

The Effect of Internal Control on Accounting Information System

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Abstract: All organizations need information as a basis for decision making. Information has become a major resource for most organizations, both for profit and nonprofit organization. In recent years, Accounting Information Systems (AIS) has become a system that is very important in an organization because it generates important information for the organization. To prevent and minimize errors and frauds in applying accounting information system in order to generate the information an internal control needs to be applied inside the system. The aim of this investigation is to get the empirical evidence the influence of internal control on the quality of accounting information. The units of analysis in this study are the head and the staffs of finance department in college in Bandung, Indonesia. The results show that internal control has effect on the quality of accounting information system in the college.

Key words: Internal control, accounting, information, system, accounting information system

INTRODUCTION

Quality is the compatibility between the specifications required compared with the specifications generated (used) by the company (Azhar, 2013). A high-quality decision requires high-quality information (Laudon and Laudon, 2012). So, a good quality of information where accounting information is as a part of it, can improve users decision on performing their desired action (Hall, 2011). The quality of accounting information is influenced by the quality of accounting information systems (Azhar, 2015). Information is required in decision-making (O'Brien and Marak, 2010). The type of information required will be directly related to the structure and the decision that will be made such as information for directors, executives, managers and team members in which different information will be directed to the levels of management decision-making involved (O'Brien and Marak, 2010).

In addition to improve the relationship among parts in the organization, high quality information will also improve the quality of the understanding of the organization's managers to see the changes that occur both inside and outside the organization, so that the organization's managers will quickly and accurately respond to changes that OCCUR (Azhar, 2013a, b). High quality information is the information that is accurate, reliable, current, complete, delivered with the appropriate format (Stair and Reynolds, 2010). High quality information has the dimensions namely accuracy, integrity, consistency, completeness, validity, timeliness

and accessibility (Laudon and Laudon, 2012). High quality information has the characteristics namely relevance, timeliness, accuracy, completeness and summarization (Hall, 2011). By looking at the role of information that is very important for organizations causes the organizations dependent on information systems or accounting information system (Azhar, 2013a, b).

In order the accounting information system can generate the accounting information expected, an internal control is required (Azhar, 2013a, b). The objective of internal control is to secure the assets and to ensure that everyone involved in the organization can follow the procedures set by the organization. Without the internal control that is integrated in the accounting information system will encourage the emergence of a variety of frauds in the organization (Hurt, 2008). One of the main goals of accounting information system is to control the business held by the organization where accountants can help in achieving this goal by designing an effective control system.

Literature review

Internal control: Control is the process of ensuring that all activities of the organization are in accordance with the plan. This process is done by comparing the actual performance with the standards or goals that have been set and then taking action to fix the deviations occurred (Rue and Byars, 2007). Control is the limits that are assigned to the user and the system. It aims to secure the system against the risks or to reduce the damage that occurs in the system, applications and data (Effy,

2009). The implementation of control is aimed to implement policies and to ensure that the “wrong” data does not get into the company’s database (Effy, 2009). Control is an activity that can evaluate and make adjustments needed from data input, processing and can ensure that the resulting output is the expected output (O’Brien and Marak, 2010).

Internal controls can be defined as a process that is influenced by some stakeholder that are designed to provide assurance and capable of ensuring that organizational goals will be achieved through the efficiency and effectiveness of operations the presentation of financial statements that are trustworthy and compliance with laws and regulations (Azhar, 2013). Internal control is also state as a process designed to improve reasonable assurance about the achievement of Romney and Steinbart (2009) and Azhar (2010). An effective internal control system must exist in every organization accounting information system to help achieving the mission and performance to increase profitability and to minimize risks (Romney and Steinbart, 2009). Internal control is a process designed under the supervision of the head of financial unit and the board of directors in the company and implemented by all the directors in the company, management and other personnel to provide reasonable assurance that the reliability of financial statement and the arrangement of financial statement for external purposes have been in accordance with generally accepted accounting principles (Lander, 2004).

