

Uncertain Supply Chain Management

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Does computerized accounting system increase the supply chain accuracy? An empirical evidence from Indonesian supply chain companies

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ABSTRACT

During the past few years, there has been a declining trend on the performance of Indonesian supply chain companies. The performance of the Indonesian supply chain companies is relatively low compared with other countries such as Malaysia, Thailand, and Singapore. To address this issue, the primary objective of this study is to examine the role of computerized accounting system (CAS) in supply chain accuracy. A survey was conducted to collect the necessary data from the managerial staff of supply chain companies in Indonesia. PLS-SEM was implemented to analyze the data. The results indicate that CAS had a significant positive relationship with supply chain accuracy. Computerized accounting system supports supply chain operations, which increases the accuracy of the supply chain system. Computerized accounting system also provides the ease of use and usefulness, which enhances the supply chain activities and decreases various issues. Therefore, the computerized accounting system is the key to gain accuracy in the supply chain.

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1. Introduction

Supply chain accuracy and performance has been a vital section of competitive strategy to enhance the profitability of an organization (Palandeng, 2018; Singh et al., 2018). Recently, the supply chain management process has become an area of significant research (Ul-Hameed et al., 2018,2019). Literature shows that different approaches to supply chain management performance are available (Bytheway, 1995; Waters-Fuller, 1995). However, still, the supply chain methods are unable to resolve various issues, particularly in developing economies.

Fig. 1 shows the logistics performance index of Asian countries. It is evident from this performance index that the performance of Indonesia supply chain is below than Malaysia, Thailand, Vietnam, and Singapore. This performance index is based on infrastructure, customers, shipment, logistics competency, etc. Due to the low performance, the contribution of supply chain industry in the nation's economy is decreasing.

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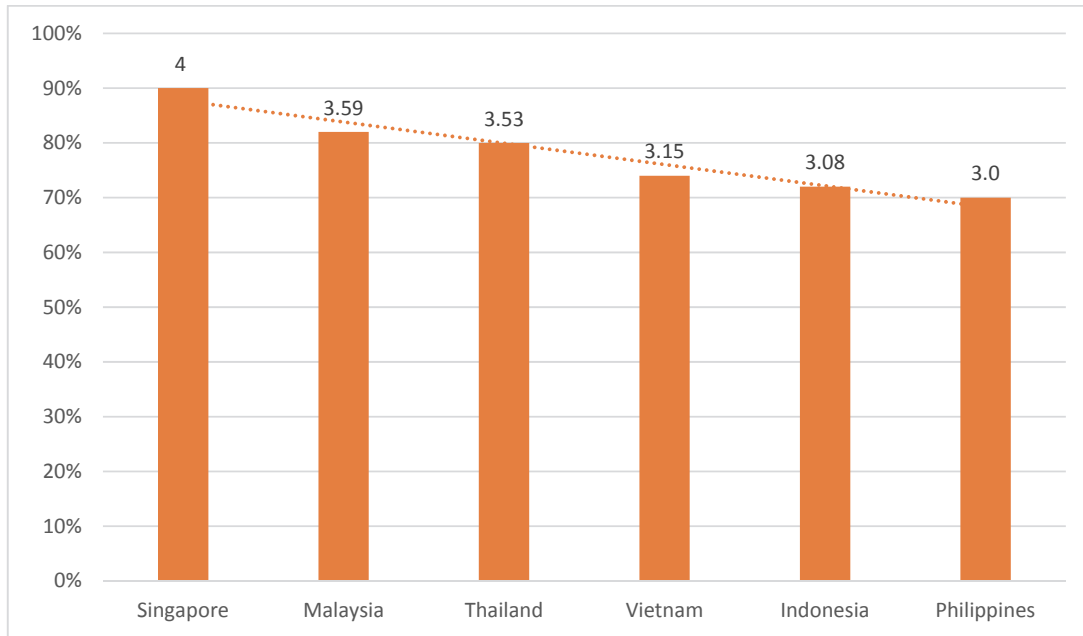


