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The Importance of Internal Control on Accounting Information System's Quality: Survey on Banking Sector

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Abstract: In today's world that relies more on information technology, all business organizations need accounting information systems (AIS) to be able to compete and survive. The phenomenon of unqualified AIS occurs in various organizations including banks. A qualified AIS will have an impact on accounting information's quality. Thus, internal control must be developed to ensure proper data entry process, processing techniques, storage methods and information generated. It is needed to ensure that AIS operates as it should so that the risk of deviation from predetermined objectives can be avoided. This study aims to analyze the effect of internal control effectiveness towards AIS's quality. The research survey was conducted on regional development banks, located in 27 provincial capitals throughout Indonesia. Data were collected through a questionnaire. Partial Least Square SEM method was used in data processing and analysis. The results proves that there is an effect of internal control effectiveness on AIS's quality. Internal control that was conducted showed a gap which means that they have not yet been implemented effectively in order to enhance AIS's quality. Therefore, internal control effectiveness is very important to enhance AIS's quality which will have an impact on accounting information's quality.

1 INTRODUCTION

1.1 Accounting Information System's Quality

Accounting Information Systems (AIS) is the main information system for an organization which serves to provide information for users to complete their work (Romney & Steinbart, 2015). AIS is designed to support the business processes and operations of an organization as well as to help in the decision-making process (O'Brien & Marakas, 2011). In today's world which relies more on information technology, organizations genuinely need AIS in order to survive (Gelinas & Dull, 2008). Without the support of AIS, it is impossible for an organization to be able to compete (Bodnar & Hopwood, 2010). In other words, all forms of business, both small and multinational, will not be able to survive without the support of a qualified AIS (Stair & Reynolds, 2016).

A qualified AIS is needed to produce qualified information to be useful for users in both internal and external of the company (Wilkinson et al., 2000). The criteria for measuring the quality of a system according to Fortune & Peters (2005) are being able to meet user needs, able to achieve goals, accordance with the planned time and budget, able to provide satisfaction for users, and able to meet quality standards. In the context of information systems, what is meant by quality is how well the final results of an information system are able to meet the goals set by management (Laudon & Laudon, 2014). Several experts stated that the quality characteristics of AIS include flexible, efficient, accessible, timely (Stair & Reynolds, 2010); availability, security, integrity, and maintainability (Bagranoff et al., 2010); accuracy, timelines, and ease of use (Laudon & Laudon, 2014).

The phenomenon related to the quality of AIS is the problem of AIS that has not been integrated (integration). For example, the case that occurred at the Regional Development Banks (Indonesian: Bank Pembangunan Daerah/BPD). According to the statement of the Association Chairman of Regional Development Banks, Budiwiyono (2015), only 15 out of 26 BPDs had joined the integrated information system through one online platform (BPD Net Online). Budiwiyono emphasized that by relying on

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an online system, which is a system that is equipped with several features ranging from cash deposits, book-entry, transfers to other BPDs and receiving transfers from other BPDs, banking transactions can be conducted in real time.

The next problem would be the unreliability of AIS (reliability). For example, the fictitious credit case at BSB Bank on behalf of PT CT which involved BSB employees, through false record keeping which resulted in PT CT being able to get loan funds of up to IDR 480 billion (Adil, 2014). According to the Deputy Commissioner for Banking of Financial Service Authority, Kristiyana (2015), one of the programs conducted by BPD is a transformation program consisting of three phases which in the first phase it aims to build a supporting process and strong capital along with a fine quality of human resources, working culture, and reliable information systems through synergies of BPD group.

Aside from reliability, the next problem is regarding the inflexible AIS (flexibility). One of many examples is the effort made by Panin Islamic Bank in collaboration with PT Emerio Indonesia in the context of the application of the Regla RCS (Banking Regulatory & Compliance Suite) Software, so that AIS and reporting can be precise and flexible according to the needs and character of the company (Sarasidya, 2014). Another example related to flexibility is what happened to BPD DKI, as stated by the Governor of DKI Jakarta, Purnama (2016) that the information system of BPD DKI is considered to be "out of date". This shows that AIS is not flexible/not able to adapt to technological changes.

Another problem is regarding AIS that is difficult to use (usability). For example, the launch of the MPN-G2 system, which is an online tax payment acceptance system conducted by BPD Kaltim, with the aim of making it effortless for taxpayers to pay off their tax obligations electronically (Hanafiah, 2015). With this system, deposits could be made more practically, quickly, and safely through internet banking, mobile banking, ATMs, or Electronic Data Capture (EDC) machines, eliminating the need to queue at teller counters. Another example is the virtual account system at the BPD DKI which according to the Governor of DKI Jakarta, Purnama (2016) was still difficult to use by Jakarta citizens to conduct financial transactions.

