Effects of Environmental Uncertainty on Computerized Accounting System Adoption and Firm Performance

David Han-Min Wang, and Quang Linh Huynh

***Abstract*---** For the purpose of decision facilitation, computerized-accounting system plays an important role in providing timely, accurate, and relevant accounting information to managers and other decision-makers. However, the adoption of computerized accounting system (CAS) may challenge managers under a high task uncertainty situation. In this paper, we use factor analysis, path analysis, and regression model to examine the effects of environmental uncertainty on the relationship between computerized-accounting system adoption and firm performance. The results reveal that the adoption level of CAS is positively associated with organizational characteristics, perceived benefit of CAS, and environmental uncertainty. And, environmental uncertainty has moderating effect on the relationship between CAS and firm performance. This paper will offer some implications for managers and policy regulators on the issue of the adoption of accounting information system.

***Keywords*--** Computerized-accounting system, Environmental uncertainty, Firm performance

I. Introduction

COMPUTERIZED accounting is designed to automate and integrate all the business operations, such as sales, finance, purchase, inventory and manufacturing. The computerized accounting helps the company handle all the business processes easily and cost-effectively. With computerized accounting the company will have greater visibility into the day-to-day business operations and greater access to vital information; adapting to the specific business needs is possible; and all documents and reports can be generated automatically. Computerized accounting has the ability to handle huge volumes of transactions with speed or efficiency.

International Federation of Accountants (IFAC) [31] believes that e-business plays an important role in accounting systems, through changing business processes and the evidence available to support business transactions, which leads to changes in the accounting records and procedures. IFAC reveals that automatic transmission of information and data on operating activities directly into the accounting system through the use of integrated software solutions may become efficient.

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Prior studies in the use and implementation of modern information technologies in organizations argue that the main obstacles to adopting the information technologies may be due to the lack of knowledge about the advantages of using technologies [47], and the resistance to change organizational structures ([9], [28],[33], [35], [48]). Additionally, previous studies in the adoption of electronic data interchange (EDI) assert that small and medium-sized enterprises (SMEs) do not use EDI due to low perceived benefits, high implementation costs and low organizational readiness [16].

One of the obstacles in interdepartmental systems is that the full benefit of the system can be reached only if the amount of data and information is large enough to process [24]. In order words, the investment and implementation costs to handle the accounting process electronically are likely to be too high in small enterprises compared to the benefits achieved. This is consistent with the OECD [47] which shows that the percentage of internet connected SMEs is positively proportional to the company size. So far, a few previous studies examine the factors that influence the adoption decision of a computerized or e-accounting system in organizations and what affect the actual benefits that adopters receive from utilizing this system. Only [24] and [59] inspect impact of external environment and perceived benefit of e-accounting on adoption of this system.

Moreover, according to previous research ([26], [43]), firm characteristics are the determinants of the use of the control system. In addition, Ajibolade et al. [3], Chong [13] and Yulius [66] assert that under a high uncertainty of environment or task, the use of management system results in effective managerial decisions which improving business performance. Based on these findings, we can argue that the role of firm characteristics is important in accepting computerized accounting system for business. And the use of this system can enhance business performance, especially in the high uncertain environment. Nonetheless, no studies have investigated the impact of organizational interdependence on the adoption of the computerized accounting systems. And neither have they examined the moderation of the external environment on the relation between the usage of this system and its benefits.

Therefore, the aim of this research is to look at the effects of the external environment on the relation between the adoption of these systems and the organizational performance. We also inspect the links between firm characteristics (including the dimension of organizational interdependence) and the adoption of the computerized accounting systems. Moreover, this paper

reexamines the impacts of external environmental uncertainties and perceived benefit of computerized accounting system on the adoption of the system and the organizational performance in the Vietnamese economic and environmental settings as a developing business context.

The paper makes two important contributions to the current computerized accounting literature. First, it is the first to examine and evidence the moderation effect which environmental uncertainty imposes on the relation between the usage of computerized accounting system and its benefits. Second, this paper also is the first to include the variable of firm characteristics into the model of computerized accounting system adoption. The contributions above would provide better understanding of the usage of computerized accounting system in the developing countries.

II. Literature Review

Like Gullkvist [24] and Uchenna [59], we also employ electronic data interchange (EDI) adoption model by Iacovou et al. [29] to study the adoption of computerized-accounting system. In this model, users' perceived benefit of EDI system is shown to enhance firms' tendency to adopt the system. The original model will be extended and developed to fit the current research.