Fig. 1. Asian Logistics Performance Index (LPI) Source: World Bank (2016)

The low supply chain accuracy is also based on various other issues such as low staff service quality, ineffective information communication technology, payment issues, transit time. Moreover, the political influence and supply chain investor's investment decision making within the country and various neighboring countries cannot be neglected. A report published by World Bank in 2016 shows below in Table 1. This report shows the logistics performance index of various countries. It is shown that Indonesia is ranked at 63 in logistics. The performance of Singapore in logistics is at the highest level and ranked at number 5, Malaysia is ranked at number 32 and Thailand is ranked at number 45. However, Indonesia is at number 63. Therefore, as compared with the other emerging economies, the Indonesia supply chain performance is low and needs to implement various strategies.

Table 1

Logistics Performance Index (LPI)

Country	LPI Rank	Customs	Infrastructure	International Shipments	Timeliness
Singapore	5	1	6	5	6
Malaysia	32	40	33	32	47
Thailand	45	46	46	38	52
Indonesia	63	69	73	71	62
Vietnam	64	64	70	50	56
Brunei	70	57	66	62	84
Philippines	71	78	82	60	70
Cambodia	73	77	99	52	73
Myanmar	113	96	105	144	112
Laos	152	155	155	148	133

Source: World Bank (2016)

The current research study is one of the attempts to address these issues of the supply chain through Computerized Accounting System (CAS). Accounting system has a significant impact on every business and needed adaptability (Breen et al., 2003; Rekart & Doktoralina, 2017). It has a significant positive association with supply chain operations. According to Zhang (2017), it provides the ease of use and perceived usefulness which has a significant effect on supply chain accuracy. Therefore, the objective of the current study is to examine the effect of Computerized Accounting System (CAS) on supply chain accuracy. Moreover, the sub-objectives of the current study are stated as follows;

1. To examine the role of Computerized Accounting System (CAS) to enhance the supply chain accuracy,

2. To examine the mediating role of perceived ease of use,
3. To examine the mediating role of perceived usefulness.

Fig. 2 shows the theoretical framework of the current study. This is a pioneer study, which examines the role Computerized Accounting System (CAS) on the supply chain. Particularly this study contributed to the body of knowledge by investigating the mediating role of perceived ease of use and perceived usefulness.