The objectives: the reliability of the process to produce financial report, increase the effectiveness of operations in getting the objective and improve the efficiency on its operations, compliance with laws and regulations (Bodnar, 2010). Internal control is a process conducted by the board of directors, management and people under their direction to provide reasonable assurance (Romney and Steinbart, 2009). Internal control is the control of the accounting information system of an organization that is used by management to achieve organizational goals (Nash and Heagy, 1993; Azhar, 2010).

Internal control is the methods and procedures related to the organization’s activities in the field of accounting has the objective to safeguard the assets and to improve the accuracy and reliability of the accounting records. Internal controls include policies, procedures and information systems are used to protect the company’s assets from loss or fraud and to maintain accurate financial data (Jones and Rama, 2006). Internal control is a system, it is structured, to provide adequate confidence for an organization to achieve a desired goal through

their business processes (Gelinas *et al.*, 2005). Internal control system consists of policies, practices and procedures undertaken by people on the organization, manager and non manager to achieve the four general objectives of their organization, namely to protect the company’s assets to ensure the accuracy and reliability of accounting records and information to improve efficiency in operations companies to measure compliance with prescribed policies and procedures management (Hall, 2011). Internal control has four basic objectives, namely to maintain assets to ensure the reliability of financial statements to enhance the efficiency of organization operation to improve compliance with management (Hurt, 2008).

The objectives of control, namely assets security, including to prevent or detect on a timely basis, to prevent the acquisition of unauthorized, securing the use or disposition of corporate assets maintain records in sufficient detail to accurately and fairly reflect the company’s assets provide information that is accurate and reliable provide reasonable assurance of the financial report prepared based on GAAP promote and improve operational efficiency including ensuring the company’s revenue and expenditures made under the authority of the board of directors and management encouraging adherence to the managerial policy specified and comply with laws and regulations (Romney and Steinbart, 2009).

The objectives of control are to keep the information systems function maintaining the confidentiality of information. The integrity and availability of data and resources to master the application compliance with the laws of privacy and data security (Effy, 2009). Based on the descriptions above the dimensions and indicators used for each component of internal control in this study were preservation on assets compliance with data security assets and privacy laws prevent or detect fraud assets to ensure the quality of the accounting process and its output to maintain the information systems function identify and record all financial transactions are valid. Provide reasonable assurance that the financial reporting prepared in accordance with GAAP, improve operational efficiency proceeds received in accordance with management’s calculation record company expenditures are made in accordance with management policies.

Accounting information systems: System is to understand the system according to the experts. A system is a set of interrelated components and the components interact to achieve a goal. The system consists of subsystems smaller each sub-system perform certain

functions that are important and supports a larger system (Romney and Steinbart, 2009) the system is an integration of sub-systems/parts/components of both physical and non-physical are interconnected with one another and work together in harmony to achieve a particular goal (Azhar, 2013a, b). The system is a set of interrelated components with clear boundaries work together to achieve one goal (O'Brien and Marak, 2010). The fundamental role of accounting information systems in organizations are generating accounting information quality (Azhar, 2013).

Definition of information according to the experts: Information is data that has been organized and processed to provide benefits to the users (Romney and Steinbart, 2009). Information is data that is presented in a form that is useful in decision-making activities. Information has value to decision makers because it reduces uncertainty and increase knowledge about a matter of concern (Gelinas *et al.*, 2005) the information is data that has been processed that gives meaning and benefits (Nash and Heagy, 1993).

An Information systems, according to the experts is a collection of sub-systems both physical and non physical interconnected and work together in harmony to achieve a goal processing data into useful information. (Azhar, 2013), the information system can be defined technically as a set of interrelated components or sub-systems to capture, collect, record, process and distribute information to support decision making in an organization (Laudon and Laudon, 2012). Information systems depends on human resources, hardware, software, data and media communication network (O'Brien and Marak, 2010).

Accounting is an information system that measures, process and communicate financial information about economic entities (Needles *et al.*, 2008) is a system to collect and process financial information on an organization and provide information to decision makers (Libby *et al.*, 2009) is an information system that identifies and communicates the economic events of an organization to the users.