2.1 Computerized Accounting System & Firm Performance

In this study, the level of adoption of computerized accounting system (CAS) is determined as the degree to which an organization chooses and uses computers and the internet for its accounting practices, which is modified from Iacovou at al. [29]. Firm performance refers to the actual output or results of an organization as measured against its intended outputs (or goals and objectives), which are concerned with strategic planners, operations, finance, legal, and organizational development such as "Long run level of firm profitability", "Growth of sales and revenues", "Level of return on assets", "Market share", "Operational and cost efficiency", "Productivity", and "Level of return on sales" [53].

The adoption of EDI is proved to affect the company's benefit ([24], [29], [59]). In addition, Ajibolade et al. [3] find out a positive relation between management accounting system and organizational performance. In the 2011 study, Wan [60] demonstrates a positive effect of e-accounting on the task performance. Furthermore, a number of previous studies have confirmed the impact of e-commerce, information system, accounting information system and information technology on company's performance ([3], [13], [15], [32], [53], [64], [66]). Based on the above discussions and application of them to computerized accounting context, we suggest the hypothesis:

H1: Adoption of computerized accounting system can increase firms' operating performance.

2.2 Firm Characteristics & Computerized-Accounting System

Miller [43] considers industry and firm-specific variables as a kind of managerial uncertainties by that affect managers' business decision. Internal organizational characteristics is referred to as centralization, formalization, interconnectedness and organizational size by Rogers [51]. And afterwards, Breen et al. [10] incorporate business size, information-intensity and industry sector to make up organizational characteristics. And, Sankaran and Kouzmin [52] define organizational characteristics as a factor including business size, business process, organizational structure, and departmental integration. Tornatzky and Fleischer [58] include industry characteristics into the factor of external task environment. Based on Miller [43] we integrate firm type (industry characteristics) to firm characteristics composed of three variables, namely firm size, type and interdependence.

Organizational characteristics are considered by Haldma and Lääts [26] to play an important role in managers' decision of the use of the control system. Al-Omiri and Drury [5] determine that the level of accounting system sophistication will differ significantly according to the firm size and the business sector in which an organization belongs. Following them, Abdel-Kader and Luther [1] ascertain the impact of firm characteristics on accounting practices. And Masrek [40] indicates the organizational aspects (firm size and functional integration) explain the utilization of information systems for an organization. Besides, Nitaya [45] also proposes the Adoption of GL Module of Oracle and SAP Accounting Programs is determined by organizational attributes.

As regards firm size, this variable is measured in terms of the number of employees in the organization as defined in previous studies ([12], [27], [34], [30], [50], [65]). Moreover, firm size is divided into three levels (small, medium, and large) based on Nguyen [44]. Hoque and James [27] show that organization size has a positive correlation associated with the overall usage of balanced scorecard measures. This indicates that more enormous innovation measure usage is associated with larger company. Furthermore, according to Wu and Boateng [65], firm size positively affects the changes in accounting practices. Ibadin and Imoisili [30] and Jusoh [34] find out a positive significant relationship between firm size and the level of use of innovation measures. Whereas Chee et al. [12] confirm the influence of the firm size on internet adoption in Malaysian auditing firms.

Taha et al. [56] measure firm type in two states that are production and non-production. And, Brouthers et al. [11] categorize firms as manufacturers or service firms. Brouthers et al. [11] and Amin [6] claim that service firms are less dependent on machines but more dependent on human capital than manufacturing ones. Additionally, Amin [6] argues that service firms are larger, generate more sales per workers and are better integrated into the financial system. The role of overhead costs in cost structure is considered important by Taha et al. [56]. For these arguments, we can infer that the characteristics of service firms are different from that of the manufacturing, so they have different effects on firm management. In spite of the classification into two types of firm (service and manufacturing) in the previous studies, in fact there are firms whose operations are both service and manufacturing; and this type is certainly different in characteristics from the other two ones. For these reasons, we

enter another item to this factor that is firm of both manufacturing and service, and so our firm type encompasses "manufacturing", "manufacturing-service" and "service". In the process of technology innovation by Tornatzky and Fleischer [58], industry characteristics are found to be a predictor of the acceptance of technology innovation. Abrahamson [2] implies that companies within a business sector can imitate one another and as a result similar accounting systems may be adopted within a specific business sector. Shields [54] find out that the design and efficiency of accounting information systems are dependent on the industry type in which the organization operates. More clearly, Taha et al. [56] expect that manufacturing companies are more likely to use and adopt activity-based costing system than companies pertaining to other industry sectors. Nevertheless, their research delivers the converse results in which service companies are more likely to choose this system than manufacturing companies.

