COMPUTERIZED ACCOUNTING INFORMATION SYSTEM ADOPTION AMONG SMALL AND MEDIUM ENTERPRISES IN ADDIS ABABA, ETHIOPIA

Habiba, Y.[1*], Azhar, M. N. [2], Annuar, B. M.N.[3], Mastora, Y.[4]

[1*] Putra Business School, Universiti Putra Malaysia, 43400 Serdang Malaysia. Tel: 0172493492, Email: habibayeshaw@gmail.com
[2] Department of Accounting and Finance, Faculty of Economics and Management, Universiti Putra Malaysia, Serdang, Malaysia. Tel: 0389467598, hand phone number 01111467674, email: azharmn1958@gamil.com
[3] Department of Accounting and Finance, Faculty of Economics and Management, Universiti Putra Malaysia, Serdang, Malaysia. Tel: 0389466977/ 0389467600, email: anuar@upm.edu.my
[4] Tel: 601139350563, email: mas.yahya.ahmad@gmail.com

_____

Abstract: This article presents the results of a study conducted to examine the extent of computerized accounting information system (CAIS) adoption among small and medium enterprises (SMEs) in Addis Ababa, Ethiopia and to determine its influencing factors. Using a questionnaire survey, data was collected from 300 firms to validate the proposed technological, organizational and environmental (TOE) framework model. Findings showed that the CAIS adoption levels among SMEs varied. Of the total firms enrolled, 31 % of SMEs were using fully CAIS while the rest 69 % of them were using a combination of manual AIS and CAIS (referred as partial CAIS). Furthermore, the findings revealed significant and insignificant adoption factors. Out of six proposed factors assessed, firm size and financial readiness under organization context were significant. However, the rest four factors: perceived benefit of CAIS for better financial statement and reports preparation and perceived benefit of CAIS for better decision making under technology context, and external pressure under environmental context found to be insignificant. In conclusion, the study revealed that majority of SMEs in Addis Ababa are highly dependent on manual AIS with firm size and financial readiness identified as significant influencing factors on fully CAIS adoption. The study might generally give important insights to academicians, governmental and professional bodies regarding the adoption of CAIS as well as the factors that influence the degree of CAIS adoption among SMEs in Addis Ababa, Ethiopia.

Keywords: CAIS, Adoption, Small and Medium Enterprise, TOE Framework, Ethiopia.

_____

Introduction

There is no universally agreed definition of SMEs. However, regardless of their differences, all the definitions agree on the common view that SME businesses employ few persons and are characterized by a relatively small amount of capital and turnover. For example, in Brazil, micro companies' annual revenue equal to or less than R$ 240,000.00 which is equivalent to €94, 384.14, while small companies are those with gross annual revenues exceeding R$ 240,000.00 and equal to or less than R$ 2,400,000.00. The number of employees working for micro companies cover up to 9 employees in trade and services, up to 19 employees in industry and construction. For small companies, the number of employees is between 10 and 49 employees in trade and services, between 20 and 99 employees in industry and construction (Ferenhof et al., 2014).

Since the definitions of SMEs may vary from one country to another depending on a number of factors including their economic status. According to the new Small & Micro Enterprises Development Strategy of Ethiopia FeSMEDA (2011) and Mosisa (2011), the working definition of micro and SMEs based on capital and number of employees is as shown in Table 1 below.

Table 1. Definition of Ethiopian SMEs

No.	Enterprise level	Sector	Hired labor	Capital
1	Micro	Industry (manufacturing, construction)	<5	Birr 20,000- 100,000.00
		Service	<5	Birr 20,000 -50,000.00
2	Small	Industry (manufacturing, construction)	6-50	Birr100,000- 1.5,000,000.00
		Service	6-50	Birr 100,000- 500,000.00
3	Medium	Industry	above 50	above Birr 1.5,000,000.00
		Service	Above 50	> Birr 500,000

Source: (Mosisa, 2011; FeSMEDA, 2011)

Small and Medium Enterprises (SMEs) are considered as important engines in driving the economy of both developed and developing countries worldwide. SMEs represent 99.8% of all enterprises and account for the majority of economic growth, jobs and total business turnover in many advanced countries (Saracina, 2011; Linga, 2013). Sub-Saharan Africa (SSA) economies are well aware of the positive role that highly productive SMEs can play in their development. SMEs can create jobs, broaden the tax base, diversify risks, launch innovate products, and adopt new technology (Kwak et al., 2013). According to the World Bank number of SMEs in their economy with greater difference between regions and countries with regard Report (2007) many of the countries in SSA including Ethiopia are also reported to have a high to the number and types of SMEs. However, in most African countries, SMEs in the formal sector contribute less than twenty percent to gross GDP whereas the figure can reach up to sixty percent in high income countries such as the USA (Fjose et al., 2010). A share of employment that ranges from fifteen to thirty-nine percent by SMEs has been reported across the SSA countries (Fjose et al., 2010). Ethiopian economy has shown a dramatic double digit growth rate in the last decades beginning from the middle of 2000s (Mosisa, 2011). Existing study by Kwak

et al. (2013) suggested that as a country's economy expands, the role of SMEs become prominent as SMEs play critical role in creating jobs, promoting marketing activity, increasing exports, computing globalization trade, and generating income. Therefore, by strengthening the SMEs growth and development, the ongoing economic progress in Ethiopia can be further accelerated.