Based on the phenomenon described above, we could see that there are problems related to the quality of AIS in the banking sector especially by taking cases from Regional Development Banks. The problem of AIS's quality will eventually have an impact on the quality of accounting information produced. We all know that it is important for banks as a financial institution to be trustworthy. Therefore, this study aims to analyse the effect of internal control effectiveness towards AIS's quality. The results will show how important the internal control effectiveness in enhancing AIS's quality.

1.2 Internal Control Effectiveness

One of the factors affecting the quality of AIS is the existence of an effective internal control. Internal control is basically a process designed to provide adequate assurance about the achievement of organizational goals, namely the reliability of financial reporting, operational effectiveness and efficiency, and compliance with applicable laws and regulations (Bodnar & Hopwood, 2010).

In general, internal control is defined as a method and tool that attempts to ensure the accuracy, validity and appropriateness of information system activities (O'Brien & Marakas, 2011). O'Brien & Marakas further stated that internal control is developed to ensure that the data entry process (input), processing techniques (processing), storage methods (storage) and the information generated (output) were conducted appropriately so that they could monitor and maintain the quality, as well as security from input, process, output and storage activities of any information system.

Internal control is needed to provide assurance to management that the implemented system is functioning as expected and is capable of being operated in various conditions (Jajodia & Strous, 2004). This is supported by Susanto's statement (2013), that internal control is essential to ensure that AIS operates as it should so that the risk of deviation from predetermined objectives can be avoided. According to Boockholdt (1999), internal controls implemented in AIS are called information systems controls. This is emphasized by Jones & Rama (2003), that it is possible to build control in AIS to help achieve goals. COSO even emphasized the importance of control procedures for all information systems related to finance, operations and compliance (Moeller, 2005).

According to Stair & Reynolds (2010) effectiveness is a measure of the extent to which a system meets its objectives or achieves its goals. The same thing was also stated by Weber (1999) and Boockholdt (1999). The fact is not all organizations have an effective internal control (Romney & Steinbart, 2015).What is meant by the effectiveness of internal control in the context of this research is the successful application of methods, policies and

procedures designed and influenced by the board of commissioners, management and employees in providing assurance that AIS functions as expected in carrying out data entry, processing, storage, and output activities so that the risk of deviation from the stated objectives can be avoided.

Basically, internal controls consist of general controls and application controls (Boczko, 2007; Laudon & Laudon, 2014). General controls are the information system controls that affect all applications of the computer in the organization while application controls affect an individual application.

An example of an ineffective internal control case occurred in the Regionally-Owned Enterprises (BUMD) of East Java Provincial Government. Weak internal control resulted in the emergence of the findings of The Audit Board of the Republic of Indonesia on two Regionally-Owned Enterprises of East Java Provincial Government, namely PT Petrogas Jatim Utama and PT BPD Jatim (Napitupulu, 2014). According to the Chairman of the Board of Commissioners of Financial Service Authority (OJK) Hadad (2017), BPD transformation needed to be supported by the availability of professional human resources, adequate IT infrastructure, GCG implementation, risk management and an effective internal control.

Another example related to the weak internal control is the account breaching case of 54 customers of BPD Kalbar (West Kalimantan) with a total loss value of IDR 1.6 billion (Nugroho, 2015). The same problem also occurred at Bank Nagari, Solok branch (West Sumatera), due to a poor bank security system which resulted in the loss of customer savings of IDR 350 million (Amir, 2015).

1.3 The Effect of Internal Control Effectiveness on AIS's Quality

Internal control aims to ensure the successful implementation of AIS. In other words, internal control is required to achieve AIS objectives (Nash & Roberts, 1984). O'Brien & Marakas (2011) emphasized that internal control is designed to monitor and maintain the quality and safety of input, processing, output and storage activities of any information system including AIS. This is highlighted by Laudon & Laudon (2014) that internal control aims to be able to regulate the production and documentation of information in financial reports. Therefore, it is necessary to think about the security of the AIS so that other controls (internal control) are needed to ensure the integrity, confidentiality and accuracy of the data.