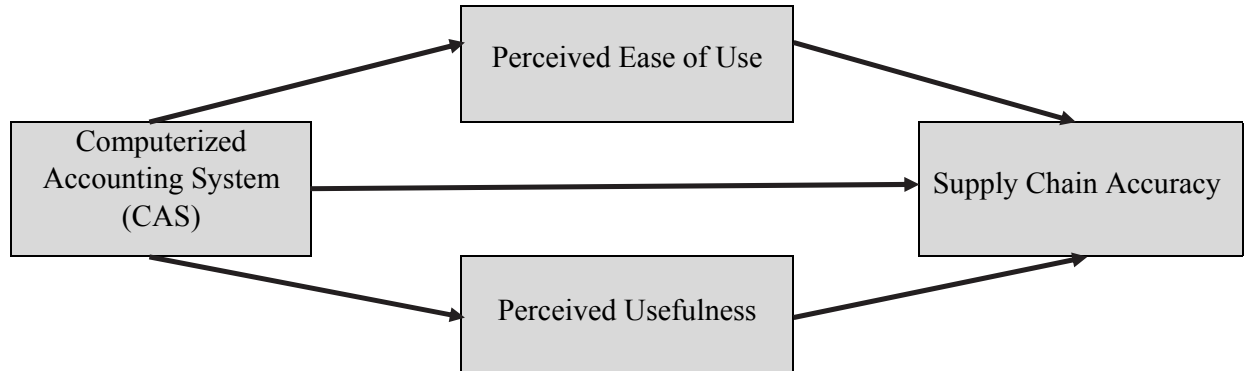


Fig. 2. Theoretical Framework

2.1 Literature Review

Accounting is an extremely critical part for each business, at whatever the business is large or small. With the improvement of technology, accounting information processing improved step by step from the manual to computerization. This is a noteworthy change in accounting technology and information processing. The utilization of computerization can expand the nature of accounting information and the effectiveness of accounting work and advance the change of accounting capacities (Liu & Cao, 2016; Castorena, et al. 2014; Duru & Chibo, 2014; Nze, et al. 2016; Kimengsi & Gwan, 2017; Taqi et al., 2018).

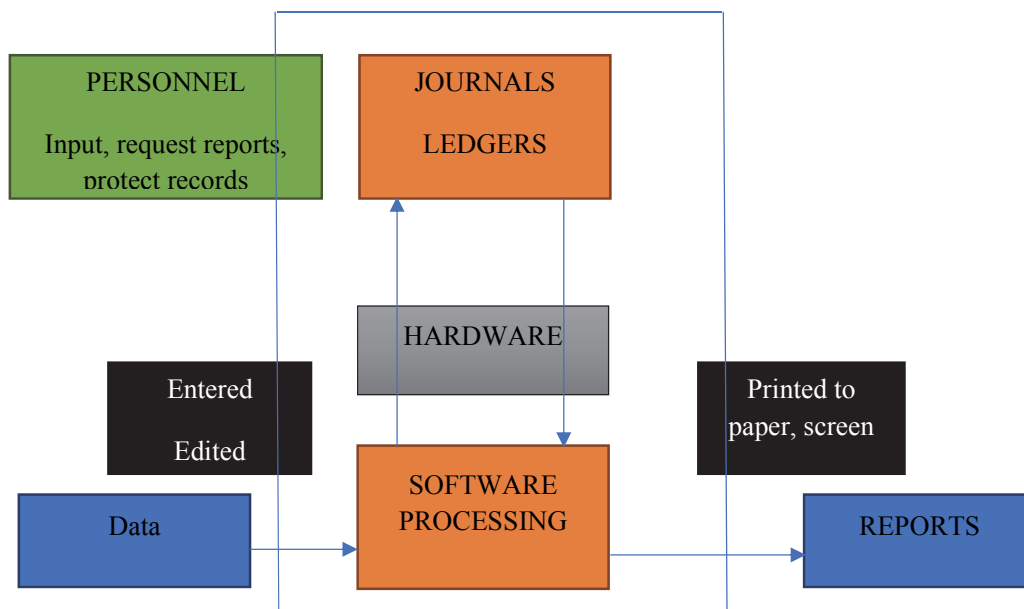


Fig. 3. Computerized Accounting System

Now a day, there is an assortment of accounting programming accessible to enable the business to keep the vital accounting record, for example, QuickBooks Accounting System and Simply Accounting System. In 1946, the main electronic PC was conceived in the United States, the genuine PC utilized in the accounting field in 1954 (Ceruzzi, 2003). Mamić Sačer and Oluić (2013) mentioned it to the mix of an assortment of aggressive systems to yield accounting records and reports. The technique for CAS can assist managers with handling the information, transaction and in addition, help to control customers and work businesses. Frank and Sangster (2005) characterized an automated accounting in general outfit of devices that incorporate the entire inputs, transactions, taking care of financial issues and recording budgetary activity information. The accounting information system is given in Fig. 3. It includes journals, ledgers and other records. These journals, ledgers, and records facilitate supply chain activities. It includes hardware and software to proceed. It also consists of data, input, output, and records. The whole system is based on information technology.

