

## Measurement of Accounting Information Systems, Internal Control Systems and Employee Performance: Confirmatory Factor Analysis Approach

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### ABSTRACT

This study aims to conduct confirmatory factor analysis to test the measurement model of accounting information systems, internal control systems, and employee performance. A total of 120 employees at Public Accounting Firms (KAP) and Accounting Services Firms (KJA) in Malang City were selected as samples in this study. Data analysis was conducted using the confirmatory factor analysis (CFA) methodology. Based on the results of the confirmatory factor analysis, it was determined that the User convenience indicator had the most significant influence in forming accounting information system variables. Monitoring activities are considered the main factor that significantly influences the formation of internal control system characteristics. Punctuality is the most reliable sign of improved employee performance.

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## **INTRODUCTION**

Most processes that use technology will be able to provide improvements to business operational activities, including accounting. The accounting process is said to be effective, efficient, and has high accuracy when it successfully implements information technology in it. Companies are required to develop following existing technological developments, even though these developments will give rise to complexity in various data (Anggraini, 2018). Complexity becomes important when associated with the level of vulnerability of a company, so an information system is needed (Fitriani & Hwihanus, 2023) that can improve the quality of the organization (Anggraini, 2018). Forms of quality improvement can be in the form of automation of calculations and secure digital storage.

Accounting organizations such as Accounting Services Offices (KJA) and Public Accounting Offices (KAP) even need relevant, timely and reliable information to successfully fulfill their functions. (Anggraini, 2018). Another side of technological development is the belief that perhaps human tasks will be replaced. In relation to this assumption, individual competence and expertise also need to be demanded to develop (Anggraini, 2018). Overall, employee performance in organizations such as KJA and KAP has the potential to be influenced using technology, one of which is through the implementation of the Accounting Information System which is believed to have a significant impact.

Before that, the quality of AIS was influenced by several factors, one of which was the internal control system (Gunawan & Hermawan, 2020) implemented by the KJA and KAP themselves. Linked to the purpose of internal control is to protect assets and accurate financial reports while still following applicable regulations (Arifin & Sinambela, 2021) . So that the internal control system is able to act as an intermediary between AIS and employee performance. The role of AIS on employee performance will influence the implementation of the financial system to achieve optimal results (Rahmawati et al., 2022). It is said to influence the results because AIS can determine the steps to be taken by employees and can facilitate supervision by the organization concerned. Research by (Ahmad & Al-Shbiel, 2019; Alawaqleh, 2021; Jarah et al., 2023) has shown that employee performance is influenced by the company's AIS.

Furthermore, the quality of AIS to a certain extent to be effective and accurate, strict internal control is needed. So that it will minimize the risk of data misuse in AIS. Deeper still, when the data in AIS is adequate, it can be relied on by employees. Overall, AIS in optimal condition with adequate SPI supervision, employee performance becomes more efficient in running company operations (Jarah et al., 2023). Based on the explanation, this study will measure the Accounting Information System, Internal Control System, and Employee Performance using the confirmatory factor analysis approach. The purpose of this study is to identify indicators that have an influence on the Accounting Information System, Internal Control System, and Employee Performance.

## **LITERATURE REVIEW**

### ***System Accounting Information***

Accounting Information Systems start from business transaction data which is then formed into a system containing useful financial information (Jogiyanto, 2008). Furthermore, AIS contains a collection of physical and non-physical subsystems that are interrelated in the process of processing transaction data or financial problems into financial information (Susanto, 2008). AIS is formed with the aim of providing data to produce useful information in decision making (Anggraini, 2018). Quality information must have characteristics, including: accurate, timely and complete (Azhar Susanto, 2013:38). Based on this, the indicators used include 1) User convenience (Permatasari & Sigalingging, 2022), 2) Precision, and 3) Accuracy (Darma & Sagala, 2020).

### ***Information Control System***

According to Mulyadi (2016), the Internal Control System is the coordination of the structure, methods, and size of a company with the aim of maintaining assets, maintaining the reliability of accounting data, and referring to compliance with management policies (Ekawati & Harahap, 2021). SPI evaluates and adjusts various data input needs to produce appropriate output (Arifin & Sinambela, 2021). In a broader sense, SPI is a method used to supervise and control a company by management (Prima, 2018). The Committee of Sponsoring Organization of The Treadway Commission (COSO) in 1992 stated the definition of SPI as a process involving the board, management, and personnel aimed at effectiveness and efficiency, reliability, and compliance with the law. Based on this, the indicators used for SPI are 1) Control Environment, 2) Risk Assessment, 3) Control Activities, 4) Information and Communication, 5) Monitoring Activities (Fitriani & Hwihanus, 2023).