Despite the remarkable contribution of SMEs towards the rapid growth rate of Ethiopia in recent times, their growth potential to the maximum is limited by a number of constraints (Kwak et al., 2013). Among the constraints include: underdeveloped infrastructure, systematic inefficiency, inability to maintain accounting practice, poor record keeping, inefficient use of accounting information and limited financial resources (World Bank Report, 2007; Mosisa, 2011 and Kwak et al., 2013). According to Ademola et al. (2012) and Chhabra and Pattanayak (2014), record keeping has become the foundation on which the totality of modern business depends. This is because, without it, it will be impossible to ascertain the level of profitability and business susceptibility to fraud. Proper record keeping provides evidence of how the transaction is handled and substantiates the steps that are taken in order to comply with business standards (Abdul-rahamon, 2014). Mosisa (2011) and Hassen (2012) reported the existence of Ethiopian SMEs that utilize proper accounting practices by combining computer and manual materials. Those SMEs that maintain formal accounting practices accounted for 42% of the enterprises investigated while the majority (58%) was found to maintain only minimum records. In addition, Mosisa (2011) reported that inability to maintain formal financial statement preparations and reports are the cause for the failure of majority of firms.

In Ethiopia investment decisions of business firms are heavily dependent on cash flows (World Bank Report, 2015). To evaluate the extent to which firm's cash flow is reliant for investment decision, firms should have proper accounting information and record keeping (Ismail & Mat Zin, 2009). These can be enhanced by using computer-based system which is lacking in most enterprises in Ethiopia (Kwak et al., 2013). Therefore, in order to maximize the contribution of those manually operating SMEs to the national economic growth and to enhance their competitiveness, adoption of information technologies such as Computerized Accounting Information System (CAIS), is of paramount importance. The aims of this study were to examine the extent of CAIS adoption among SMEs in Addis Ababa, Ethiopia and to identify the potential factors that influence the adoption of CAIS by the firms.

Problem statement
SMEs contribute to the rapid growth of the economy of developing nations worldwide. Although the role of SMEs to economic growth is well known, their performance still falls below expectation in many developing countries such as Ghana, Nigeria and Ethiopia (Fjose et al., 2010 and Mosisa 2011). In Ethiopia, the development of SMEs and their contribution to the national economy is very limited due to several factors including poor financial record keeping, inability to maintain proper accounting practice and failure to reach their maximum growth potential (Mosisa, 2011 and Kwak et al., 2013). Prior studies have reported that inadequate accounting systems and poor record keeping are reasons of SMEs failure (Mitchell et al., 1997 and Saracina, 2011). It is well known that the main purpose or objective of a business is to be profitable either in terms of increases in productivity or by being competitive among others. Therefore, to achieve this goal, businesses need to be responsive to the changes in the environments, in particular to the information technology revolution (Kharuddin, 2010).

The use of CAIS in the SMEs has been reported to enhance their business performance and help them to remain competitive in the market (Ismail, 2009 and Senik, 2012). However, although, the existence of some SMEs that adopted CAIS reported Hassen (2012), the extent of adoption of CAIS among SMEs and the factors that influence the adoption of CAIS between SMEs that have adopted CAIS fully or partially currently is unknown. Therefore, there is a need to investigate the extent of CAIS adoption difference in the impact of CAIS between SMEs in Addis Ababa, Ethiopia that have adopted CAIS fully and partially.

Literature Review

Characteristics of CAIS adoption
CAIS refers to the system that companies employ to record business transactions, report financial results, prepare budgets, and analyze variances (Saracina, 2011). CAIS provides faster means of generating result of financial reports as it uses computerized software program. Effective CAIS can provide managers of SMEs information to monitor and control short term issues including costing, expenditure and cash flows (Ismail and Mat Zin, 2009). Furthermore, it can also help SMEs operating in a dynamic and competitive environment, to integrate operational considerations within long-term strategic plans (Mitchell et al., 2000). The use of CAIS aids SMEs by providing proper, timely and detail financial information and accounting reports. Based on which SMEs can evaluate performance of ongoing business operations and plan for a better performance in the future by amending possible faults in previous action plans (Senik et al., 2012).

To ensure efficient performance and contribution of SME's to the national economy, integrating CAIS in their business operation is essential as it helps to assess the profitability of alternative courses of action, evaluate the position of enterprises in term of profitability, liquidity, activity and leverage, and making financial decisions (Kwak et al., 2013). Likewise, the use of CAIS in the SMEs has been reported to enhance their business performance and help them to remain competitive in the market (Ismail, 2009; Senik et al., 2012). However, despite the paramount importance of CAIS in business development, Sambasivam and Baye (2013) reported the presence of only some SMEs in Ethiopia adopted CAIS. Since there is limited literature in many developing countries including Ethiopia regarding SMEs' accounting system practices, the extent to which SMEs adopted CAIS in their operation is unknown. In addition, the factors that may affect the adoption of CAIS have not been disclosed.

Technology, organization, environment (TOE) framework model
The TOE framework was developed in 1990 (Tornatzky and Fleischer, 1990). The TOE model provides a useful analytical framework that can be employed to study the adoption of different types of information technology (IT) innovation (Oliveira and Martins, 2011 and Rosli et al., 2012). TOE framework is highly applicable in predicting adoption behavior of the firm in considering new technology and which is one of the dominant theory used to examine organizational adoption of IT over the previous two decades (Wan Ismail and Ali, 2013). Several previous studies used the TOE framework alone to understand different IT adoptions such as website (Oliveira and Martins, 2008); website and e-commerce (Oliveira and Martins, 2009a); internet, website and e-commerce (Oliveira and Martins, 2009b); e-business (Oliveira & Martins, 2010); and audit technology (Rosli et al., 2012) and CAIS adoption (Ismail, Abdullah, and Tayib, 2003) by SMEs in the manufacturing sector in

Malaysia. Moreover, TOE framework has gained considerable empirical support over the past decade (Wan Ismail and Ali, 2013). As the purpose of this study is to examine the adoption of CAIS among SMEs, theories and models at the organizational level are more applicable. The TOE framework includes three types of an enterprise's context that influence the process by which it adopts and implements a technological innovation: Technological context, Organizational context and Environmental context. Technological context refers to technology characteristics and availability for firms (Rosli et al., 2012). It includes perceived benefit and technology readiness. Organizational context describes the organization measures such as decision-making structure and communication process by top management, organization readiness, organization size and organization working culture towards adopting new IT innovation (Rosli et al., 2012). Environmental context includes external environment, internal environment factors and customer consumer influence.

