
3. Akhter, A. (2022). Impact of accounting information system on organizational performance: Private commercial banks of Bangladesh. *International Journal of Scientific and Research Publications*, 12(4), 307-311. <https://doi.org/10.29322/IJSRP.12.04.2022.p12443>
4. Alawaqleh, Q. A. (2021). The effect of internal control on employee performance of small and medium-sized enterprises in Jordan: The role of accounting information system. *The Journal of Asian Finance, Economics, and Business*, 8(3), 855-863. <https://doi.org/10.13106/jafeb.2021.vol8.no3.0855>
5. Al-Delawi, A., & Ramo, W. M. (2020). The impact of accounting information system on performance management. *Polish Journal of Management Studies*, 21(2), 36-48. <https://doi.org/10.17512/pjms.2020.21.2.03>
6. Al-Fasfus, F. S., & Shaqqour, O. F. (2018). The effect of accounting performance on accounting information systems, planning and controlling in Jordanian commercial banks-survey study. *Academy of Accounting and Financial Studies Journal*, 22(2), 1-11. <https://tinyurl.com/425kyybd>
7. Al-Hiyari, A., AL-Mashre, M. H. H., Mat, N. K. N., & Alekam, J. M. (2013). Factors that affect accounting information system implementation and accounting information quality: A survey in University Utara Malaysia. *American Journal of Economics*, 3(1), 27-31. <https://doi.org/10.5923/j.economics.20130301.06>
8. Ali, A., Rahman, M. S. A., & Ismail, W. N. S. W. (2012). Predicting continuance intention to use accounting information systems among SMEs in Terengganu, Malaysia. *International Journal of Economics and Management*, 6(2), 295-320. <http://www.ijem.upm.edu.my/vol6no2/bab05.pdf>
9. Alrabei, A. M. A. (2014). The impact of accounting information system on the Islamic banks of Jordan: An empirical study. *European Scientific Journal*, 10(4), 184-198. <https://tinyurl.com/ymwhaan6>
10. Amidu, M., Effah, J., & Abor, J. (2011). E-accounting practices among small and medium enterprises in Ghana. *Journal of Management Policy and Practice*, 12(4), 146-155. <http://www.na-businesspress.com/JMPP/AmiduWeb.pdf>
11. Bagranoff, N. A., Simkin, M. G., & Norman, C. S. (2009). *Core concepts of accounting information systems* (11th ed.). Wiley.
12. Baltzan, P., & Phillips, A. (2009). *Business driven information systems* (2nd ed.). McGraw Hill.
13. Beg, K. (2018). Impact of accounting information system on the financial performance of selected FMCG companies. *Asian Journal of Applied Science and Technology*, 2(3), 8-17. <https://ajast.net/data/uploads/6001.pdf>