### ***Employee Performance***

Employee performance is the entire process carried out by employees to achieve optimal work results (Rahmawati et al., 2022) and to achieve organizational goals (Gunawan & Hermawan, 2020). Employee performance can be used to measure the comparison of implementation results with the responsibilities given, which will then be used to measure the achievement of an organization (Rosdiana H & Mastuti, 2019). Work results in terms of quantity and quality can be compared with agreements that have been mutually agreed upon for a certain period (Anggraini, 2018). The indicators used to measure this variable following Robbins (2016:260) are 1) Work Quality, 2) Quantity, 3) Punctuality, 4) Cooperation (Safitri, 2022; Tarmizi & Hutasuhut, 2021).

## METHODOLOGY

This study was conducted on employees at the Accounting Services Office (KJA) and Public Accounting Office (KAP) located in Malang City. The sampling technique used was purposive sampling, which is the selection of samples based on certain considerations. Special considerations in this study are that respondents who are asked to fill out the questionnaire must meet the criteria as active users of accounting information systems who work in the accounting field, especially at KJA and KAP, and are domiciled in Malang. There are 12 indicators in this study, so the minimum number of samples required is 60 and the maximum is 120. The number of samples successfully processed in this study is 120 samples.

**Table 1. Variables and Indicators**

No.	Variables	Indicator	Item	Source
1	Accounting Information System	User convenience	1. With the accounting information system in the company, I can do my job more easily and efficiently.	(Permatasari & Sigalingging, 2022)
		Precision	2. The accounting information system in the company produces the latest information in a timely manner.	(Darma & Sagala, 2020)
		Accuracy	3. In the process of processing AIS data in companies, errors rarely occur.	(Darma & Sagala, 2020)
2.	Internal Control System	Control Environment	4. The company demonstrates a commitment to ethical values.	COSO Framework  (Fitriani & Hwihanus, 2023)
		Risk Assessment	5. The company determines clear organizational objectives so that risk assessments for each objective can be carried out.	
		Control Activities	6. The company develops control activities that contribute to mitigating (efforts	

			to reduce) risks in achieving objectives.	
		Communication and Information	7. Companies obtain relevant and quality information to support internal control.	
		Monitoring Activities	8. The company develops ongoing evaluations to ensure that internal controls exist and are functioning.	
3.	Employee performance	Work Quality	9. Employees have worked in accordance with the provisions provided by the company	Robbins (2016:260) (Safitri, 2022; Tarmizi & Hutasuhut, 2021)
		Quantity	10. Employees can achieve targets set by the company	Robbins (2016:260) (Safitri, 2022; Tarmizi & Hutasuhut, 2021)
		Punctuality	11. Employees can complete work according to the time specified	Robbins (2016:260) (Safitri, 2022; Tarmizi & Hutasuhut, 2021)
		Cooperation	12. Employees can work well together with coworkers	Robbin (Safitri, 2022)

The variables in this study were assessed by applying the Likert scale, which measures views through a scale of 1 to 5 based on the level of agreement or disagreement with a particular statement. A score of 1 indicates "Strongly Disagree" (STS), 2 means "Disagree" (TS), 3 indicates "Neutral" (N), 4 indicates "Agree" (S), and a score of 5 indicates "Strongly Agree" (SS).

This study conducted data analysis using the confirmatory factor analysis (CFA) approach. CFA is used in the context of research when researchers have an initial understanding of the structure of existing latent variables. Based on theoretical or empirical studies, the researcher formulates hypotheses, assumptions, and logical deductions regarding the relationship between visible measurements and underlying causal factors. CFA, also known as a measurement model in the Structural Equation Modeling (SEM) framework, specifically analyzes the relationship between factors and measured variables.

## RESEARCH RESULT

Factor loading value is used to determine the indicators of each research variable, by measuring the elements or indicators that form the latent variables using CFA. Based on the CFA results summarized in table 2, the factor loading value for the indicators that form the accounting information system, internal control system, and employee performance variables is above 0.5, indicating that all tested variables have an important role in influencing the effectiveness of the control system and performance.