An accounting information system according to the Romney and Steinbart (2009) is a system that collects, records and processes the data to produce information for decision makers. Where as Jones and Rama (2006) state that the accounting information system is a part of the management information system that produce accounting and financial information from daily accounting transactions. The same point of view came from Gelinas *et al.* (2005) state that the accounting information system is a subsystem of the information system that

collecting, processing and reporting financial aspects of information. Same key success factor of the accounting information system according to Romney and Steinbart (2009) are:

- Usefulness: Output in the form of information will help management and users make decisions
- Efficient: The benefits of the system exceed the costs of its implementation
- Reliability: The system continuously is able to process data accurately and completely
- Availability: Access system for users can be carried out well
- Timeliness: The required information can be produced by the system when needed
- Customer service: Customer service can be carried out efficiently
- Capacity: The capacity of the system must be able to handle all of the company's operations
- Ease of use: The system must be user friendly
- Flexibility: The system should be able to handle the operational and changes that arise in the operation
- Trustability: The system can easily be understood in facilitating user problem solving
- Auditability: Auditability supposed to be built at the beginning of the manufacturing system
- Security: Only authorized users who have granted access or allowed to change the data system

Characteristics of quality information system (Halandy and Ghabban, 2009):

- Correctness: The extent to which the system meets the required specifications
- Reliability: The extent to which the system can be expected to perform the functions as needed
- Efficiency: The amount of computing resources and code used to perform the function
- Integrity: The extent of access to systems or data by unauthorized persons can be controlled
- Usability: Effort required to learn, operate, prepare the input and interpret output
- Easy to maintain: Little effort required to find and fix a problem
- Flexibility: The effort needed to modify the operating system
- Testability: Effort required to test a system to ensure that the system has made the appropriate function

- Portability: Effort required to transfer the program from one hardware and/or software system environment to another
- Reusability: The extent to which the system (or part of the system) can be reused in other applications
- Interoperability: Effort required to couple one system to another

The quality of the information system has characteristics same of them are ease to use, ease to learn, based on user requirements, features, accurate, flexible, sophisticate, integrated and customize (Sedera and Gable, 2004). Based upon the dimensions used in this study were flexibility easy of learning, user friendly/ease of use, reliability Sophistication: Accessible, usefulness well Integrated/ integration flexible to the make changes easily.

MATERIALS AND METHODS

Theoretical framework: Internal internal and accounting information system: Internal controls are needed in the running of information systems to be able to produce accounting information expected by management (Azhar, 2013a, b). Internal control refers to the way an organization to safeguard assets and ensure that everyone follows the procedures of the organization. Without a good internal control in accounting information systems, organizations will experience fraud (Hurt, 2008). One of the main objectives of accounting information system is to control the business of the organization, an accountant can help achieve this goal by designing an effective control system (Romney and Steinbart, 2009). Effective internal controls must exist in all organizations to help achieve the mission and performance and profitability objectives and minimize risk in business activities. Control over information systems must be developed to ensure that the proper data entry, processing techniques, methods of storage and output information. Thus, control of information system designed to monitor and maintain the quality and safety of input, process, output and storage activities information system (O'Brien and Marak, 2010).

Internal control is closely related to the integrity of financial and administrative information systems (Halandy and Ghabban, 2009). Performance of operations, reliability of financial reporting and legal compliance, internal control mechanisms must gradually be built into enterprise information systems (Yang *et al.*, 2011). Strong internal control system is highly relevant for organizations because organizations are particularly vulnerable to fraud and is closely related to information systems used (Cahill, 2006). Most organizations have adequate security

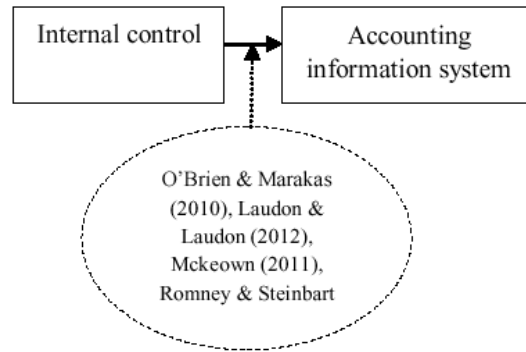


Fig. 1: Theoretical framework

controls, managers and practitioners are expected to improve the security of accounting information systems and security technology for organizational success (Musa, 2010).