2.1 Manual Accounting versus Computerized Accounting

Manual accounting shows that the total accounting arrangement is accomplished by hand where trial balances are ascertained, day by day transactions are entered and monetary reports are prepared. Nonetheless, computerized accounting demonstrates that accountants simply record transactions into the computer. The rest of the means will be consequently handled by the computer (Solomon, et al., 2014; Purnama, 2014; Jaya & Verawaty 2015; Ware, 2015; Dim & Ezeabasili, 2015; Wang & Lu, 2016; Angbre, 2016; Nazal, 2017; Tanoos, 2017; Wireko-Manu & Amamoo, 2017 ; Chowdhury et al., 2018; Oitsile et al., 2018; Su et al., 2018). The main similarity is both manual and computerized accounting systems incorporates the progressive structure of the information. The broad utilization of computers to manage accounting transactions and do not change the fundamental standards of accounting. Computerization accounting still needs to pursue the essential standards of twofold passage accounting with a specific end goal to set up the accounting explanations (Jing, 2013). The objective of computerization and manual accounting is steady that strengthen the monetary organization, convey accounting material, take an interest in business basic leadership as well as to enhance financial proficiency (Fardinal, 2018; Ware, 2015). For both manual and computerized accounting to accomplish the system objectives, they should pass information gathering, processing, and transmission, beginning from the estimation of the control of financial exercises, and endeavor to accomplish with insignificant speculation to amplify the yield. Regardless of whether it is manual or computerized accounting, both must spare and keep the accounting documents as needs (Horngren et al., 2012). Accounting records are critical reported materials of accounting and should be kept as per the controls. However, the computerized system is easier to handle supply chain operations.

In the manual accounting system, the accounting transactions were needed to be categorized. The device utilized in the manual accounting activity for figuring objects is, for instance, math device or adding machine. The arrangement of accounting reports, for example, benefit and error explanation and trial balance additionally were needed to do physically (Horngren et al., 2012). While in the computerized task, the count and producing accounting reports are automatically ascertained and created.

Table 2

Difference between Manual and Computerized Accounting System

Point of Difference	Manual Accounting	Computerized Accounting
1. Recording	Recording of financial transection through books.	Recording of financial transection through the well-designed data base.
2. Classification	Transection in books further recorded in ledger accounts.	No such data duplication is required to develop ledger accounts
3. Summarizing	Transactions are produced to summarize trial balance.	The generation of ledge account is not mandatory for a trial balance.
4. Adjusting Entries	Adjusting entries are made to adhere to the principle of matching	No need of making adjusting entries.
5. Financial Statements	Financial statements require trail balance.	No need of trial balance.

2.2 Computerized Accounting System Benefits

In computerized accounting, transactions are generally recorded electronically in the computer utilizing chosen programming intended for accounting purposes. Computerized accounting can spare heaps of time and enhance the precision of the accounting report planning. Zhang (2017) represented that accounting information system based on information technology, for example, CAS will have the capacity to give loads of advantages, and to some degree, it can enhance the precision of the accounting information and enhance the nature of money related announcing. Computerized accounting empowers information processing computerization and additionally accounting processing joining. Computerized accounting information processing process is separated into information, processing, and yield. Simkin et al. (2014) accept that computerized accounting could process a huge amount of information estimation at the same time with contrast to the manual accounting. To some degree, it enhances the convenience and exactness of accounting information processing which ultimately increases the supply chain accuracy. The whole information processing procedure is possible by the computer automatically, individuals only need to do some operations. An accountant can concentrate more on monetary action investigation, estimate and everyday administration (Suryanto & Grima, 2018). Accountant additionally can more readily total the accounting reflection and manage the assignments business exercise (Everaert et al., 2010). Therefore, computerized accounting system has a significant impact on various operation such as supply chain operations. It is beneficial for supply chain operations based on two elements, namely; perceived ease of use and perceived usefulness. These elements facilitate supply chain operation and enhance the performance through accuracy.