CAIS adoption model
The research model used in this study is demonstrated in Figure 1. Since the main focus of this research was to examine which factors within the TOE framework are responsible for the adoption of CAIS, the dependent variable in the conceptual model is a dichotomous measure which we determined whether or not a particular business had adopted full or partial CAIS in its accounting practice. Our research model illustrated six adoption independent predictors within the three contexts of the TOE framework: under technology, perceived benefit of CAIS for better financial readiness and reports preparation, and decision making; under organization, technology readiness, financial readiness and firm size; and under environment, external pressure. Justification for the selection and use of these specific factors as well as the research hypotheses are presented in the following session.
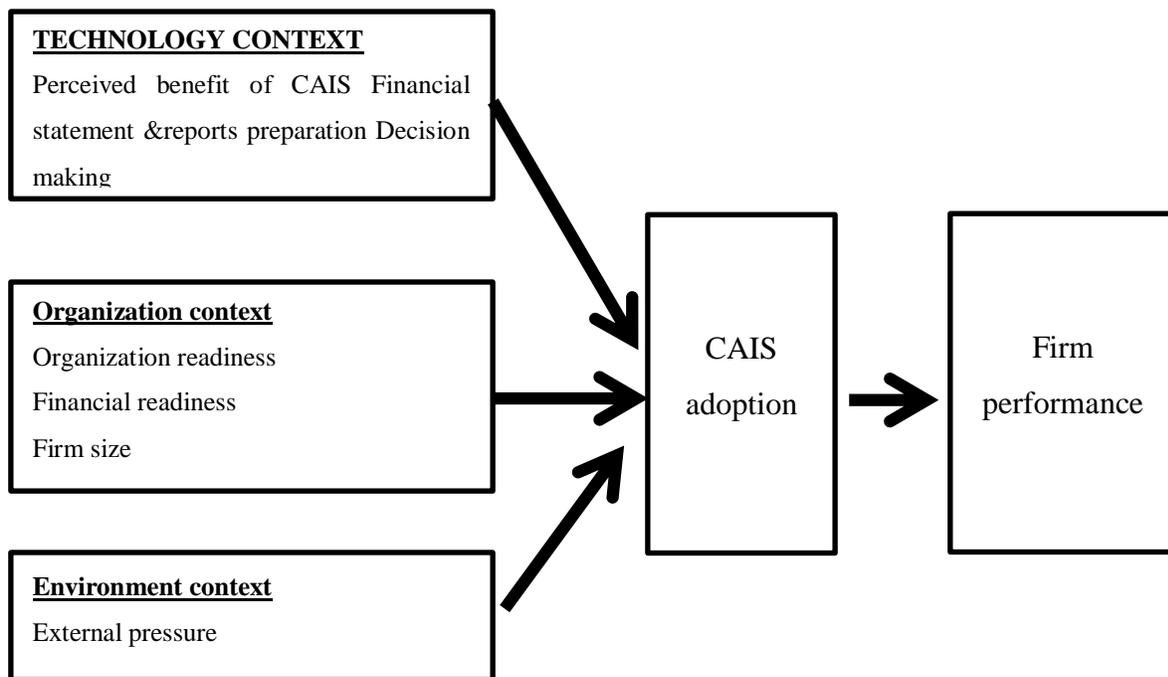
Research framework

Figure 1: *Research Model*

Research hypothesis and measures

Technology context

Tornatzky and Fleischer (1990 and Wan Ismail & Ali, 2013) described technological context as both internal and external technologies which are relevant to the firm. It includes current practices and equipment internal to the firm, as well as the pool of available technologies external to the firm (Tornatzky & Fleischer, 1990). Tornatzky & Fleischer (1990) said that decisions to adopt technology depend on what is available, as well as how the available technology fits with the firm's current technology. The technological context of an organization is important in influencing the adoption and implementation of new IT/IS (Wan Ismail & Ali, 2013).

Perceived benefit (PB) of CAIS among SMEs. PB is defined as a set of anticipated advantages that innovation can provide to the adopting organization (Seyal et al., 2004). Gullkvist (2003) refers PB to the level of recognition of the relative advantage that electronic accounting technology can provide the organization. According to Kurnia et al. (2015) PB is used to concisely describe how a particular technology is perceived to be beneficial to an organization which has broader implication compared to the term relative advantage used in the DOI theory. Moreover, previous studies have identified the importance of PB in the process of technology adoption such as accounting information system (Edison et al., 2012), management accounting system (Oliveira & Martins 2011) and electronic commerce by SMEs (Kurnia et al., 2015).

Several past IT adoption studies that employ the TOE framework suggested PB as one of most important factors that affects firm's adoption of an IT innovation (Thong 1999; Wan Ismail & Ali, 2013 and Kurnia et al., 2015). Therefore, the ability to understand and appreciate the capabilities afforded by ICT has an impact on adoption decisions. In the CAIS context, firms that recognize the true potential of CAIS should realize the need to fully adopt CAIS (Wan Ismail & Ali, 2013). In the present study, in order to assess SMEs PB of CAIS, PB is classified into two; PB of CAIS for financial statement and report preparation, and for decision making. Under the assumption that the PB of CAIS influences the adoption of CAIS, the first hypotheses are as follows:

H1a: perceived benefit of CAIS for better financial statement and report preparation significantly influence the adoption of CAIS.

H1b: perceived benefit of CAIS for better decision making significantly influence the adoption of CAIS.

Organization context

The organizational context refers to the characteristics and resources of the organization (Tan and Felix, 2010). According to the TOE framework, organizational adoption of technological innovation can be influenced by the organizational context (Wan Ismail and Ali, 2013). For this study, organizational readiness and firm size are included in this context. According to Wan Ismail and Ali (2013) financial and technological readiness are important issues to be considered in innovation adoption as the organizational readiness indicator. In addition, previous studies on IT/ IS adoption also reported that technological and financial readiness positively influenced organizational adoption of different types of innovation technology (Tornatzky and Fleischer, 1990; Thong, 1999; Pan and Jang, 2008 and Rosli et al., 2012). The present study considered financial and technological readiness under organizational readiness context.