The effectiveness of internal control is very important because the poor quality of the AIS will give an impact in decision-making process (Moeller, 2011). The need for controls over all aspects of AIS is expressed by Curtis & Cobham (2005) that in all information systems, data must be managed in a structured manner so that it could be accessed easily, processed efficiently, obtained quickly, and managed effectively.

The theory above is supported by Fardinal's research (2013), which proves that the internal control effectiveness affects the quality of AIS. In addition, research conducted by Hamzah & Norwahida (2014) proves that the quality of AIS is affected by the internal control effectiveness. Likewise, research conducted by Neogy (2014) proves that effective internal control will increase the efficiency of AIS. Another empirical evidence is the research of Anggadini (2015) which proves that internal control has a significant effect on the quality of AIS. The same thing is stated in the results of research by Mulyani & Enggar (2016) that the internal control effectiveness effects the quality of accounting information generated by AIS. Likewise, the research by Hayale & Kadra (2006) proves that inadequate internal control over AIS could lead to a potential fraud in the banking sector in Jordan.

Evidence that internal control effectiveness affects AIS's quality is also stated in Chen & Sui's research (2008), that internal control is a fundamental security tool to ensure the reliability of AIS operations. According to Danescu et al. (2012) internal control effectiveness has an impact on the information generated by AIS.

In line with O'Brien & Marakas (2011) statement that internal control is designed to monitor and maintain the quality of any information system, then effective internal control is required to provide assurance to management that the implemented AIS is functioning as expected (qualified AIS). In other words, ineffective internal control will cause poor quality of AIS which in turn will have an impact on the quality of the resulting accounting information which will be used by stakeholders in decision making.

Based on the theory that has been stated above, which is supported by the results of empirical research, the hypotheses that can be stated here is:

H_1: *The internal control effectiveness has a positive effect on AIS's quality.*

The results of this study have benefits or contribution for the development of science, namely efforts to find general truths based on the knowledge possessed to produce additional knowledge through

understanding the phenomena that occur to build theories. Furthermore, based on the theory built and existing empirical evidence, the results of this study produce problem solving to the phenomena that occur as stated in the research background.

2 METHODS AND MATERIALS

2.1 Research Methods

This research is categorized as a descriptive and an explanatory research conducted using survey method. Questionnaires is distributed to respondents in data collecting. Unit of analysis in this research is the accounting and operational divisions of Regional Development Banks (BPD) that are spread across all provinces in Indonesia. BPD is a local government bank with a different system from other banks. This makes the difference between this study and previous research as the novelty of this research. Furthermore, the observation unit in this study are users of AIS, especially those who regularly interact with the accounting information systems in completing their work. In this case the head and staff of the accounting and operational divisions of BPD, approximately 3-5 people. The population in this study were 27 BPD located throughout Indonesia, including the head office, main branches and sub-branches. The unit of research analysis is BPD bank

In the context of this study, the effectiveness of internal control is assessed from whether the internal control that is implemented consisting of general controls including software control, hardware control, computer operating procedure control, data security control, implementation control, and administrative control as well as application control including input control, process control and output control. is adequate to maintain the quality of AIS which is then represented by X (independent variable).

The dimensions and indicators used in assessing the effectiveness of internal control are described in detail below.

1. *General control* is defined as managing the design, security, and usability of computer programs and the security of data files in general through an information technology infrastructure with indicators includes:
   a. *Software control* is the level of supervision to prevent unauthorized access to software programs, software systems, and computer programs.
   b. *Hardware control* is the level of control to ensure that the computer hardware is physically safe, and functioning properly.
   c. *Computer operating procedure control* is the level of control to ensure that data storage and processing procedures are carried out appropriately and consistently.
   d. *Data security control* is a level of control to ensure that all files cannot be misused by unauthorized parties.
   e. *Implementation control* is the level of control through an information system audit to ensure that the system is executed properly.
   f. *Administrative control* is the level of control that is carried out to ensure that general controls and company applications have been carried out in accordance with standard operating procedures (Boockholdt, 1999; Bodnar & Hopwood, 2010; Laudon & Laudon, 2014; Romney & Steinbart, 2015; Susanto, 2013).
2. *Application control* consist of manual and automated procedures to ensure that only authorized data can be processed completely and accurately by the application with indicators includes:
   a. *Input control* is the level of control to ensure that the data entered is complete and accurate.
   b. *Process control* is the level of control to ensure that data is complete and accurate during the updating process.
   c. *Output control* is the level of control to ensure that computer processing results are truly accurate, complete and properly distributed (Boockholdt, 1999; Bodnar & Hopwood, 2010; Susanto, 2013: Laudon & Laudon, 2014; Romney & Steinbart, 2015).