2.3 Perceived Ease of Use of Computerized Accounting system

Perceived ease of use referring the degree to which a man supposes it is simple to use a system (Davis et al., 1989). Ease of use is a user-driven conception. The ease of use concentrates on the services that fulfill the customer's practices and necessities (Halilovic & Cicic, 2015). There are numerous past necessities about trust that perceived ease of use has a critical consequence for purchaser gathering and use of information technology (Venkatesh, 2000) having a significant role in supply chain and logistics operations. Ozturk et al. (2016) put the perceived ease of use as a self-determining factor to look at the effect on the users' loyalty intentions. To some degree, an application or an information system has been distinguished to be less demanding to utilization contrast and another is more likely to be perceived by controllers. Norman (2013) found that perceived ease of use for programming configuration is more essential. Usually recognized great programming requires computerized accounting system. There are three viewpoints, ease to find, ease to learn, ease to use. These three should be adjusted properly to facilitate supply chain. For instance, Microsoft's Windows interface is outlined in this way: the menu is a unified discovery of the entrance, by duplicating and pasting on the edit menu is anything but difficult to figure out how to use the user, instead of DOS, just through the directions or books to find and learn (Zhang, 2017).

H₁: There is a significant relationship between Computerized Accounting System (CAS) and perceived ease of use.

H₂: There is a significant relationship between perceived ease of use and supply chain accuracy.

2.4 Perceived Usefulness of Computerized Accounting system

Davis et al. (1989) while proposing a technology acceptance framework, characterized usefulness as the degree to which a specific information system could aid enhancing execution for users. Additionally, Sledgianowski and Kulviwat (2009) characterized it as the degree to which the user enhances the performance through a specific system and can enable it to enhance its execution. For instance, if someone impresses while using a particular system, he/she may find that activity execution to some degree has been enhanced, that implies this system preserves higher characteristics of usefulness (Robey, 1979; Schultz et al., 1987). State of mind through usefulness has a major effect on

supply chain operations accuracy. According to Gul (1991), perceived usefulness has a meaningful relationship with performance. A better-computerized accounting system provides perceived usefulness which has a significant effect on supply chain accuracy.

H₃: There is a significant relationship between Computerized Accounting System (CAS) and perceived usefulness.

H₄: There is a significant relationship between perceived usefulness and supply chain accuracy.

H₅: There is a significant relationship between Computerized Accounting System (CAS) and supply chain accuracy

H₆: Perceived ease of use mediates the relationship between Computerized Accounting System (CAS) and supply chain accuracy.

H₇: Perceived usefulness mediates the relationship between Computerized Accounting System (CAS) and supply chain accuracy.

3. Research Method

3.1 Research Design

The research method is one of the most crucial steps of every research study (Ul-Hameed et al., 2018). The research design is generally based on the research problem, objective and nature of the study, therefore, by considering the nature of the study cross-sectional design was selected. Moreover, a quantitative research approach was adopted.

3.2 Population of the Study

Polit Denise and Hungler Bernadette (1999) defined a population as “the totality of all subjects that conform to a set of specifications, comprising the entire group of persons that is the interest to the researcher and to whom the research results can be generalized”. Lobiondo-Wood and Haber (1998) explain a sample as “a portion or a subset of the research population selected to participate in a study, representing the research population”. In the current study, the population of the study is based on Indonesian supply chain companies. Managerial employees of supply chain companies were selected as respondents.

3.3 Sampling and Sample Size

Data were collected from the managerial staff of supply chain companies by using simple random sampling techniques. First of all, the list of all the employees working in Indonesian supply chain companies was obtained. After that, the respondents were selected randomly. Moreover, 200 sample size was selected from the current study. A mail survey was used to collect data from respondents.

3.4 Questionnaires Development

A 5-point Likert scale was used to collect the data. The scale was divided into two sections. The first section was based on the demographic profile of the respondents. This section includes; age, gender, marital status, education and income of respondents. The second section of the questionnaire was based on the key variables of the current study.