14. Belfo, F., & Trigo, A. (2013). Accounting information systems: Tradition and future directions. *Procedia Technology*, 9(1), 536–546. <https://doi.org/10.1016/j.protcy.2013.12.060>
15. Budiarto, D. S., Rahmawati, B., & Prabowo, M. A. (2019). Accounting information system and nonfinancial performance in small firm: Empirical research based on ethnicity. *Journal of International Studies*, 12(1), 338–351. <https://doi.org/10.14254/2071-8330.2019/12-1/23>
16. Dowling, M., & Helm, R. (2006). Product development success through cooperation: A study of entrepreneurial firms. *Technovation*, 26(4), 483–488. <https://doi.org/10.1016/j.technovation.2005.06.015>
17. Eisenhardt, K. M. (1989a). Agency theory: An assessment and review. *The Academy of Management Review*, 14(1), 57–74. <https://doi.org/10.5465/amr.1989.4279003>
18. Eisenhardt, K. M. (1989b). Building theories from case study research. *The Academy of Management Review*, 14(4), 532–550. <https://doi.org/10.5465/amr.1989.4308385>
19. Elsharif, T. A. (2019). The elements of accounting information systems and the impact of their use on the relevance of financial information in Wahda bank — Benghazi, Libya. *Open Journal of Business and Management*, 7(1), 1429–1450. <https://doi.org/10.4236/ojbm.2019.73098>
20. Emeka-Nwokeji, N. A. (2012). Repositioning accounting information system through effective data quality management: A framework for reducing costs and improving performance. *International Journal of Scientific & Technology Research*, 1(10), 1–12. <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=7898777e8a16ca22aef6c58e8ffae5f1820047c5>
21. Esmeray, A. (2016). The impact of accounting information systems (AIS) on firm performance: Empirical evidence in Turkish small and medium sized enterprises. *International Review of Management and Marketing*, 6(2), 233–236. <https://econjournals.com/index.php/irmm/article/view/1814>
22. Fama, E. F., & Jensen, M. C. (1983). Agency problems and residual claims. *The Journal of Law & Economics*, 26(2), 327–349. <https://doi.org/10.1086/467038>
23. Grande, E. U., Estébanez, R. P., & Colomina, C. M. (2011). The impact of accounting information systems (AIS) on performance measures: Empirical evidence in Spanish SMEs. *The International Journal of Digital Accounting Research*, 11(1), 25–43. https://doi.org/10.4192/1577-8517-v11_2
24. Ha, V. D. (2020). Impact of organizational culture on the accounting information system and operational performance of small and medium sized enterprises in Ho Chi Minh city. *The Journal of Asian Finance, Economics and Business*, 7(2), 301–308. <https://doi.org/10.13106/jafeb.2020.vol7.no2.301>
25. Hair, J. F., Jr., L.Tatham, R., & Black, W. C. (1998). *Multivariate data analysis* (5th ed.). Prentice Hall.
26. Harash, E., Alsaad, F. J., & Ahmed, E. R. (2013). Moderating effect of market practices on the government policy-performance relationship in Iraq SMEs. *American Journal of Economics*, 3(C), 125–130. <https://doi.org/10.5923/c.economics.201301.21>
27. Harash, E., Al-Timimi, S., & Radhi, A. H. (2014). The influence of accounting information systems (AIS) on performance of small and medium enterprises (SMEs) in Iraq. *Journal of Business & Management*, 3(4), 48–57. <https://tinyurl.com/57nkbeuj>
28. Hoque, Z., & James, W. (2000). Linking balanced scorecard measures to size and market factors: Impact on organizational performance. *Journal of Management Accounting Research*, 12(1), 1–17. <https://doi.org/10.2308/jmar.2000.12.1.1>
29. Hosain, M. S. (2019). The impact of accounting information system on organizational performance: Evidence from Bangladeshi small & medium enterprises. *Journal of Asian Business Strategy*, 9(2), 133–147. <https://doi.org/10.18488/journal.1006.2019.92.133.147>
30. Ismail, N. A., & King, M. (2005). Firm performance and AIS alignment in Malaysian SMEs. *International Journal of Accounting Information Systems*, 6(4), 241–259. <https://doi.org/10.1016/j.accinf.2005.09.001>
31. Jarah, B. A. F., & Almatarneh, Z. (2021). The effect of the elements of accounting information system (AIS) on organizational culture (OC) — A field study. *Academy of Strategic Management Journal*, 20(5), 1–10. <https://tinyurl.com/tv8jadwt>
32. Jarah, B. A. F., & Jarrah, M. A. A. (2022). The role of accounting information systems (AIS) in increasing performance efficiency (IPE) in Jordanian companies. *Academy of Strategic Management Journal*, 21(S1), 1–11. <https://tinyurl.com/nhhst9hb>
33. Jarah, B. A., & Iskandar, T. M. (2019). The role of characteristics of accounting information systems in the improves the financial performance of Jordanian companies. *International Journal of Creative and Innovative Research in All Studies*, 1(11), 32–45. <http://www.ijciras.com/PublishedPaper/IJCIRAS1158.pdf>
34. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
35. Kaplan, R. S., & Norton, D. P. (1992). The balanced scorecard measures that drive performance. *Harvard Business Review*, 70(1), 71–79. https://steinbeis-bi.de/images/artikel/hbr_1992.pdf
36. Khalid, B., & Kot, M. (2021). The impact of accounting information systems on performance management in the banking sector. *IBIMA Business Review*, 2021(1), Article 578902. <https://doi.org/10.5171/2021.578902>
37. Korir, J., & Imbaya, B. (2013). Measuring performance of minor event management ventures in Kenya. *Developing Country Studies*, 3(3), 86–93. <https://www.iiste.org/Journals/index.php/DCS/article/view/4669>
38. Kuraesin, A. D. (2015). Management commitment and accounting information system. *International Journal of Economic, Commerce and Management*, 3(12), 594–608. <https://ijecm.co.uk/wp-content/uploads/2015/12/31240.pdf>
39. Kwarteng, A., & Aveh, F. (2018). Empirical examination of organizational culture on accounting information system and corporate performance: Evidence from a developing country perspective. *Meditari Accountancy Research*, 26(4), 675–698. <https://doi.org/10.1108/MEDAR-01-2018-0264>
40. Lallo, N. Y. H., & Selamat, M. H. (2014). The impact of information technology knowledge components on accounting information system/course development: The Iraqi perspective. *Research Journal of Finance and Accounting*, 5(1), 99–112. <https://www.iiste.org/Journals/index.php/RJFA/article/view/10458>
41. Linder, S., & Foss, N. J. (2015). Agency theory. *International Encyclopedia of the Social & Behavioral Sciences*, 2, 344–350. <https://doi.org/10.1016/B978-0-08-097086-8.73038-8>
42. Merchant, K. A. (1981). The design of the corporate budgeting system: Influences on managerial behavior and performance. *The Accounting Review*, 56(4), 813–829. <https://www.jstor.org/stable/247203>