Furthermore, the quality of AIS is assessed by whether the system being implemented achieves its objectives as measured by achieving integration, reliability, flexibility and usability which is then represented by Y (dependent variable).

The dimensions and indicators used in assessing the AIS's quality are described in detail below:

1. *Integration* means the relationship and interdependence (harmoniously) between components (sub systems) in the system and between the system and the environment (Wu, 1983; Nash & Roberts, 1984; Leitch & Davis, 1992; Grady, 1994; Whitten & Bentley, 2007; Boczko, 2007; Heidmann, 2008; Baltzan & Phillips, 2009; Stair & Reynolds, 2010; Bojic, 2015), includes:

a. *Integration between sub-systems* (Grady, 1994; Boczko, 2007; Heidmann, 2008; Stair & Reynolds, 2010; Bojic, 2015).
b. *Integration between system and other systems* (Wu, 1983; Nash & Roberts, 1984; Heidmann, 2008; Bojic, 2015).

2. *Reliability* means the system functions properly and securely in producing accurate information (Nash & Roberts, 1984; Avgerou & Conrnford, 1998; DeLone & McLean, 2003; Boczko, 2007; Baltzan & Phillips, 2009; Bagranoff *et al*., 2010; Baltzan, 2014), includes:
   a. *Accounting information systems operate correctly starting from data input, processing to generating accounting information* (Avgerou & Conrnford, 1998; Boczko, 2007; Baltzan & Phillips, 2009; Baltzan, 2014).
   b. *Accounting information systems generate accurate accounting information* (Avgerou & Conrnford, 1998; Boczko, 2007; Baltzan & Phillips, 2009; Bagranoff *et al.*, 2010).
3. *Flexibility* means the system is able to adapt to various user needs and changing conditions (Avgerou & Conrnford, 1998; Boczko, 2007; Heidmann, 2008; Baltzan & Phillips, 2009; Stair & Reynolds, 2010; Bagranoff, *et al*., 2010; Romney & Steinbart, 2015), includes:
   a. *The system's ability to adapt to changing conditions/environment* (Avgerou & Conrnford, 1998; Boczko, 2007; Heidmann, 2008; Baltzan & Phillips, 2009; Stair & Reynolds, 2010; Bagranoff, *et al*., 2010).
   b. *The system's ability to adapt to changing needs or business* (Boczko, 2007; Heidmann, 2008; Baltzan & Phillips, 2009; Bagranoff, *et al*., 2010; Stair & Reynolds, 2010).
4. *Usability* means the system must be easy to use, easy to learn and directly meet people's needs (Avgerou & Conrnford, 1998; Laudon & Laudon, 2014; Baltzan, 2014), includes:
   a. *Easy to use* (Avgerou & Conrnford, 1998; Laudon & Laudon, 2014:505; Baltzan, 2014).
   b. *Easy to learn* (Avgerou & Conrnford, 1998; Baltzan, 2014).

The following is a research instrument on the effectiveness of internal control and accounting information system's quality using a 5 point of likert scale.

Table 1: Research Instrument on The Effectiveness of Internal Control.

1	The AIS that is used is safe from possible access or misuse by unauthorized parties because it has used a password, thereby being able to function as expected. (not safe – very safe)
2	The AIS that is used is able to run properly because it is equipped with hardware that is always guaranteed to be physically safe and to function properly. (not guaranteed – fully guaranteed.
3	The AIS that is used is able to run well in processing and storing data because it is always monitored by the IT department. (never – always).
4	All important files that have been processed using AIS are safe from the possibility of theft, damage, viruses, fire, or misuse of data by unauthorized parties due to security measures such as the use of passwords, and data backup to a separate server. (not safe – very safe).
5	The AIS used is capable of running well because it is always audited to ensure that AIS has been implemented as intended. (never – always).
6	The AIS used is able to run well because it complies with the standard operating procedures (SOP) in the company. (not suitable – very suitable).
7	The AIS used has guaranteed the completeness and accuracy of the data to be inputted into the system, because it is equipped with a feature that provides a warning if the data entered is incomplete and inaccurate. (not guaranteed – fully guaranteed).
8	The AIS used is able to run properly because the data to be processed further is always guaranteed to be complete and accurate. (not guaranteed – fully guaranteed).
9	The AIS is able to run properly because the information generated (output) is always guaranteed to be accurate, complete and in accordance with user needs. (not guaranteed – fully guaranteed).