**Table 2. Factor Loading of Research Variables Measured**

Indicators and variable			<i>loading factor</i>
User convenience	→	Accounting Information System	.795
Precision	→	Accounting Information System	.776
Accuracy	→	Accounting Information System	.605
Control Environment	→	Internal Control System	.823
Risk Control	→	Internal Control System	.703
Control Activities	→	Internal Control System	.870
Communication and Information	→	Internal Control System	.784
Monitoring Activities	→	Internal Control System	.871
Work Quality	→	Employee Performance	.571
Quantity	→	Employee Performance	.551
Punctuality	→	Employee Performance	.789
Cooperation	→	Employee Performance	.814

The Accounting Information System variables described by the indicators of User convenience, Precision, and Accuracy show strong results with factor loading values of 0.795, 0.776, and 0.605, respectively. These indicators play a crucial role in ensuring the quality of accurate and effective accounting information.

The Internal Control System is described by the indicators of Control Environment, Risk Control, Control Activities, Communication and Information, and Supervisory Activities. Overall, these indicators have a significant factor loading values, exceeding 0.7. Among these indicators, Control Activities and Supervisory Activities have the highest values, namely 0.870 and 0.871, indicating that both are the main aspects in strengthening the internal control system. Employee Performance Variable is explained by the indicators of Punctuality and Cooperation showing the highest factor loading values, namely 0.789 and 0.814. Thus, these two indicators are considered as key components that influence employee performance.

## **DISCUSSION**

The indicators of User convenience, precision, and accuracy in the Accounting Information System variable have an FL value of more than 0.5. This means that this value shows that the ease of use of AIS greatly influences its effectiveness in supporting employee work. This is in line with previous research which states that an easy-to-use information system can improve work efficiency and increase employee satisfaction (Permatasari & Sigalingging, 2022). Furthermore, the timeliness indicator is able to influence AIS, meaning that accounting information is available when needed for decision making and is up-to-date (Darma & Sagala, 2020). Furthermore, the accuracy indicator means that accounting information is available free from errors and reflects the actual situation and conditions (Darma & Sagala, 2020). These findings indicate that employee performance in KAP and KJA companies in Malang can be influenced by AIS indicators in the form of ease of use, available on time, and certainly free from errors even though the information displayed is the latest data.

The Internal Control System variable is explained by the COSO indicator with an FL result of more than 0.5, which means that the control environment, risk assessment, control activities, communication and information, and supervisory activities are important components and have a role that can shape the SPI to be better. In line with research (Fitriani & Hwihanus, 2023) that there needs to be an explanation of ethical values in the company, organizational goals along with risks that can be assessed, risk mitigation efforts, the existence of information as a support for control, and the development of evaluations as a form of supervision of the company's system. So that the results of this study indicate that the SPI implemented in KAP and KJA in Malang plays an important role in AIS which in turn will improve employee performance because SPI is able to control, supervise, and even provide accurate information so that AIS achieves predetermined goals.

Employee performance is explained by indicators of work quality, quantity, punctuality, and cooperation having FL more than 0.5, meaning that employee performance is influenced by these components. Employees can do their work at their speed or ability so that they can achieve targets and employee performance will increase. Furthermore, when employees can do their work on time, whether independently or collaboratively, it will affect employee performance. This finding supports (Safitri, 2022; Tarmizi & Hutasuhut, 2021) that the four indicators are able to explain employee performance variables.

Deeper, KAP and KAP employees in Malang especially in the aspect of punctuality and cooperation based on the highest FL value, it shows that AIS supported by SPI influences it. AIS provides relevant and accurate information to facilitate employees in completing tasks on time. However, for AIS to function effectively, a strong SPI is needed as a control system that ensures that data in AIS is safe, accurate, and reliable. So, with AIS supported by adequate SPI, employee performance at KAP and KJA in Malang can reach an optimal level, resulting in better work effectiveness and efficiency.

## **CONCLUSIONS AND RECOMMENDATIONS**

Based on the results of the confirmatory factor analysis, it was determined that the User convenience indicator has the most significant influence in forming the Accounting Information System (AIS) variable. The Monitoring Activities indicator is widely considered as the main factor that significantly influences the formation of the Internal Control System (IAS). The strongest sign of improved employee performance is Punctuality in completing tasks. Employees at Public Accounting Firms (KAP) and Accounting Services Firms (KJA) in Malang actively utilize AIS in supporting the effectiveness of their work, demonstrating a systematic approach in utilizing accurate and up-to-date accounting information.

## **ADVANCED RESEARCH**

The limitation of this study lies in its local scope, which is only in Malang City, so the results of this study cannot be generalized to a wider area. In addition, although the literature shows that there are various other variables that affect employee performance, this study only focuses on the accounting information system (AIS) as the only independent variable used.

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