43. O'Brien, J. A., & Marakas, G. M. (2010). *Management information systems: Managing information technology in the business enterprise* (10th ed.). McGraw-Hill Education.
44. Pairat, P. (2012). Effectiveness of accounting information system: Effect on performance of Thai-listed firm in Thailand. *International Journal of Business Research*, 12(3), 84-94. <https://law-journals-books.vlex.com/vid/effectiveness-accounting-thai-thailand-384320297>
45. Petersen, M. A., & Schoeman, I. (2008). Modeling of banking profit via return-on-assets and return-on-equity. *Proceedings of the World Congress on Engineering*, 2(1), 1-6. <https://tinyurl.com/nhhst9hb>
46. Pham, M. P. (2020). Interdependence between banking earnings, banking security and growth achievement: Case study in the ASEAN community. *Journal of Economics and Development*, 22(2), 249-264. <https://doi.org/10.1108/JED-01-2020-0003>
47. Prasad, A., & Green, P. (2015). Organizational competencies and dynamic accounting information system capability: Impact on AIS processes and firm performance. *Journal of Information Systems*, 29(3), 123-149. <https://doi.org/10.2308/isys-51127>
48. Pratt, J. W., & Zeckhauser, R. J. (1991). *Principals and agents: The structure of business*. Harvard Business School Press.
49. Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: Towards methodological best practice. *Journal of Management*, 35(3), 718-804. <https://doi.org/10.1177/0149206308330560>
50. Romney, M. B., & Steinbart, P. J. (2011). *Accounting information systems* (12th ed.). Pearson.
51. Saira, K., Zariyawati, M. A., & Annuar, M. N. (2010). Information system and firms' performance: The case of Malaysian small medium enterprises. *International Business Research*, 3(4), 28-35. <https://doi.org/10.5539/ibr.v3n4p28>
52. Salehi, M., Rostami, V., & Mogadam, A. (2010). Usefulness of accounting information system in emerging economy: Empirical evidence of Iran. *International Journal of Economics and Finance & Development*, 2(2), 186-198. <https://doi.org/10.5539/ijef.v2n2p186>
53. Sori, Z. M. (2009). Accounting information systems (AIS) and knowledge management: A case study. *American Journal of Scientific Research*, 4(4), 36-44. <http://psasir.upm.edu.my/id/eprint/12917/>
54. Spathis, C., & Ananiadis, J. (2005). Assessing the benefits of using an enterprise system in accounting information and management. *Journal of Enterprise Information Management*, 18(2), 195-210. <https://doi.org/10.1108/17410390510579918>
55. Thọ, N. Đ. (2012). Phương pháp nghiên cứu khoa học trong kinh doanh [Scientific research methods in business]. *Hà Nội: Nhà xuất bản Lao động-Xã hội*. <https://tinyurl.com/3cyrstft>
56. Thrikawala, S. S. (2011). Impact of strategic networks for the success of SMEs in Sri Lanka. *World Journal of Social Sciences*, 1(2), 108-119. <https://ssrn.com/abstract=2333280>
57. Watson, J. (2007). Modeling the relationship between networking and firm performance. *Journal of Business Venturing*, 22(6), 852-874. <https://doi.org/10.1016/j.jbusvent.2006.08.001>
58. Whitten, J., & Bentley, L. (2007). *System analysis and design methods* (7th ed.). McGraw-Hill.
59. Wiseman, R. M., & Gomez-Mejia, L. R. (1998). A behavioral agency model of managerial risk taking. *The Academy of Management Review*, 23(1), 133-153. <https://doi.org/10.2307/259103>
60. Worrell, J., Wasko, M., & Johnston, A. (2013). Social network analysis in accounting information systems research. *International Journal of Accounting Information Systems*, 14(2), 127-137. <https://doi.org/10.1016/j.accinf.2011.06.002>

APPENDIX. QUESTIONNAIRES

Please tick (...) for the appropriate answer:

Section One: General data:**First:** Demographic data:• **Gender:**

(...) Male

(...) Female

• **Age:**

(...) Less than 29 years

(...) From 30 years to less than 39 years

(...) From 40 years to less than 49 years

(...) From 50 years and over

• **Qualification:**

(...) Diploma (...) Higher diploma (...) Bachelor

(...) Master (...) Doctorate (...) Other, mention it _____

• **Specialization:**

(...) Accounting

(...) Economy

(...) Financing and banking

(...) Other, mention it _____

• **Experience years:**

(...) Less than 5 years

(...) From 5 years to less than 10 years

(...) From 20 years and over

(...) From 11 years to less than 20 years

Second: Data about the bank:**Section Two:** Data on study variables:**First:** Questions of elements of the independent variable (Accounting information systems):

1) Accounting information systems – People						
No.	Paragraph (PP) (1-5)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	The employees in the bank's finance department have a competent level of educational qualification to perform accounting work.					
2	The bank's management is concerned with training and continuing education programs for employees in the finance department which increase their level of qualification.					
3	Each employee in the bank is given powers commensurate with his/her function.					
4	Employees of financial departments in the bank participate in the preparation and development of accounting information systems.					
5	Accountants in the bank develop themselves to suit the requirements of the profession.					

2) Accounting information systems – Procedures and instructions						
No.	Paragraph (PI)	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	The work procedures in the accounting information system at the bank are clear and defined so as to facilitate their application.					
2	The accounting information system includes a statement of accounts that identifies methods of proving and addressing transactions occurring at the bank.					
3	Accounting transactions at the bank are recorded in accordance with international accounting standards.					
4	The bank's policies include specific and clear responsibilities and authorities for all employees in the finance and accounting departments.					
5	The accounting information system at the bank takes into consideration various departments by providing the appropriate reports periodically to them.					

3) Accounting information systems – Data						
No.	Paragraph	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	Data arrival at the bank is monitored and evaluated.					
2	The accounting department at the bank collects and stores data about events, resources, and agents and transforms these data later into information that assists management in decision-making.					
3	The bank uses efficient accounting programs and systems for processing data.					
4	Accounting information system members at the bank are keen to gather data that recognizes the external environment and competitors.					
5	There is at the bank a set of records and ledgers to save data such as (Journal, General ledger, and Subsidiary ledger).					
6	Accounting information system members at the bank are keen to gather data that recognizes Customer satisfaction.					

4) Accounting Information Systems – Software						
No.	Paragraph	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	The use of applications and software has contributed to managing and facilitating the work of the accounting system at the bank.					
2	The software used at the bank in the accounting information system is the best and the most advanced latest and upgraded that is currently available.					
3	The programs used to produce the required accounting information at the bank are commensurate with the nature and size of the work.					
4	Management of the bank continuously seeks to develop the software that is used in the production of accounting information to improve its efficiency and quality.					
5	Dealing with the software available in the bank is easy and does not require a high degree of complexity.					

5) Accounting information systems – IT infrastructure						
No.	Paragraph	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	The bank uses advanced computers and network systems.					
2	The use of equipment in the bank provides the desired goals of the accounting information system in its best form.					
3	Networks and peripherals (computers, hubs, cables, etc.) used at the bank are constantly updated.					
4	The hardware and software used in the accounting information system at the bank are characterized by enough speed in the process of entering and retrieving information.					
5	The use of networks in the bank contributes to the exchange of data and accounting information between the parties concerned.					
6	The use of networks in the bank contributes to the exchange of data and accounting information between the bank and the customer.					

6) Accounting information systems – Internal controls						
No.	Paragraph	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	The accounting systems at the bank include an internal control which reduces the cases of fraud in the accounting data.					
2	The bank uses a range of oversight actions on the programs and files to ensure the integrity of the electronic operating data and detects errors if they occur.					
3	The accounting system at the bank provides control reports on the performance of different administrative levels.					
4	Internal control aims to protect the bank's assets from manipulation and misuse and to ensure the accuracy of information contained in accounting ledgers and records.					
5	The information provided by the bank's accounting information system is confidential and secure.					

Second: Questions of the dependent variable (corporate performance):

Please determine your bank's corporate performance level based on a comparison of your corporate performance with your direct competitor bank or the mean corporate performance of banking sectors						
No.	Paragraph (1-5)	Weak	Poor	Neutral	Good	Very good
1	Return on investment (ROI)					
2	Return on equity (ROE)					
3	Return on total Assets (ROA)					
4	Net Interest Margin (NIM)					
5	Customer satisfaction					

Thank you very much for your cooperation