Thompson [57] classifies organizational interdependence into three levels of interdependence: pooled, sequential, and reciprocal by. He refers pooled interdependence as the situation in which each unit of the organization renders a discrete contribution to the whole organization and it is also supported by the whole; sequential interdependence as the situation in that one unit of the company needs parts or services that another unit produces out for its production or work and the former cannot solve its output problem, if the latter does not acts; and reciprocal interdependence as the situation in which the outputs of one unit is inputs for the others. Chenhall and Morris [14] define organizational interdependence as the exchange of output that takes place between departments within an organization. They assign organizational interdependence to three degrees (pooled, sequential, and reciprocal) as Thompson's definition. This paper refers to organizational interdependence as the level of interdependence on work between sub-units within a company; and this interdependence is divided into three degrees which are pooled interdependence, sequential interdependence and reciprocal interdependence as the above discussed definition. According to Baumler [8] and Watson [61], organizational interdependence is an important element of context in the design of accounting system because sub-sequential and reciprocal situations need more coordination than pooled situations do. Chenhall and Morris [14] show that there is a strong relationship between organizational interdependence and characteristics of accounting system. Ibadin and Imoisili [30] reconfirm this relationship and find organizational interdependence can influence accounting system design. In addition, Galbraith and Lawler III [21] argue that increasing interdependence requires an increase in information. Employing these arguments to the computerized accounting system, we can construct the following hypothesis for the computerized-accounting.

H2: Firm characteristics have an effect on the adoption of computerized accounting system.

2.3 Perceived Benefit & Computerized Accounting System

In order for explanation of perceived benefit, the technology acceptance model (TAM) by Davis [17] is employed. TAM was adapted from the theory of reasoned action (TRA) ([4], [20]), in which the behavior is explained as a function of one's beliefs about the outcome of his/her behavior and an evaluation of the value of each of those outcomes. Following TRA, Davis [17] introduces perceived usefulness (PUS) in the TAM where the perceived benefit refers to the degree to which an individual believes that using a particular system would enhance their job performance. From Iacovou et al. [29], perceived EDI benefit is defined as managers' level of recognition of the relative advantage that EDI technology can provide the organization. Adapted from these definitions, perceived benefit of CAS for this study is referred to as the extent to which CAS is thought useful to the planning and control for an organization.

Iacovou et al. [29] indicates that managers who appreciate the benefits of EDI will be more likely to adopt EDI for their business. In addition, Zmijewska et al [67] propose that user's perceived usefulness of a mobile payment system has an impact on his acceptance of that system. Mahadeo [39] provides the evidence that the perceived benefit of the e-Government service has a positive impact on the adoption of the innovation. Moreover, perceived usefulness is considered as one of the major factors affecting the use of accounting software in business by Nitaya [45]. Chee et al. [12] also evidence the influence of perceived usefulness on internet adoption in Malaysian firms. For these arguments we can formulate the following hypothesis for this paper.

H3: Perceived benefit of computerized accounting system is associated with the level of adoption of the system.

2.4 Perceived Environmental Uncertainty & Computerized Accounting System

Duncan [19], Lawrence and Lorsch [38] and Weick [62] refer to perceived environmental uncertainty (PEU) as an important contextual variable. And Duncan [19] also mentions perceived external environmental uncertainty as variables related to customers, suppliers, competitors, social-political issues and technologies. From Miles et al. [42], managerial perceptions of perceived environmental uncertainty are identified by the predictability of business conditions in a company's environment. Jusoh [34] and Steers [55] consider predictability as the ability of a firm to forecast the situations of the external environment in the future.

Environmental uncertainty can be classified by Miller [43] into six areas; namely government policies, economy, resources and services used by the company, product market and demand, competition, and technology. Nonetheless he removes the technology variable because it does not meet the internal reliability. Furthermore, Werner et al. [63] suggest that the inter-item correlations of the technology are also relatively low compared to the other five factors, indicating further evidence on the removal of this measure. As a consequence, they suggest not using the technology variable in the environmental uncertainty for future studies. Following Miller [43] and Werner et al.[63], Brouthers et al. [11] employ this refined measure with five variables (technology is

eliminated) by Werner et al. [63] for their research of "Industrial sector, perceived environmental uncertainty and entry mode strategy". Therefore, for this study, we adopt Werner's refined measure with five variables for perceived external environmental uncertainty".