4. Research Analysis and Results

This study employed Partial Least Square-Structural Equation Modelling. Partial least square (PLS) was employed based on small sample size. While data collection, only 93 responses were received. From these 93 responses, 06 questionnaires were incomplete, therefore, excluded from the study. Thus, total 87 questionnaires were used to analyze the data. PLS-SEM is one of the suitable techniques to analyze the data through a small sample size (Henseler et al., 2009).

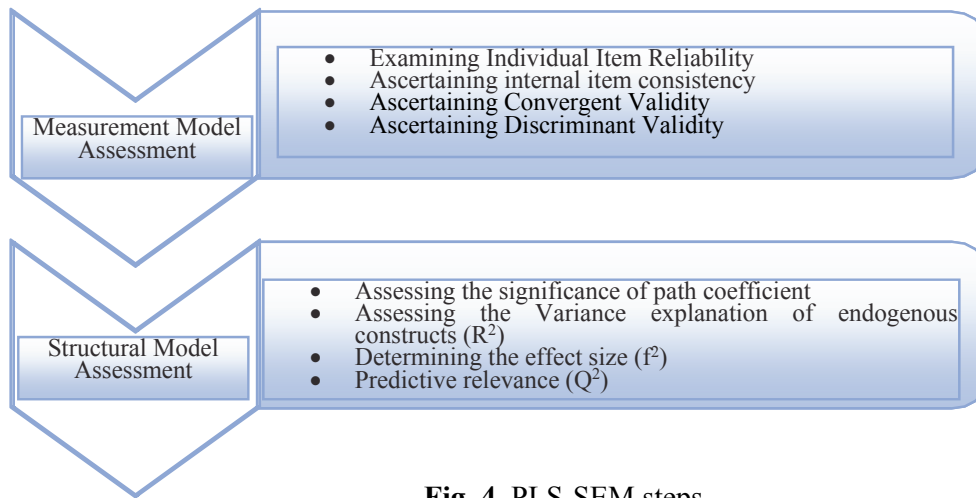


Fig. 4. PLS-SEM steps

Source: W. Hameed, Basheer, Iqbal, Anwar, and Ahmad (2018)

While analyzing the data through PLS-SEM, instructions of Henseler et al. (2009) were followed. According to the recommendations, PLS-SEM is based on measurement model assessment and structural model assessment. As shown in Fig. 4. According to the recommendations of various studies (Hair, 2010; Hair et al., 2010, 2012; Hair Jr & Lukas, 2014) factor loading should be above 0.5, composite reliability should be above 0.7 and average variance extracted (AVE) should be above 0.5 to achieve convergent validity. Table 3 shows the results and Fig. 5 shows the measurement model assessment. It is evident that all the values are under satisfactory range. Discriminant validity was achieved through cross-loadings as shown in Table 4.