Pan and Jang (2008) reported firm size as an important organizational factor for IS technology adoption. In addition, Thong (1999) and Buonanno et al., (2005) suggested that firm size is a very good predictor of AIS adoption. Other researchers also found that larger organizations have a high probability of adopting AIS due to the complex nature of their business and voluminous transactions compared with small firms whose transactions are not that complex (Edison et al., 2012). Under the assumption that financial and technology readiness and firm size affect its decision to adopt CAIS, the second formulated hypotheses are as follows:

H2a: Financial readiness of the organization significantly influences theadoption of CAIS.
H2b: Technological readiness of the organization significantly influences the adoption of CAIS.
H2c: The firm size significantly influences the adoption of CAIS.

Environment context
Several studies found that external pressure is a significant factor for IS/IT adoption (Thong, 1999; Pan and Jang, 2008). External pressure comes from customer, supplier, government demands, market pressure or changes in external environment (Kurnia et al., 2015). For example, one of external pressure is competitive pressure. It is generally believed that when competition increases, the likelihood of innovation adoption will also increase (Thong, 1999 and Pan & Jang, 2008). This implies that the greater the external pressure perceived by SMEs the greater likelihood of their adopting IT/IS technology. Under the assumption that external pressure affects the adoption of CAIS, the third and fourth hypotheses are as follows:

H3: External pressure significantly influences the adoption of CAIS H4: Adoption of CAIS has significant impact on firm performance

Data collection
SME in the present study refers to all types of SMEs in Addis Ababa, Ethiopia, who employed CAIS with sales turnover between birr 1million – birr 1.5million and employees number between 6 – 60 as small firm, and, above birr 1.5m and number of employees above 60 as medium firm.

A comprehensive list of SMEs was gathered from Federal Small and Medium Enterprise Development Agency (FeSMEDA). The agency provides detail address and from the list we selected 300 SMEs. A total number of 30 firms were randomly selected for the pilot survey. The aim of the pilot survey was to evaluate and get more clarification regarding the wording of both questionnaire instructions and questions. A total of 25 questionnaires were returned after about two weeks' time. This showed 83 % response rate of respondents. Since the result of the response rate was sufficient, the study continued with the main survey. There were not any alterations to be taken to correct the questionnaire since the overall impression from the answers provided by the respondents was that the questionnaire was satisfactory. Finally, a total of 300 SMEs were selected for the survey using a random sampling approach. After a duration of one month, 270 questionnaires were returned which represented 90% of response rate, out of which 251 questionnaires were usable to analyse. Overall, the sample represented a wide range of the SMEs, so that the generalizability of the result also increases.

Data Analysis and Results

The constructs of composite scores

To perform logistic regression analysis, various items for each construct were grouped, before running logistic regression; the composite score for each variable was derived by allocating various items of the respective construct used as independent variables in the logistic regression process. To obtain a composite score for each construct, each of the items within a construct was weighted using confirmatory factor analysis (CFA) output which is their own factor loadings (Table 2). This method was implemented because it was believed that the items do not give equal contribution to the particular construct. According to Hair et al., (2014), the composite score for each respective construct shows the relative presentations of whole items to the proposed construct. Table 2 demonstrates the factor loadings that were used as weights in the allocation process to each individual item. Furthermore, the reliability test was performed using Cronbach alpha to assess the reliability of the proposed constructs (Table 3).

Table2: *Factor Loadings Used As Weights In Attaining a Composite Score For Independent Variables*

Construct (items) (Weights)	Factor loadings
TECHNOLOGY CONTEXT	
Benefits on preparation of financial statements and reports	
Using CAIS improves the effectiveness of recording financial transactions	0.836
CAIS benefits our organization for preparation of financial statements and reports efficiently	0.866
CAIS improves the time taken to record the financial transaction.	0.796
CAIS improves the accuracy of preparing the financial statements.	0.838
Benefits on decision making	
CAIS benefits our organization decision makers by providing relevant	0.774
CAIS helps our organization decision makers by keeping financial records.	0.883
CAIS provides precise and updated information at any time when decision makers need.	0.798
ORGANIZATION CONTEXT:	
Financial readiness	
Our organization has the financial resources to adopt CAIS.	0.553
Our organization has budget for training programs for staff to create awareness and competency on importance of CAIS.	0.756
Our organization has the budget to upgrade to current version CAIS.	0.816
Technological readiness	
Our organization has technical infrastructure to use CAIS such as software, hardware.	0.851
Our organization has the required skilful experts to use CAIS.	0.826
Our organization has incentive programs that encourage staff to learn and use CAIS.	0.708

ENVIRONMENT CONTEXT: External pressure	
Our customers have impact on us to adopt CAIS.	0.892
Our suppliers had impact on us to adopt CAIS.	0.899
Our organization is motivated to adopt CAIS due to business competitiveness.	0.44
Our business influenced by regulatory bodies to use CAIS.	0.686

Reliability test

For each proposed construct the reliability test was conducted. Cronbach alpha coefficient was computed and compared to desired standards of reliability. As shown in Table 3, all the construct was considered satisfactory as the result were above acceptable value or recommended threshold which is above 0.70 (Nunnally, 1994). Generally, when there is the greater value of the Cronbach alpha, a more reliable result is expected (Kurnia et al., 2015).