From the study of Pfeffer and Leblebici [49], when degrees of environmental competitiveness become higher, managers' demands for formal procedures tend to increase. Moreover, Gordon and Miller [22] confirm that if there is an increase in the degree of environmental uncertainty, it is necessary for an organization to incorporate more non-financial data into its accounting information system and adopt a quite sophisticated control system. Following Iacovou et al. [29], external pressures put an impact on EDI adopted by companies. Haldma and Lääts [26] claim external factors influence the use of the accounting system. In addition, Masrek [40] shows the relationship between the environmental uncertainty and the utilization of information systems. A year later, the impact of environmental uncertainty perceptions on the use of marketing information systems is supported by Ashill and Jobber [7]. Ajibolade et al. [3] and Ibadin and Imoisili [30] find the evidence on the relationship between perceived environmental uncertainty and accounting system design. Their findings in support of the perception that more sophisticated accounting system designs will enhance the performance of the manufacturing companies in Nigeria if this design is tailored to the level of the environmental uncertainty facing the companies. On the basis of these findings, the following hypothesis can be proposed for this study.

H4: Adoption of management accounting system can be influenced by perceived external environmental uncertainty.

2.5 Perceived Environmental Uncertainty & Firm Performance

Mia and Clarke [41] argue that firm performance is proposed to be improved under increasing competition. Ajibolade et al. [3] find that when business environment is increasingly uncertain, managers take more attention to their business, so firm performance can be enhanced. Thus we can formulate the following hypothesis.

H5: Perceived Environmental Uncertainty is likely to enhance firm performance.

2.6 Moderating Effect of PEU

Gul and Chia [23] suggest that under conditions of high PEU, the availability of MAS information characteristics is associated with higher managerial performance. In consistence with their argument, Chong [13] also shows that under a high task uncertainty situation, the extent of use of accounting information led to effective managerial decisions and hence this makes managerial performance more improved. Kren [37] finds out the effects of uncertainty on the relation between accounting measures and performance. Additionally, Ajibolade et al. [3] investigate the moderating effect of PEU on the relationship between accounting system and firm's performance and conclude that PEU has a significant moderating effect on the relationship between accounting system and organizational performance. Similarly, Yulius [66] indicates that the higher is the intensity of market competition, the more positive is the relationship between the use of accounting system and business unit performance. We adapt the above findings to the computerized accounting system and then can come to the following hypothesis.

H6: Perceived external environmental uncertainty has an impact on the relation between adoption of computerized accounting system and organizational performance.

Combining the above hypotheses together, we propose the following research model.

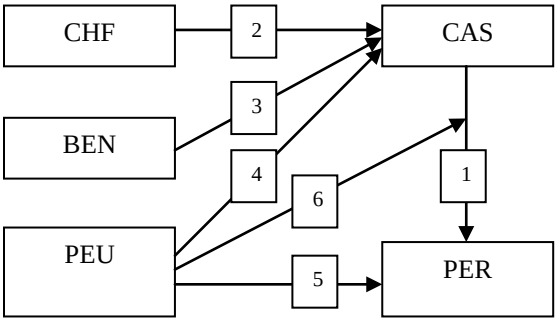

Fig. 1 Research Model

Where, PER is referred to as "firm performance", CAS as "adoption of computerized accounting system", CHF as "firm characteristics", BEN as "perceived benefit of computerized accounting system", and PEU as "perceived environmental uncertainty".

III. RESEARCH METHODOLOGY

3.1 Variable measurement

Before the collection of the data for this study, the pilot test of measures will be conducted with 10 company managers involved in accounting and/or executive management, and 10 experts in management accounting who work for the Vietnamese Accounting agencies, so that we can ensure measures are appropriate for this study [18]. In this study, constructs are employed and measured as follows.

Firm Performance

Firm performance is assessed by using a five-point Likert scale from the state of decrease to no growth, a little growth, growth, and fast growth for the following dimensions, which is modified from Ajibolade et al. [3] and Schulz et al. [53]: Growth in Sales, Returns on Investment, Returns on Sales, Growth in Market Share, and Growth in Profit.