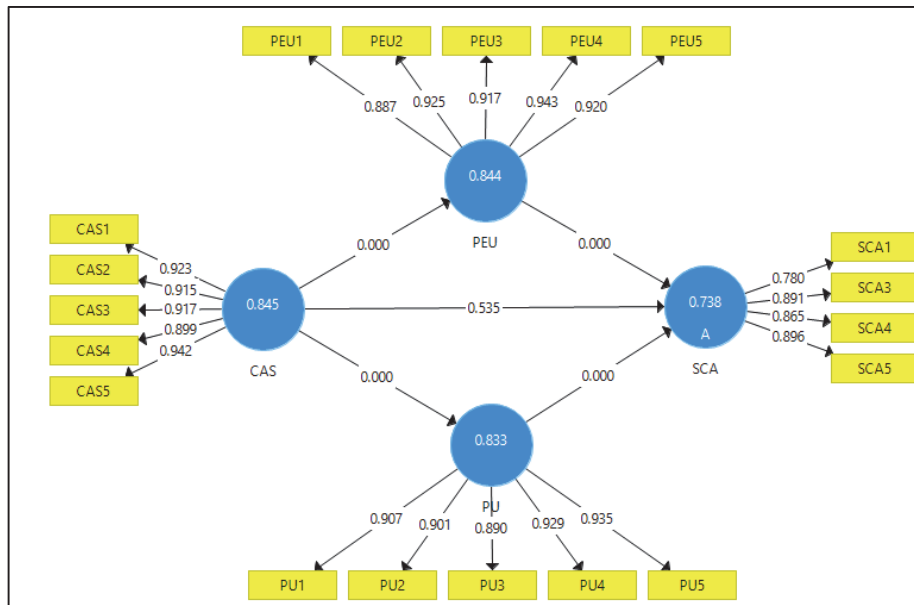


Fig. 5. Measurement Model Assessment

Table 3
Measurement Model Assessment Results

	Cronbach's Alpha	rho A	Composite Reliability	Average Variance Extracted (AVE)
CAS	0.954	0.955	0.965	0.845
PEU	0.954	0.954	0.964	0.844
PU	0.950	0.951	0.961	0.833
SCA	0.883	0.894	0.918	0.738

Table 4
Cross-Loadings

	CAS	PEU	PU	SCA
CAS1	0.923	0.856	0.847	0.726
CAS2	0.915	0.809	0.81	0.729
CAS3	0.917	0.825	0.854	0.719
CAS4	0.899	0.81	0.831	0.697
CAS5	0.942	0.845	0.893	0.758
PEU1	0.839	0.887	0.828	0.695
PEU2	0.834	0.925	0.868	0.747
PEU3	0.798	0.917	0.83	0.698
PEU4	0.841	0.943	0.884	0.76
PEU5	0.827	0.92	0.866	0.702
PU1	0.833	0.911	0.907	0.745
PU2	0.802	0.821	0.901	0.701
PU3	0.824	0.806	0.89	0.698
PU4	0.881	0.865	0.929	0.784
PU5	0.862	0.847	0.935	0.752
SCA1	0.813	0.87	0.841	0.88
SCA3	0.617	0.558	0.596	0.891
SCA4	0.594	0.576	0.621	0.865
SCA5	0.611	0.591	0.631	0.896

According to the recommendations of Henseler et al. (2009), the second major step of PLS-SEM is based on the structural model assessment. In this part of the analysis, hypotheses were tested. 1.96 level of t-value was considered to check the hypotheses. Fig. 6 shows the PLS structural model and Table 5 shows the PLS structural model results. It is evident that all the hypotheses have t-value above 1.96 which indicate that all the hypotheses are accepted.

Table 5
Structural Model Results

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STDEV))	P Values	Decision
CAS → PEU	0.902	0.901	0.021	43.105	0.000	Supported
CAS → PU	0.922	0.920	0.016	57.939	0.000	Supported
CAS → SCA	0.255	0.258	0.116	2.200	0.028	Supported
PEU → SCA	0.165	0.165	0.034	4.626	0.000	Supported
PU → SCA	0.419	0.417	0.135	3.114	0.002	Supported