Research model and hypothesis: Based on description above, the model can be described as follows shown in Fig. 1.

Hypothesis: Internal control affects the quality of accounting information system.

RESULTS AND DISCUSSION

The population in this study is the chief and staff accounting/finance at state and private universities in the city who use accounting information systems in data processing of accounting transactions. In this study, the minimum sample size taken using power analysis method. With the 5% significance level, statistical power of 80% of the total direction of the arrow pointing towards the highest numbered constructs 3 and R^2 is 0.25 then the minimum sample size taken in this study is 59 samples. In this research, there are two types of data are primary data and secondary data. Methods of data collection is done by sending questionnaires by mail in which each unit of analysis will be sent a questionnaire 3-4. The analysis is done through structural equation modeling (Structural Equation Model with the assessment of PLS-SEM) to be able to answer the problem formulation and answer hypothesis. The assessment of PLS is used for the measurement model built number of samples used is < 100.

In this research model developed in structural models and measurement models. Structural models (inner model) in this study consisted of latent exogenous

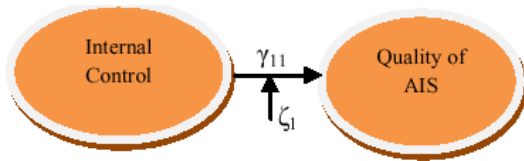


Fig. 2: Structure model

$$\begin{aligned}
 X_1 &= \lambda_{111} \times \eta_{11} + \delta_1 \\
 X_2 &= \lambda_{211} \times \eta_{11} + \delta_2 \\
 X_3 &= \lambda_{312} \times \eta_{12} + \delta_3 \\
 X_4 &= \lambda_{412} \times \eta_{12} + \delta_4 \\
 X_5 &= \lambda_{512} \times \eta_{12} + \delta_5 \\
 X_6 &= \lambda_{613} \times \eta_{13} + \delta_6 \\
 X_7 &= \lambda_{713} \times \eta_{13} + \delta_7 \\
 P_1 &= \pi_{111} \times \eta_{11} + \pi_{112} \times \eta_{12} + \pi_{113} \times \eta_{13}
 \end{aligned}$$

variables that internal control and the variable quality of the accounting information system is an endogenous variable.

Measurement model: Measurement model for internal control: the equation used.

Measurement model for quality of accounting information systems: The equation used:

$$\begin{aligned}
 Y_1 &= \lambda_{12} \times \eta_2 + \epsilon_1 & Y_6 &= \lambda_{64} \times \eta_4 + \epsilon_6 \\
 Y_2 &= \lambda_{22} \times \eta_2 + \epsilon_2 & Y_7 &= \lambda_{74} \times \eta_4 + \epsilon_7 \\
 Y_3 &= \lambda_{32} \times \eta_2 + \epsilon_3 & Y_8 &= \lambda_{21} \times \eta_1 + \epsilon_2 \\
 Y_4 &= \lambda_{43} \times \eta_3 + \epsilon_4 & Y_9 &= \lambda_{31} \times \eta_1 + \epsilon_3 \\
 Y_5 &= \lambda_{53} \times \eta_3 + \epsilon_5 & Y_{10} &= \lambda_{41} \times \eta_1 + \epsilon_4
 \end{aligned}$$

while the structural equations of the model are shown in Fig. 2:

$$\eta_1 = \gamma_{11} \times \zeta_1 + \zeta_1$$

Evaluation of measurement model shown in Table 1.

First order analysis: Based on the results of the first order variable internal control confirmatory factor analysis can be seen the value of all the weight factor valid as a measure for each indicator is above 0.5. Realibility composite value (CR) of each dimension is greater than the standard value is above 0.7 indicating that the indicators have consistency in measuring each dimension.