Table 2: Research Instrument on The AIS's Quality.

1	Applications and data in AIS have been connected in an integrated manner both between levels in the same section and with other sections. (not integrated – fully integrated).
2	Applications and data in AIS are harmoniously connected between department. (not integrated – fully integrated).
3	AIS functions correctly starting from inputting data, processing, to producing accounting information (not reliable – fully reliable).
4	The AIS is reliable because the information generated is always accurate according to user needs (not reliable – fully reliable).
5	The AIS is able to run well because it has the ability to adapt to changing conditions or environment. (lacks of capability – very capable).
6	The AIS is able to run well because it has the ability to adapt to various needs of users. (lacks of capability – very capable).
7	The AIS is able to run well because it has features that are easy to operate so that it helps users in completing work. (not easy - very easy).
8	The AIS is able to run well because it has features that are easy to learn so that it helps users in completing work. (not easy - very easy).

2.2 Data Testing Methods

The validity test used in this study was the Rank-Spearman correlation technique (Sekaran & Bougie, 2013).

$$r_s = \frac{\sum x^2 + \sum y^2 - \sum d_i^2}{2\sqrt{\sum x^2 . \sum y^2}} \quad (1)$$

To determine the validity of an item/statement, a t-test was conducted, with the following formula:

$$t = r_s . \sqrt{\frac{N - 2}{1 - r_s^2}} \quad (2)$$

With a significance level of 95% (alpha = 0.05), the t-count obtained is compared with the t_{table}, with degrees of freedom (df = n - 2). The conditions used are as follows:

- If $t_{count} \geq t_{table}$, then the questionnaire instrument is valid.
- If $t_{count} < t_{table}$, then the questionnaire instrument is invalid.

Furthermore, the reliability test was conducted using Cronbach Alpha to test the interim consistency reliability and split-half reliability (Sekaran & Bougie, 2013). An instrument is said to be reliable if the Cronbach Alpha coefficient exceeds 0.6.

$$\alpha = \frac{k}{k - 1}\left(1 - \frac{\sum_{i=1}^{k} S_i^2}{S^2_{total}}\right) \quad (3)$$

Information:
k = the number of parts of the item
S_i^2 = the variance of the i-item
S^2_{total} = the total variance of the items

2.3 Data Analysis Methods

Inferential analysis in this study was conducted using a covariance-based structural equation modelling method, namely partial least square (PLS) (Hair et al., 2014). Second order model was used for the measurement model (outer model) in this study, where the first factor is the dimension while the second factor is the variable. The outer model specifies the relationship between latent variables and their indicator variables or manifest variables (measurement model). The first factor measurement model is a model that connects dimensions with indicators, while the second measurement model is a model that connects latent constructs with manifest variables. The latent construct consists of the internal control effectiveness and the quality of AIS.

For the Internal Control Effectiveness (ESPI) variable, the measurement model is formative in the first order consisting of general control (PGUM) and application control (PGAP), while in the second order it is reflective. The following are figure and measurement equations which state the causal relationship between indicators and latent variables as follows:

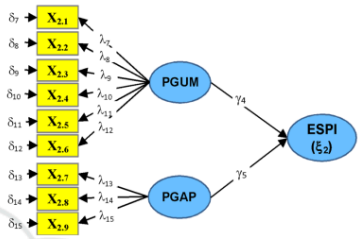

Figure 1: Internal Control Effectiveness Variable Measurement Model.

For the AIS's quality (KSIA) variable, the measurement model is reflective in the first order which consists of: integration (INTG), reliability (RELB), flexibility (FLEX), usability (USAB), the second order is reflective as well. The measurement equation which states the causality relationship between indicators and latent variables is as follows:

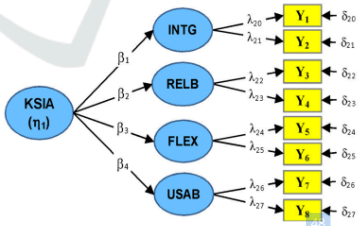

Figure 2: AIS's Quality Variable Measurement Model.

Based on the structural measurement model in Figure 1 and 2, the statistical hypotheses to be tested in this study are as follows:

$H_o : \gamma_{1.2} = 0$ = Internal control effectiveness has no effect on AIS's quality.

$Ha : \gamma_{1.2} \neq 0$ = Internal control effectiveness has a positive effect on AIS's quality.