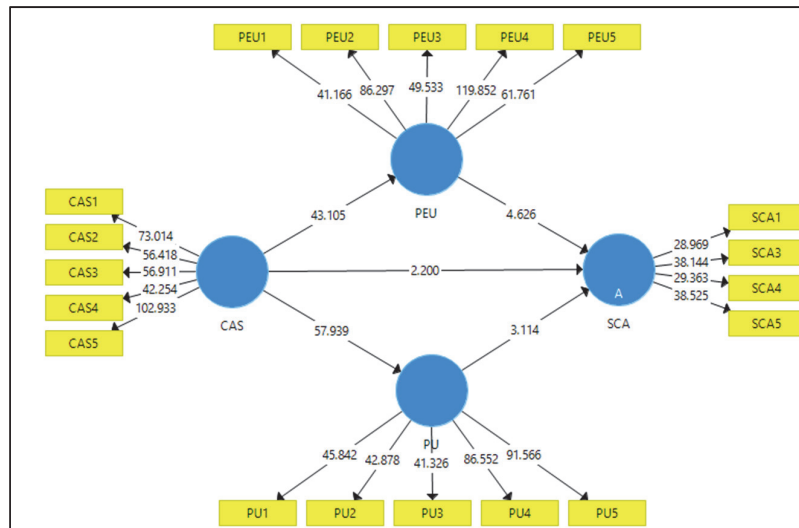


Fig. 6. Structural Model Assessment

Therefore, it is evident from Table 5 that all the direct hypotheses (H1, H2, H3, H4, H5) are supported. Moreover, Table 6 shows the indirect effect through the mediating variable (perceived ease of use, perceived usefulness). Mediation effect in both cases is significant as the t-value is above 1.96. Thus, the mediation hypotheses (H6, H7) are also supported.

Table 6. Mediation Effect

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision
CAS → PEU → SCA	0.149	0.149	0.052	2.865	0.004	Mediation
CAS → PU → SCA	0.386	0.384	0.124	3.114	0.002	Mediation

Furthermore, the r-squared value is shown in Table 7. According to the results, the r-square value is 0.67. This is substantial r-square value as per the recommendations of Chin (1998). Therefore, all the variables are expected to bring 67% change in supply chain accuracy.

Table 7

Variance Explained (R^2)

	Variance Explained (R^2)
Supply Chain Accuracy	0.67

5. Findings

Results of the study show that computerized accounting system is vital to enhance supply chain accuracy. The issues in supply chain performance among the Indonesian companies can be resolved through better-computerized accounting system implementation. As compared to the manual accounting system, computerized accounting system has much more benefits to enhance supply chain accuracy. The relationship between the computerized accounting system and supply chain accuracy found significant with t-value 2.200 and p-value 0.028. Positive beta value shows a direct relationship between these two variables. It demonstrates that an increase in computerized accounting system increases the supply chain accuracy and a decrease in computerized accounting system decreases the supply chain accuracy. Moreover, the relationship between the computerized accounting system and perceived ease of use was also found significant positive with t-value 43.105 and p-value 0.000. In line with these results, the relationship between the computerized accounting system and perceived usefulness was found significant positive with t-value 57.939 and p-value 0.000. It demonstrates that with the implementation of the computerized accounting system, perceived ease of use and perceived usefulness may increase.

Nevertheless, the current study found a significant effect of the mediation through perceived ease of use and perceived usefulness. The mediation effect of perceived ease of use between the computerized accounting system and supply chain accuracy is significant with t-value 2.865. Furthermore, the mediation effect of perceived usefulness between computerized accounting system and supply chain accuracy is also significant with t-value 3.114. Therefore, results of the study have revealed that the computerized accounting system maintained the primary key for the success of supply chain among Indonesian supply chain companies. Computerized accounting system provides perceived ease of use and perceived usefulness to the employees of the company which enhances the supply chain accuracy.

6. Conclusion

The current study was based on the computerized accounting system and Indonesian supply chain companies. It examined the effect of a computerized accounting system on supply chain accuracy. Data were collected from the managerial staff of supply chain companies.

It was found that the computerised accounting system had a significant role in supply chain accuracy. Computerized accounting system supported the supply chain operations and increase the accuracy of supply chain system. This system provides two major advantages to supply chain companies which comprised of perceived ease of use and perceived usefulness. The whole system works on information technology with different software packages, which increases the perceived ease of use. Moreover, perceived usefulness increases the performance. It is recommended to the Indonesian supply chain companies to invest in the computerised accounting system to overcome the supply chain issues. Additionally, open-innovation is one of the most tools to be used in any industry. Therefore, future research can be produced by using open-innovation strategies to overcome the various challenges of Indonesian supply chain companies.

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