Likewise, the value of Average Variance Extracted (AVE) of each indicator is greater than the standard (where the standard value greater than 0.5) For the variable quality of the accounting information system can

be seen the value of all valid weighting factor is above 0.5. For CR also above the standard 0.7 and AVE values above the standard set.

Second order analysis: The second order analysis is used to test the validity and reliability of each of the dimensions that make up the variable. The test results of each dimension on each variable confirmatory factor analysis as presented in Table 2. Based on the results of confirmatory second order factor analysis can be seen the value of the weight factor of each dimension is valid form any variables measured. Value Composite Realibility (CR) shows a number greater than the standards indicate that all dimensions have consistency data measure every variable and subsequently the value of Average Variance Extracted (AVE) show that on average the information contained in each dimension can be expressed in any variable.

Variable internal control, based on Table above can be seen that the estimated coefficient of determination (R²), the largest in internal control expressed by peng3 (improve operational efficiency). These results show that the dimensions of improving operational efficiency is the most important factor in weight reflects internal control. Furthermore, to the variable quality of the accounting information system, also can be seen that the estimated coefficient of determination (R²), the largest in the quality of accounting information system is expressed by the dimensions SIA (sophistication). Sophistication is a more important factor in reflecting the quality of accounting information system.

Structural model: The structural model is a model that connects the latent variables with latent variables endogeneous exogenous or endogenous variable relationship with the other endogenous variables. In this study hypothesized that the internal control affects the quality of accounting information systems. The following are the results of the significance test of these hypotheses through statistical hypothesis as follows:

- H₀: β_{SIA,PI} = 0 internal control does not affect the quality of accounting information system
- β_{SIA,PI} = Internal control does not affect the quality of accounting information system

Statistical tests used were:

$$\begin{aligned}
 \text{nilai - p} &= 1 - F \left(\left| \frac{O_{SIA, KP}}{STDEV_{SIA, KP}} \right| \leq Z \right) \\
 &\leq \left| \frac{O_{SIA, KP}}{STDEV_{SIA, KP}} \right| = 0,80; Z - N(0,1)
 \end{aligned}$$

Table 1: Confirmatory factor analysis indicators

Variables of internal control				Variable of quality of accounting information system			
Indicators	Loading			Indicators	Loading		
	factors	CR	AVE		factors	CR	AVE
X ₁	0.90	0.87	0.78	Y ₁	0.68	0.77	0.57
X ₂	0.86			Y ₂	0.73		
X ₃	0.88	0.73	0.58	Y ₃	0.77		
X ₄	0.59			Y ₄	0.74	0.81	0.59
X ₅	0.57			Y ₅	0.71		
X ₆	0.61	0.97	0.60	Y ₆	0.75		
X ₇	0.90			Y ₇	0.67		

Table 2: Confirmatory factors analysis dimension

Dimension	Loading factor	R ²	CR	AVE
Peng1	0.812	0.660	0.873	0.775
Peng2	0.836	0.699	0.739	0.510
Peng3	0.864	0.747	0.727	0.595
Sial1	0.831	0.690	0.768	0.526
Sial2	0.903	0.815	0.809	0.515

While the test criteria used are Reject H⁰ if the p-values smaller than the significance level of 0.05. In this study, p = 0.00 < 0.005 and is therefore null hypothesis is rejected. It can be concluded there is an influence of the internal control of the quality of accounting information systems. Its influence is positive with strong influence score of 0.58 which is any internal control increased by one standard deviation, accounting information systems quality score will go up by 0:58 standard deviation.

CONCLUSION

Based on this phenomenon, the problem formulation, hypothesis and research results, the conclusions of the study are: the internal control system affects the quality of accounting information. But the quality of accounting information system has not completely good, it is because Flexibility of the accounting information system is not adequate it can be seen from the verification carried out in which the system has not been easy to learn, yet easy to use and yet powerful (frequent occurrence of error). Due to the persistence of the problems in the accounting information system satisfaction (sophistication) also becomes an important part in the implementation of the information system mainly satisfaction in accessing the system and the integration of data from the system.

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