3 RESULTS AND DISCUSSION

The research survey was conducted on regional development banks, located in 27 provincial capitals throughout Indonesia including the head offices, main branches and sub-branches. Data were collected through questionnaires. The following is table 3 which state the recapitulation of questionnaires distributed and returned from respondents.

Table 3: Recapitulation of Questionnaires Distributed and Returned.

Unit of Analysis	Total Questionnaire Distributed		Total Questionnaire Returned		% Questionnaire Returned	
	BPD	Resp	BPD	Resp	BPD	Resp
Head Office	27	140	24	120	88,89	85,71
Main Branches	27	81	8	24	29.63	29.63
Sub-Branches	27	54	12	32	44.44	59.26
Total	81	275	44	176	54.32	64

Source: data processing results

Based on the data in table 3, it can be seen that the percentage of questionnaires returned was 65%. It means that the minimum respond rate of 30% has been fulfilled (Sekaran & Bougie, 2013).

The following are the results of the validity and reliability tests:

Table 4: Recapitulation of Validity and Reliability Test Results.

Variable	Statement Item	Validity	Reliability
Internal Control Effectiveness	Item 1	0,635	0,884
	Item 2	0,691	
	Item 3	0,533	
	Item 4	0,720	
	Item 5	0,540	
	Item 6	0,696	
	Item 7	0,627	
	Item 8	0,670	
	Item 9	0,702	
AIS's Quality	Item 10	0,743	0,914
	Item 11	0,673	
	Item 12	0,726	
	Item 13	0,770	
	Item 14	0,707	
	Item 15	0,730	

Based on the results of the validity and reliability test above, it can be seen that all statement items have met the validity requirements because they have a correlation value greater than 0.30. Likewise, the reliability test results have a coefficient greater than 0.60, hence it can be concluded that the questionnaire used has the reliability to measure each variable and can be continued for further analysis.

According to Cooper & Schindler (2013) to make it easier to interpret the variables being studied, especially for ordinal data, categorization is carried out using the interquartile range associated with the median. The first quartile is the 25th percentile, the second quartile (median) is the 50th percentile and the third quartile is the 75th percentile. In a questionnaire using a scale of 1-5, the first quartile (1-<2) categorized as bad category, the second quartile (2-<3) categorized as poor category, the third quartile (3-<4) categorized as adequate category and the fourth quartile (4-5) categorized as good category.

The internal control effectiveness at Regional Development Banks in Indonesia in association with AIS's quality is measured through two dimensions, namely general control and application control. General control dimensions are measured through six indicators, namely software control, hardware control, computer operating procedure control, data security control, implementation control and administrative control. Furthermore, the application control dimensions are measured through three indicators, namely input control, process control and output control. The following is the recapitulation of each dimension of the internal control effectiveness as presented in table 5.

Table 5: Average Score Recapitulation of Respondents Response for Each Dimension of Internal Control Effectiveness Variable Related to AIS's Quality.

Dimension	Real Score	Total Score	Average	% Real Score: Total	% Gap	Category
G C	586	720	4,07	81,39	18,61	Good
A C	267	360	3,71	74,17	25,83	Ade-quate
Total Average	853	1080	3,95	78,98	Adequate	
Gap			1,05	21,02		
Actual Total				100		

Based on table 5 above, it can be seen that the responses of respondents regarding the internal control effectiveness are as follows:

1. Responses from BPD employees in Indonesia who became the research samples on the internal control effectiveness in relation to the quality of the AIS have an average score of 3.95, which is categorized as adequate. This shows that in general, the internal control implemented by BPD

in Indonesia is quite effective but not yet fully effective both general control and application control in supporting the quality of AIS. There is still a gap with an average score of 1.05.

2. On average, the real score compared to the total internal control effectiveness in relation to the quality of the AIS used is 78.98%. This shows a gap of 21.02%. This gap shows a form of quantification of the actual condition that the implemented internal control is not yet fully effective in supporting the quality of AIS, especially with the application control dimension which has a lower average score (3.71), compared to general control (4.07).

The following is the description of the respondents' responses regarding the internal control effectiveness as seen from the indicators of each dimension.

1. General Control Dimensions

The general control dimensions are measured using six indicators, namely software control, hardware control, control of computer operating procedure, data security control, implementation control and administrative control. Overall, the six indicators are operationalized into two statement items.