Adoption of CAS

Adoption of computerized-accounting system is measured with a five-point linear numeric scale ranging from never considering, to under implementation of MAS. This measure was adapted from Iacovou et al. [29] and Schulz et al. [53]. The following are variables for CAS, namely "the usage of computer for accounting practices", "the usage of accounting software", "the usage of internet-accounting within the company", "the usage of internet-accounting with other outside

agencies", and "the usage of internet-accounting for other purposes".

Firm Characteristics

Firm characteristics are composed of organizational size, organizational type and organizational interdependence. Organization size is measured with three states. It is "small" if the number of employees is fewer than 200 employees; "medium" if the number is from 200 until fewer than 300 employees; and "large" if the number is equal to or greater than 300 employees, according to Nguyen [44]. Organization type is measured with a three-point Likert scale including three levels with "manufacturing sector", "manufacturing-service sector" and "service sector" modified from Brouthers et al. [11] and Taha et al. [56]. Organizational interdependence or the relationship between sub-units within a company is measured with a three-point Likert scale consisting of three descriptions of intra-unit work flow integration, ranging from pooled, and sequential to reciprocal interdependence, adapted from Chenhall and Morris [14], and Ibadin and Imoisili [30].

Perceived Benefit of CAS

Perceived benefit of computerized accounting system is measured with a five-point Likert scale ranging from "CAS is not at all useful" to "CAS is most useful", which was adapted from Chee at al. [12], Iacovou et al. [29] and Mahadeo [39], and the variables for BEN are "increasing efficiency", "improving profitability", "improving productivity", "increasing market share", and "increasing sales".

Perceived Environmental Uncertainty

Perceived environmental uncertainty is measured with a five-point Likert scale ranging from Chenhall and Morris [14] and Jusoh [34]. The following are variables for PEU, accepted from Miller [43] and Werner et al. [63], Brouthers et al. [11]; namely "government policies", "economy", "resources and services used by the company", "product market and demand", and "competition".

3.2 Data Collection

A survey questionnaire will be conducted in Vietnam, and the respondents are the managers and specialists involved in accounting and management of companies operating in almost all dominant industries in Vietnam. The total of 450 copies of the questionnaire will be delivered to the respondents, of which 150 worked for the small organizations, 150 for the medium organizations, and the remaining 150 for the large organizations (one respondent for a firm). However, only 399 respondents appropriately completed the questionnaire, including 106 small, 144 medium and 149 large organizations.

3.3 Data Process

Reliability analysis is conducted in order to test the properties of measurement scales and the items that compose the scales. At the same time, an exploratory factor analysis (EFA) will be conducted in order for construct validity. In order to test our hypotheses, Structural Equation Modeling process (SEM) using Analysis of Moment Structures (AMOS) is performed. Next, the moderating effect of PEU on the relationship between CAS and organizational performance will also be examined by using the moderated regression.

IV. SULTS

To examine the consistency of items within their measure, the reliability procedure is implemented. The Cronbach's Alpha coefficients for the scales (CHF: 0.725, BEN: 0.873, PEU: 0.93, CAS: 0.885, and PER: 0.924) all exceed the lowest accepted level of 0.7 [46], and thus, the variables are internally consistent with their constructs.

TABLE I
ROTATED COMPONENT MATRIX

Item	Factor					Communality
	1	2	3	4	5	
CHF1					.799	.659
CHF2					.814	.670
CHF3					.769	.620
BEN1				.749		.568
BEN2				.769		.745
BEN3				.736		.603
BEN4				.776		.702
BEN5				.903		.912
PEU1	.855					.752
PEU2	.849					.738
PEU3	.862					.768
PEU4	.819					.710
PEU5	.974					.970
CAS1			.745			.613
CAS2			.760			.671
CAS3			.764			.644
CAS4			.799			.706
CAS5			.894			.894
PER1		.820				.744
PER2		.843				.798
PER3		.908				.895
PER4		.782				.670
PER5		.801				.761

Next, we employ the exploratory factor analysis to classify the items to their own factor with the criteria of the loadings above 0.4 and the cross-loadings over 0.3 [46]. The table I only shows the factor loadings that are greater than 0.4, because the values below 0.4 are suppressed. In this table, the items are assigned to their right theoretical specification of the factors. All the loadings are over 0.7, so the cross-loadings are more than 0.3, which indicates the discriminant validity and also the convergent validity. The communalities all attain the levels of over 0.5, which allows them to be retained for the further analysis [25].