Table 3: *Measure of Construct Reliability*

Latent construct	Cronbach alpha
Perceived benefit of CAIS for FSRP	0.900
Perceived benefit of CAIS for DM	0.854
Financial readiness	0.746
Technological readiness	0.834
External pressure	0.819

Note: FSRP (Financial statement and report preparation), DM (Decision making)

Profile of Responding Firms and Respondents

Regarding the age of the firms, 31% of them were less than 5 years since established, while the remaining 40% and 29% of them were respectively 5-10 and above 10 years since established. The firms were involved in manufacturing (24%), construction (21%), wholesale/retailer (21%), service (20%) and agriculture (14%). Looking in to the legal form of the companies responded, 42% were established as private limited company (PLC), 31% as sole proprietorship, and 27% as shared company. Majority of the firms (59%) had number of employees that ranged from 6 to 50, which is followed by firms with less than 5 employees (31%) and above 50 employees (10%). Majority of the firms (63%) had a Gross Sale Revenue (GSR) 100,000 - 1,500,000 Birr while the remaining 37% of the firms had above 1,500,000 Birr GSR. The level of education varied between primary and postgraduate. Of them, 50% were at diploma and below level, 36% bachelor's degree and 14% postgraduate level. Interms of years of experience, 57% of respondents had 1-5 years of work experience, 24% of them 6-10 years, 17% with above 10 years of experience, and the rest 2% with no previous experience.

Extent of adoption of CAIS

The extent of type of the accounting information system adopted among the firms that have responded is shown in Figure 2. Majority of the firms (69%) were using partially CAIS (i.e., a combination of computerized and manual form of AIS) while the rest 31% were fully computerized. The extent of CAIS adoption among the SMEs is depicted in Figure 2.
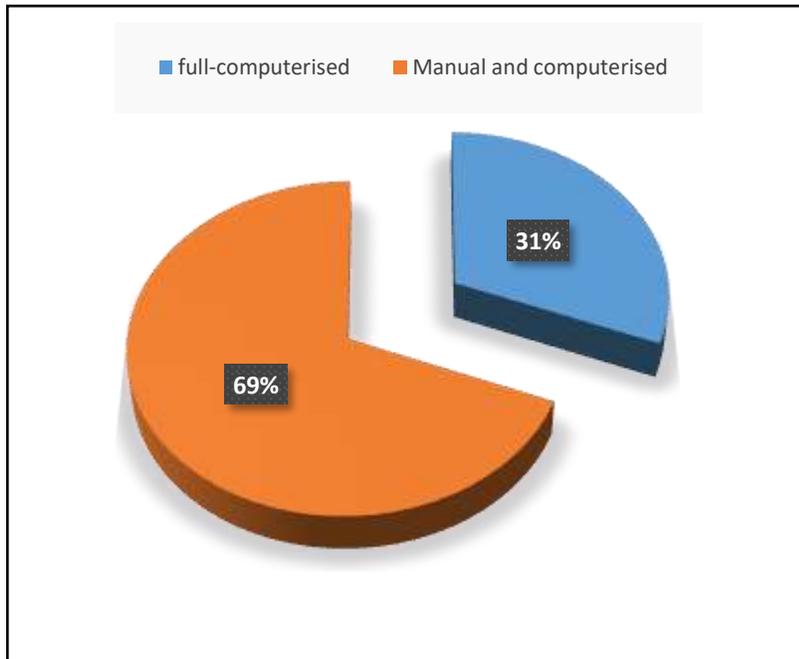
Figure 2: *Extent* **and** *Types of CAIS Adoption among SMES in Addis Ababa, Ethiopia.*

Hypothesis testing

A logistic regression technique was chosen in this study because the research model used dichotomous dependent variables such as fully and partial adopters of CAIS, and six continuous independent variables. Logistic regression carried out to test the proposed research model and hypothesis, i.e. to examine the factors that influence the adoption of CAIS among SMEs (Figure 1). Similar method have been used with others related studies such as Electronic data interchange by Kuan and Chau (2001); electronic business (Zhu et al., 2003); enterprise system adoption (Boumediene and Kawalek, 2008); e-service adoption (Minami, et al., 2010) and e-commerce adoption (Kurnia et al., 2015).

The Omnibus Test of Model Coefficients was used to check if the new model (with the explanatory variables included) is an improvement over the baseline model. It uses chi-square tests to see if there is a significant difference between the baseline model and the new model. The χ^2 statistics from the model showed a significant value ($\chi^2 = 28.18$, p< 0.01). This statistic measures how strongly the model predicts the decisions. The R^2 values tell us approximately how much variation in the outcome is explained by the model (like in linear regression analysis). Nagelkerke's R^2 suggested that the model explains roughly 14.9% of the variation in the outcome. The two values of R-squares suggest that variability in the dependent variable (CAIS adoption) is between 10.6% and 14.9% as can be explained by the overall model. Meanwhile a Hosmer and Lemeshow test of the goodness of fit suggested that the model is a good fit to the data as p = 0.251 (>0.05).

The cut-off value is 0.500, means that if the probability of a case being classified into the "1" (fully CAIS category is greater than 0.500), then that particular case is classified into the "1" category. Otherwise, the case is classified in the "0" category. The classification table below (Table 4) shows the comparison of the predicted value and the actual observed value in the dataset for the adoption of CAIS used based on the logistic regression model. The percentage of adoption of CAIS used correctly

predicted is 89.6%. This percentage is the specificity of data which measures the proportion of the partially CAIS using firms are correctly identified. Meanwhile the sensitivity value is 35.9% which explains the proportion of the fully CAIS which is correctly identified.

Table 4: *Classification Table* ᴬ

		Predicted		
		CAIS adoption		Percentage
	Observed	Partially	fully	Correct
Step 1 CAIS adoption	Partially adopters	155	18	89.6
	Fully adopters	50	28	35.9
	Overall Percentage			72.9

a. The cut off value is 0.500

The overall predictive efficiency is 72.9%. Compared to the null model (68.9%), there is an improvement in the new model (72.9%). Therefore, this model possesses good predictive efficiency.

The logistic regression results are described in Table 5. The findings showed both insignificant and significant factors. Out of the six factors predicted to be influential on the adoption of CAIS among SMEs in Addis Ababa, Ethiopia: perceived benefit of CAIS for better preparation of financial statement and report, and decision making, financial readiness, technology readiness, external pressure and firm size, two of them namely, firm size strongly and financial readiness moderately had significant influence on adoption of CAIS. This implies that firm size and financial readiness have positive significant relationships with CAIS adoption.