Based on average score recapitulation of respondent's response regarding relationship of each indicator with AIS's Quality in General Control Dimensions, the average respondent's response to the software control indicators has a score of 3.92, which is categorized as adequate. From the distribution of the questionnaire, in general, 29,23% of respondents stated that generally, the internal control implemented by BPD in Indonesia had a very good software control, then 58,3% of respondents stated it was good, while 12.5% of respondents stated it was quite good.

Based on the processed data, the average respondent's response to the hardware control indicators has a score of 4.25, which is categorized as good. From the distribution of questionnaires, in general, 41,7%% of respondents stated that generally, the internal control implemented by BPD in Indonesia had a very good hardware control, the remaining 58,3% of respondents stated it was good.

Based on the processed data, the average respondent's response to the indicators of computer operating procedures control has a score of 4.33 which is categorized as good. From the distribution of questionnaires, in general, 70.8% of respondents stated that generally, the internal control implemented by BPD in Indonesia had a very good computer operating procedures control, the remaining 29.2% of respondents stated it was good.

Based on the processed data, the average respondent's response to the data security control indicators has a score of 3.96, which is categorized as adequate. From the distribution of the questionnaire, in general, 33,3%% of respondents stated that the internal control implemented by BPD in Indonesia had a very good data security control, then 54,2% of respondents stated it was good, while 12.5% of respondents stated it was quite good.

Based on the processed data, the average respondent's response to the implementation control indicators has a score of 4.04, which is categorized as good. From the distribution of the questionnaire, in general, 37,5% of respondents stated that the internal control implemented by BPD in Indonesia had a very good implementation control, then 54,2% of respondents stated it was good, while 8.3% of respondents stated it was quite good.

Likewise, from the processed data, the average respondent's response to the administrative control indicator has a score of 3.92, which categorized as adequate. From the distribution of questionnaires, in general, 12,5% of respondents stated that the internal control implemented by BPD in Indonesia had a very good administrative control, then 79,2% of respondents stated it was good, while 8.3% of respondents stated it was quite good.

2. Application Control Dimensions

The dimensions of application control are measured using three indicators, namely input control, process control and output control. Overall, the three indicators are operationalized into two statement items.

Based on recapitulation of the average score of respondents' responses regarding the relationship of each indicator with AIS's quality in the application control dimensions, the average respondent's response on the input control indicator has a score of 3.63, which is categorized as adequate. From the distribution of the questionnaire, in general, 4,2% of respondents stated that the internal control implemented by BPD in Indonesia had a very good input control, then 66,7% of respondents stated it was good, while 29,2% of respondents stated it was quite good.

Based on the processed data, the average respondent's response to the process control indicator has a score of 3.71, which is categorized as adequate. From the distribution of the questionnaire, in general, 8.3% of respondents stated it was very good, then 79.2% of respondents stated it was good, while 12.5% of respondents stated it was quite good.

Based on the processed data, the average respondent's response to the output control indicator has a score of 3.79, which is categorized as adequate. From the distribution of questionnaires, in general, 12,5% of respondents stated that the internal control implemented by BPD in Indonesia had a very good output control, then 75% of respondents stated it was good while 12.5% of respondents stated it was quite good.

Following the explanation of the measurement model of the internal control effectiveness variable. The internal control effectiveness is measured using two dimensions which are operationalized into nine indicators. Based on the results of data processing using the second order confirmatory factor analysis, the measurement model for the latent variable on the internal control effectiveness was obtained as presented in the following figure.

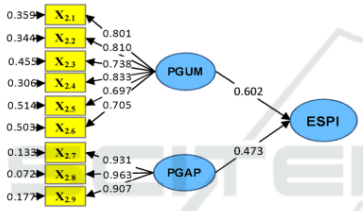

Figure 3: Path Diagram of The Measurement Model of Internal Control Effectiveness Variable.

Following the explanation of the measurement model of AIS's quality variable. AIS's quality is measured using 4 dimensions which are operationalized into 8 indicators. Based on the results of data processing using second order confirmatory factor analysis, the measurement model for the latent variables of the accounting information system quality was obtained as presented in the following figure.

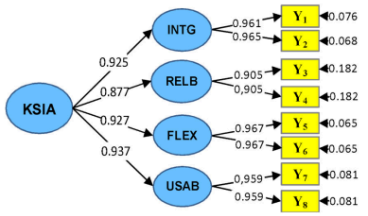

Figure 4: Path Diagram of The Measurement Model of AIS's Quality Variable.

Furthermore, hypothesis testing was conducted to determine the effect of the internal control effectiveness on AIS's quality as described in the following table.