The Structural Equation Modeling process (SEM) reflects all the relationships in the model at the same time; hence we perform SEM using Analysis of Moment Structures (AMOS) in order to test our hypotheses. In order to perform the SEM-AMOS analysis, first we construct the input path diagram, and then perform the analysis steps, which produce the following resulting tables II and IV.

TABLE II
SUMMARY OF THE MAIN INDICES

CMIN	DF	P	CMIN/DF	CFI	RMSEA
516.755	225	.000	2.297	.957	.057

Based on the indices in the table II, we assess the fit goodness of the model. The overall model fit appears quite good. The χ^2 test yields a value of 516.755, with the degrees of freedom of 225 at a corresponding P-value of 0.000; and CMIN divided by DF gets the value of 2.297, which pertains to the range of 2 to 3, the preferably accepted limit by Koufaris and Hampton-sosa [36]. In addition, the Comparative Fit Index (CFI) at 0.957 is more than 0.92, and the Root Mean Square Error of Approximation (RMSEA) is 0.057 well below the 0.07 cut-off [25]. Hence, the above results indicate that the model is a good fit to the data.

In addition, we also undertake the confirmatory factor analysis and obtain correlations, squared correlations and average variance extracted (AVE) as shown in table III. All AVE estimates in this table are larger than the corresponding interconstruct squared correlations (above the diagonal), which provide evidence of discriminant validity for the model [25].

TABLE III
CORRELATIONS, SQUARED CORRELATIONS, AVE

	CHF	BEN	PEU	CAS	PER
CHF		0.042	0.002	0.049	0.029
BEN	0.205		0.035	0.156	0.166
PEU	0.042	0.188		0.027	0.04
CAS	0.221	0.395	0.163		0.226
PER	0.169	0.408	0.2	0.475	
AVE	0.47	0.63	0.743	0.635	0.721

The table IV exhibits the regression coefficients for the structural model (our research model). As seen in this table, all the relationships are significant at the level of less than 0.01 except the linkage between PEU and CAS that has the significance level of 0.033, so we can conclude that the results from the table IV provide statistically significant supports for our hypotheses 1, 2, 3, 4, and 5. Of the relations, the influence of CAS on PER (0.616) is greatest. This implies that the companies adopting computerized accounting systems outperform the ones without these systems, whereas the perceived benefits of CAS strongly lead managers to accept computerized accounting systems with the weight of 0.241.

TABLE IV
REGRESSION COEFFICIENTS

			Estimate	Standard. E	P
CAS	<---	CHF	.153	.149	.008
CAS	<---	BEN	.241	.361	***
CAS	<---	PEU	.040	.093	.033
PER	<---	PEU	.074	.125	.003
PER	<---	CAS	.616	.454	***

On the other hand, environmental uncertainty is a weaker predictor for the adoption of CAS and the organizational performance, and the slightest effect is of the association between environmental uncertainty and the acceptance of computerized accounting system. Firm characteristics into which the dimension of firm interdependence is first included, take the medium influence on managers' decisions in using computerized accounting systems for their business. It is consistent with the prior findings that the organizations, which are large-sized and highly complex-structured, operate in highly uncertain conditions, and whose managers perceive CAS as useful, are more likely to choose and use CAS for their work than the others.

TABLE V
THE RESULTS FOR THE DIFFERENT REGRESSION

Model		Coefficients		t	Sig	Model Fit
		Unstandard	Standard			
1	(Constant)	2.835		16.688	.000	.000
(CAS)	BEN	.283	.347	7.382	.000	
	CHF	.144	.141	3.074	.002	
	PEU	.068	.121	2.596	.010	
2	(Constant)	3.047		19.425	.000	.000
(CAS)	BEN	.301	.369	7.853	.000	
	PEU	.069	.123	2.624	.009	
3	(Constant)	4.112		48.598	.000	.000
(CAS)	PEU	.117	.207	4.223	.000	

Although the linkage between environmental uncertainty and computerized accounting system is statistically significant; the weight is smaller and the significance level is higher (0.04 and 0.033 respectively) than the others. For this weakness, we will do the regression analyses without some or all other factors to test the influence degree PEU impose on CAS, which produces the outcomes shown in the table V. We remove the factor "PER" out of the model, and examine the other constructs on CAS. In this model, the effect coefficient of PEU on CAS is 0.068 at the significance of 0.01, and then we take out CHF, this coefficient slightly increases to 0.069 at

a little bit lower significance (0.009). However, when BEN is removed, there is a considerable increase in the influence from 0.069 to 0.117 and a substantial decrease in the significance level from 0.01 to less than 0.001. The results reflect that CHF inconsiderably affect the association between PEU and CAS, in contrast, this relation is substantially influenced by the perceived benefit of computerized accounting system.