Table 5: *Logistic Regression Results*

Variable	Coefficient	p value	Wald Coefficient	Odds Ratio
PB of CIAS for financial statement and report preparation	-0.262	0.237	1.396	0.77
PB of CAIS for decision making	-0.07	0.766	0.088	0.933
Financial readiness	0.332	0.06	3.315	1.38
Technology readiness	0.255	0.312	1.021	1.29
External pressure	0.323	0.201	1.633	1.381
Firm size	1.301	0	19.895	3.674

Note: The result table provides the regression coefficient (B) and the Wald Statistic (to test the statistical significance). Odds Ratio (Exp (B)) is for each variable category and respective p-value. PB is perceived benefit.

Regarding financial readiness, the findings displayed that by considering financial readiness, the coefficient is significant at 90% confidence level, which moderately supported this factor under TOE framework model as a significant factor on the adoption of CAIS. In general, this study results moderately supported H2a and fully supported H2c. However, the rest four factors found to be insignificant and did not support the proposed model in this study under Ethiopian context.

Discussion
The goal of the current study was to expand our knowledge of CAIS adoption status among SMEs in Addis Ababa, Ethiopia, and examining factors that influence the CAIS adoption (fully-adopters vs. partial-adopters of CAIS). Generally, the present study provides results for the proposed TOE framework model. A total of six CIAS adoption factors were assessed in this study. Even though, not all hypotheses are supported, based on the tests of reliability, the proposed constructs were a good measurement tool. The extent of CAIS and each of factors under three broad categories is discussed below in the following subsections.

69% of SMEs were using partial CAIS (i.e, a combination of computerized and manual form of AIS) while 31% of them were fully adopters. Comparing with previous studies, similar study has been done by Ismail et al. (2003) on the adoption of computer-based accounting system among SMEs using related survey method in Melaka, Malaysia. Consequently, they reported that majority of SMEs were using minimal computer based AIS. Similarly, Ismail and (2009) also found that the age of fully computerized AIS among Malaysian Bumiputra small and medium non-manufacturing firms was minimal.

Technological context
The findings of hypothesis H1a and H1b did not support the small business adoption literature and the TOE framework of CAIS. Previous studies have used by merging both PB of CAIS for financial statement and report preparation, and PB of CAIS for decision making as one factor which is labelled just as Perceived Benefit (Thong 1999; Oliveira & Martins 2011; Mohd Sam et al. 2012; Wan Ismail & Ali, 2013 and Kurnia et al., 2015). Based on previous studies perceived benefit means in other word relative advantage. Both are used interchangably in IT adoption (Iacovou et al., 1995; Oliveira and Martins, 2011; Wan Ismail and Ali, 2013). This factor used to be significant factor in prior studies on adoption of IS, for instance, accounting information system (Edison et al., 2012), management accounting system (Oliveira and Fraga, 2011) and electronic commerce by SMEs (Sparling et al., 2007) and CAIS adoption (Wan Ismail and Ali, 2013). However, in the present study, both PB factors found to have insignificant influence on the adoption of CAIS among SMEs in Ethiopian context ($p = 0.237$, coefficient of -0.262; $p = 0.766$, coefficient of -0.070) respectively. This implies that whether there is a higher CAIS adoption benefit for both works or not, there is no impact on adoption of CAIS fully. Nevertheless, mean analysis showed that majority of the responding firms were agreed with the benefit of CIAS for both factors. The disagreement with the findings of the earlier related studies might be attributed to the apparent difference in the design of the experiment and nature of the dependent variables considered. In most of the prior studies, the comparison was made between firms that have adopted CAIS and firms without CAIS (totally manual) while the present study compared between firms that have adopted and entirely depend on CAIS and firms that employ CAIS partially besides manual AIS. On the other hand, the current study finding is consistent with Kurnia et al. (2015), reported PB as insignificant factor on EC adoption.

Organization context

Two factors in the organization context have significant influence. Firm size found to be highly significant and positively related to the extent of CAIS adoption ($p < 0.01$, coefficient of 1.301). This implies that, the firm size is very important factor in adoption decision for CAIS in their company. This evidence suggested that the greater the firm size, the higher the fully adoption rate of CAIS would be. In other words, when the firm size increases the probability of adopting fully CAIS increases, whereas when the firm size decreases, the probability of adopting CAIS partially increases. These findings are consistent with prior study reports by Cho, (2006) and Pan and Jang, (2008a) who have concluded that the size of a business should play an important role in the decision-making process. Similarly, financial readiness found to have significant influence on the adoption of CAIS at 90% confidence interval. This observation implies that the current study found moderate support for the hypothesis H2a within TOE framework model. This finding is consistent with the previous studies that revealed a positive association between financial readiness and information technology or information system innovation adoption (Tornatzky and Fleischer, 1990; Thong, 1999; Pan and Jang, 2008 and Rosli et al., 2012). Moreover, Wan Ismail and Ali (2013) suggested that financial readiness is the important issue to be considered in innovation adoption as an indicator for organizational readiness. This might indicate that partial- adopters may not have the necessary financial resources and financial budgets to adopt fully CAIS. However, the other factor which is technology readiness is the only insignificant factor to discriminate between fully adopters and partial adopters of CAIS in the organization context. This means that in this study, technology readiness turns out to be insignificant under TOE model. Among the supportive evidences to our claim for Hypothesis H2b include, Thong, (1999) and Premkumar and Ramamurthy (1995) who also found it as not a critical variable. Similarly, Sparling et al., (2007) mentioned as it does not have significant influence on e-commerce adoption. This observation reflects that whether the firms have higher levels of technology readiness or not, there is no impact on extent of CAIS adoption as partially or fully.