Table 6: Test Results of The Effect of Internal Control Effectiveness on AIS's Quality.

Path Coefficient	t_{count}	$t_{critical}$	H_0
0,436	2,548	1,96	Rejected

Based on the data in table 6, it can be seen that the t_{count} value of the internal control effectiveness variable (2.548) is greater than $t_{critical}$ (1.96). Because the value of t_{count} is greater than $t_{critical}$ level, then at an error level of 5%, it was pronounced to reject H_0. So based on the test results, it can be concluded that the internal control effectiveness has a positive effect on AIS's quality. The results of this study in line with the empirical evidence that the more effective internal control is, then the higher quality of AIS will be.

4 CONCLUSIONS

Based on the results of hypothesis testing, it is known that the internal control effectiveness has a positive effect on AIS's quality. The results of this hypothesis testing support the theory as stated by Nash & Roberts (1984); O'Brien & Marakas (2011); Moeller (2011) who state that internal control is designed to monitor and maintain the quality and security of input, processing, output and storage activities of any information system.

The results of the hypothesis testing are in accordance with the conclusions of previous studies which were conducted by Hayale & Kadra (2006); Fardinal (2013); Hamzah & Norwahida (2014); Anggadini (2015); Mulyani & Enggar (2016). Ineffective of internal control over AIS could lead to potential irregularities.

Internal control effectiveness gave an effect of 37%. It means that 37% of AIS's quality was caused or could be explained by the internal control effectiveness. Insufficient contribution of general control conducted by BPD in Indonesia in enhancing the quality of AIS was shown by the fact that there was a gap of 18.48%, which means that general control conducted by BPD in Indonesia, through software control, hardware control, computer operating procedures control, data security control, implementation control, and administrative control have not been fully effective in enhancing the quality of AIS at each BPD in Indonesia.

Furthermore, insufficient contribution of application control conducted by BPD in Indonesia in enhancing the quality of AIS was shown by the fact that there was a gap of 25.15%, which means that application control conducted by BPD in Indonesia through input control, process control, and output control have not been fully effective in enhancing the quality of AIS at each BPD in Indonesia.

Based on the results of research, discussion and conclusions, the suggestions that can be put forward are as follows:

1. Increasing the Effectiveness of Internal Control by:
   a. Safeguard the AIS (software) by ensuring that the password used is completely safe from possible accessibility by unauthorized parties through the design of the AIS software which automatically requires AIS's users to use password when accessing data files and automatically requests AIS's users to change password periodically.
   b. Perform regular checks on the hardware used by employees regarding AIS use to ensure that the hardware is always in good working condition.
   c. Perform regular monitoring by the special unit that handles information technology issues (IT department) on AIS software used to ensure that the application can be run properly in processing and storing data.
   d. Perform regular data backups to a separate server to ensure that all important files that have been processed using AIS software are safe from the possibility of theft, damage, viruses, fires or misuse of data by unauthorized parties.
   e. Conduct periodic audits to ensure that the AIS has been carried out in accordance with the objectives, namely with the standard operating procedures (SOP) at each BPD.
   f. Completing the AIS software used with a feature that automatically gives a warning if the data entered is incomplete and inaccurate so as to guarantee the completeness and accuracy of the data that will be inputted into the system and will be further processed so that the resulting accounting information (output) will be qualified.

2. Improving the Quality of AIS, Including:
   a. Creating integration in AIS between hardware, software, brainware, procedures, databases and communication networks by:
      1) Striving for harmonization between the communication network technology used with the brainware's ability by increasing user competence, harmonizing communication network technology with the data that will be distributed using a high-speed data communication network if the data to be distributed is large enough, harmonization between network technologies communication with procedures, by using network security systems, data access systems and others. One way to secure the system is through the use of a password. In addition, it is necessary to harmonize the communication network technology used with software and hardware. Hardware is equipped with AIS (software) which is harmonious with the operating system.
   b. Building AIS reliability by:
      1) Making internal control effective through controlling software, hardware, computer operating procedures, data security, implementation and administration to ensure the completeness and accuracy of the data that will be inputted into the accounting information system, further processed so as to produce qualified accounting information.
   c. Creating AIS flexibility by:
      1) Anticipating rapid changes in both user and environmental needs, for example the growing need for banking applications such as m-banking. Therefore, it is necessary to think about the development of an up-to-date accounting information system so that BPD can compete with other commercial banks.
   d. Increasing the ease of use of AIS by completing the AIS software with features that are easy to understand and operate so that it helps users in completing their work.

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