The results from this stage also exhibit that the influence coefficients of BEN, CHF and PEU on CAS are statistically significant at the level of smaller than 0.01, providing more evidence to support our hypotheses 2, 3 and 4, which is consistent with the conclusion from the previous step.

Moderating effect of environmental uncertainty on the relation between computerized accounting system and organizational performance is tested with "Hierarchical Multiple Regression" procedure. First we create the interaction variables of PEU and CAS by multiplying PEU with CAS, and then perform the hierarchical procedure with the linear regression analysis for these variables on PER.

The results of the hierarchical regression analysis are displayed in the table VI. In the model 1, the independent variables (PEU and CAS) are first entered, followed by the interaction variable (PEU*CAS) in the model 2. The results indicate that PEU and CAS both influence PER with a significance of less than 0.001, thus our hypotheses 1 and 5 are re-supported, consistent with the above findings by AMOS procedure.

TABLE VI
HIERARCHICAL REGRESSION ANALYSIS

Model		Coefficients		t	Sig	Mod-Fit
		Unstandard	Standard			
1 (PER)	(Constant)	1.072		4.445	.000	.000
	PEU	.129	.185	4.203	.000	
	CAS	.554	.448	10.208	.000	
2 (PER)	(Constant)	-.003		-.005	.996	.000
	PEU	.571	.819	2.924	.004	
	CAS	.800	.647	6.661	.000	
	PEU.CAS	-.100	-.710	-2.293	.022	

The inclusion of the interaction variable (PEU*CAS) in the model 2 increases the explanation for the model to 27,9% from 26,9% (in the model 1) with the change significance at less than 0.001 as shown in the table VII, and in addition the effect of PEU*CAS on PER is statistically significant at the level of $0.022 < 0.05$ as presented in the table VI; accordingly we can conclude that our hypothesis 6 is significantly confirmed, in which perceived environmental uncertainty has an impact on the influence of CAS adoption on organizational performance. Nevertheless, the effect coefficient of PEU*CAS on PER is -0.1, which reflects under higher uncertain business environments the relation between CAS adoption and firm performance is weaker than that under more stable business environments. This result contrasts with the previous propositions stating that under a high task uncertainty situation, the extent of use of management system led to effective managerial decisions and hence this makes organizational performance more improved. Our results imply that environmental uncertainty become higher, the majority of the companies tend to use CAS, and as a result, the comparative benefit a company gains in comparison with other companies become insignificant. In other words, the effect of CAS on the firm benefit diminishes.

TABLE VII MODEL SUMMARY

Model	R	R^2	Adj R^2	Change Statistics				
				R^2 Change	F Change	df1	df2	Sig. F Change
1	.519	.269	.266	.269	72.964	2	396	.000
2	.528	.279	.273	.010	5.259	1	395	.022

V. CONCLUSION

This research attempts to examine the effect of organizational characteristics, perceived benefit of computerized accounting system (CAS), and environmental uncertainty on the usage of CAS. And we also try to explore the moderating impact of environmental uncertainty on the relation between CAS and firm performance.

The results reveal that the adoption level of CAS is positively associated with organizational characteristics, perceived benefit of CAS, and environmental uncertainty. In turn, CAS brings about the performance for organizations using this system and high uncertain environment also increases firm performance. Based on the results, when firms operate in a higher uncertain business environment and with more complex characteristics, managers tend to perceive computerized accounting system as more useful. And, the adoption of CAS can improve firm performance with the moderating effect of business environmental uncertainty. These findings are significant to managers by providing them with more understanding of factors influencing the use of CAS and the relation of CAS to organizational performance.

We acknowledge some limitations in this paper. Firstly, we base our data on single respondents from firms; as a result bias problem may occur. Future studies could utilize a multi-informant research design to avoid this potential bias. Secondly, this research is implemented in Vietnam as a developing economy and our findings are expected to be applied in other developing countries. However, business conditions among developing countries may be different, so one should generalize our findings with care.

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