Environment context

In the present study, the coefficients of external pressure were found to be not statistically significant. This implies that external pressure does not have significant influence on the adoption of CAIS fully. Therefore, according to the present study, hypotheses H4 do not support TOE framework. Even though, Kurnia et al., (2015) concluded that when the greater the environmental pressure on SMEs, the greater is the likelihood of adopting EC technology, Chau and Tam, (1997) reported that the external environmental context has only little influence when the decision is made to adopt Enterprises Resource Planning. The current findings are in parallel with earlier study on the effect of environmental pressure (Thong, 1999). Thus, the finding strongly suggests that external pressure do not have significant influence when a decision is made by SMEs to adopt full or partial CAIS. Additionally, the finding might also reflect the impact of a certain technology adoption among SMEs in different geographical area and different technology can be diverse.

In general, the reasons for the above four factors to be insignificant might be associated with SMEs lack of interest to practice a good quality financial statement and report (Mosisa, 2011). This means that there might have been also a lack of understanding among the surveyed SMEs about the benefits that can be obtained from CAIS adoption. This idea calls for more effort to be made by the government and non -governmental agencies to create awareness and make SMEs understand the role of CAIS so that they can have more realistic expectation of CAIS adoption benefit and subsequently increase the

extent of CAIS adoption.

Conclusion
This paper investigated the extent of CAIS adoption among SMEs in Addis Ababa, Ethiopia. The findings confirmed that the majority of firms are using partial CAIS and indicate that most SMEs are still not aware of the importance of CAIS. Since less attention is given to CAIS from academic and professional bodies in Ethiopia, this study would make important contributions by providing an important insight for the academicians and practitioners. In addition, the findings can serve as a baseline data for future studies on CAIS integration and effectiveness among SMEs. Moreover, it will help to gain knowledge on the adoption status of CAIS. In conclusion, this study suggests that adoption of CAIS fully among the SMEs is still minimal. It might be because of most people in the business community are not aware of the importance of good quality financial reporting and the purpose it would serve (World Bank report, 2007).

Even though, some of the SMEs using full CAIS, the majority of them are still using partial CAIS and struggling to understand the importance of CAIS. This study suggests that there is a need to provide incentive programs to encourage SMEs to adopt CAIS for greater achievement and to create awareness about the importance of CAIS. By which the SMEs would be beneficial. Logistic regression allowed us to determine the relationships between CAIS adoption and six independent factors. Among them financial readiness and firm size are significant factors and have marked impact on extent of CAIS adoption. These findings can be of great importance to the government of Ethiopia and/or other related NGOs to design strategies to help the SMEs in the process of adopting CAIS fully and utilizing it effectively so that they could perform well and benefit from CAIS use to the maximum. This can be achieved by providing fiscal tools via tax incentives that would subsequently help in creating awareness on the benefits of using CAIS and motivate firms to implement such system in their organizations. Therefore, government, non-governmental organizations and relevant agencies need to play the supportive role to encourage the use of CAIS among SMEs, to design and implement encouraging fiscal tools via tax incentives, and to create awareness on the benefit of CAIS adoption and motivation for implementation among SMEs

References
Ademola, O. , James, S. & Olore, I. (2012). The roles of record keeping in the survival and growth of small scale enterprises in Ijumu local government area of Kogi State. *Global Journal of Management and Business Research, 12* (13), 55-66.
Boumediene, R. & Kawalek, P. (2008). "Predicting SMEs Willingness to Adopt ERP, CRM, SCM & E-Procurement Systems". *ECIS 2008 Proceedings*. 115. http://aisel.aisnet.org/ecis2008/115
Buonanno, G., Faverio, P., Pigni, F., Ravarini, A., Sciuto, D. & Tagliavini, M. (2005). Factors affecting ERP system adoption: A comparative analysis between SMEs and large companies. *Journal of Enterprise Information Management, 18*(4), 384-426.
Chau, P., & Tam, K. (1997). "Factors affecting the adoption of open systems: an exploratory study." *MIS Quarterly*, *21*(1), 1-21.
Chhabra, K., & Pattanayak, J. (2014). Financial Accounting Practices AmongSmall Enterprises : Issues and Challenges. *The IUP Journal of Accounting Research & Audit Practices, 13*(3), 37–56.
Cho, V. (2006). Factors in the adoption of third-party B2B portals in the textile industry. *The Journal*

of Computer Information Systems, 46(3), 18-31.

Edison, G., Manuere, F., Joseph, M., & Gutu, K. (2012). Evaluation of factors influencing adoption of accounting information system by small to medium enterprises. *Interdisciplinary Journal of contemporary research in business, 4*(6), 1126-1141.

Fjose, S., Grünfeld, L., Green C. (2010). SMEs and growth in Sub-Saharan Africa: Identifying SME roles and obstacles to SME growth. *MENON Business Economic publication no q4/2010.* http://www.menon.no.

Gullkvist, B. (2003). Adoption and impact of e-accounting. Frontiers of e-business research, 536 544. http://www.ebrc.info/kuvat/

Hair, J.F., Black, W.C., Babin B.J., Anderson R.E. (2014). *Multivariate Data Analysis. 5*th *ed*. Harlow: Pearson Education Limited.

Hassen, Y. (2012). Role of ICT for the growth of small enterprises in Ethiopia. *Master Thesis.* University West Trollhattan, Sweden.

Iacovou, C., Benbasat, I. & Dexter, A. (1995). Electronic data interchange and small organizations: Adoption and impact of technology. *MIS Quarterly,* 465-485.

Ismail, N., Abdullah, S., & Tayib, M. (2003). Computer-based accounting systems: the case of manufacturing-based small and medium enterprises in the northern region of peninsular malaysia. *Jurnal Teknologi, 39*, 19–36.

Ismail, N., & Mat Zin, R. (2009a). Usage of Accounting Information among Malaysian Bumiputra Small and Medium Non- Manufacturing Firms. *Journal of Enterprise Resources Planning Studies,* 1-7.

Kuan, K., & Chau, P. (2001). A perception-based model for EDI adoption in small businesses using a technology-organization-environment framework. *Information & Management, 38* (8), 507-521.

Kurnia, S., Choudrie, J., Mahbubur, R., & Alzagooul, B. (2015). E-commerce technology adoption: A Malaysian grocery SME retail sector study. *Journal of Business Research, 68*(9), 1906–1918.

Kwak, S., Jeon, H. & Baik, S-h (2013). Korea's Cooperation Schemes to Development of Small and Medium Enterprises in Ethiopia. *KIEP Research Paper. World Economic, 3*(54),13-54. Adopted from SSRN:http://dx.doi.org/10.2139/ssrn.2384381.

Lingga, I. (2013). Accounting Practices among Micro, Small and Medium-Sized Enterprises (MSMEs) in Bandung, Indonesia. *Proceedings of The 2nd IBSM, International Conference on Business and Mangement,* Chiang Mai – Bangkok.

Minami, J., Kawano, Y., Ishimitsu, T., Yoshimi, H., & Takishita, S. (2010). Factors influencing the adoption and usage of online services in Saudi Arabia. *The Electronic Journal on Information Systems in Developing Countries, 14*(12), 1421–1425. http://doi.org/.

Mitchell, F., Reid, G., & Smith, J. (2000) Information system development in the small firm: *The use of management accounting,* CIMA Publishing, United Kingdom.

Mosisa,T. (2011). Accounting practices of small and medium sized enterprises and its effect on access to finance in Addis Ababa. *Master Thesis.* Addis Ababa University, School of Graduate Studies.

Nunnally, J. (1994). *Psychometric Theory (3*rd *edition.).* McGraw-Hill Inc.,USA.Oliveira, T., & Martins, M. (2008). A comparison of web site adoption in small and large Portuguese firms. *Proceedings of the international conference on e-business- ICE-B 2008,* Porto, Portugal, pp. 370 - 377.

Oliveira, T., & Martins, M. (2009). Deteminants of information technology adoption in Portuga. *Proceedings of the international conference on e-business - ICE-B 2009,* Milan. Italy, pp 264-

270.

Oliveira, T., & Martins, M. (2010a). Firms patterns of e-business adoption: Evidence for the european union- 27, *The Electronic Journal Information Systems Evaluation, 13*(1), 47-56.

Oliveira, T., & Martins, M. (2011). Literature review of information technology adoption models at firm level. Electronic *Journal of Information, 14*(1), 110–121.

Pan, M., & Jang, W. (2008). Determinants of the adoption of enterprise resource planning within the technology-organization-environment framework: Taiwan's communications industry. *The Journal of Computer Information Systems, 48*(3), 94–102.

Premkumar, G. & Ramamurthy, K. (1995). The role of interorganizational and organizational factors on the decision mode for adoption of interorganizational systems. *Decision Science, 26*(3), 303-336.

Rosli, K., Yeow, P., & Siew, E. (2012). Factors influencing audit technology acceptance by audit firms: a new I-TOE adoption framework. *Journal of Accounting and Auditing: Research & Practice,* pp. 1–11. http://doi.org/10.5171/2012.876814

Sambasivam, Y. & Baye, K. (2013). Evaluating the design of accounting information system and its implementation in Ethiopian manufacturing industries. *Research Journal Of Science and IT Management, 2*(7), 16- 29. www.theinternationaljournal.org.

Saracina, T. (2011). An examination of the use of accounting information systems and the success of small businesses in South Carolina. *PhD Thesis.* H. Wayne Huizenga School of Business and Entrepreneurship Nova Southeastern University.

Senik, R., Mohd Said, R., & Nor Khalili, N. (2012). Accounting information management among malaysian smes' restaurants: preliminary observation. *Proceeding of the International Conference On Management, Economics And Finance (ICMEF 2012),* Hilton Hotel, Kuching, Sarawak, Malaysia.

Seyal, A., Awais, M., Shamail, S., & Abbas, A. (2004). Determinants of electronic commerce in Pakistan: Preliminary evidence from small and medium enterprises. *Electronic Markets, 14*, 372-87.

Sparling, L., Toleman, M., & Cater-steel, A. (2007). SME adoption of e-commerce in the central okanagan region of Canada: *Review of e-Commerce Adoption Literature. Paper, 1046–1059. In 18th Australian Conference on Information Systems (ACIS, 2007),* Toowoomba, Australia.

Tan, & Felix, T. (2010). A perception-based model for technological innovation in small and medium enterprises. *Paper presented at 18th European Conference on Information Systems (ECIS).* Paper 33.

World Bank, (2007). The World Bank Annual Report 2007. 1818 H St Nw Washington Dc: *The World Bank.*http://siteresources.worldbank.org/EXTANNREP2K7/Resources/English.pdf

World Bank, (2015). The World Bank annual report 2015. 1818 St. Nw Washington Dc: *The world Bank.* file:///C:/Users/USER/Downloads/WBAnnualReport2015EN.pdf

Thong, J. (1999). An integrated model of information systems adoption in small business. *Journal of Management Information Systems, 15*(4), 187-214.

Tornatzky, L. & Fleischer, M. (1990). The process of technology innovation, *Lexington, MA, Lexington Books*.

Wan Ismail, N. & Ali, A. (2013). Conceptual Model for Examining the Factors That Influence the Likelihood of Computerized Accounting Information System (CAIS) Adoption Among Malaysian SMEs It / Is Adoption. *Journal of Information Technology and Business Management.*

15(1), 122-151.

Zhu, K. & Kraemer, K. (2005). Post-adoption variations in usage and value of e-business by organizations: cross-country evidence from the retail industry. *Information Systems Research, 16*(1), 61-84.

Zhu, K., Kraemer, K., & Xu, S. (2003). Electronic business adoption by European firms: a cross-country assessment of the facilitators and inhibitors. *European Journal of Information Systems, 12*(4), 251-268.