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The effects of cash in advance on export decision: the case of Vietnam

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Abstract

This paper investigates the effect of cash in advance (CIA) on the export decision in Vietnamese firms in the face of financial and institutional constraints. We find that the CIA has a positive relationship with the probability of export in the institutionally constrained firms, and this effect becomes pronounced when those firms are small and medium-sized or also suffer financial constraints. This finding suggests that the CIA does help firms export by mitigating the joint effects of constraints imposed on Vietnamese small and medium-sized enterprises (SMEs).

Keywords: Cash in advance, Export decision, SMEs, Vietnam

1. Introduction

Cash in advance (CIA) is a method of settlement that influences firms' ability to enter a foreign market. In this type of method, an exporter obtains an amount of payment from its trading partner before the actual shipment occurs. Hence, CIA is a secure manner for the exporter as payment is made before the transferring of the goods' ownership of the cargo. Moreover, this method helps the firm sponsoring its activities and raising its likelihood of exporting.

There exists rising literature on the nexus between CIA and export extensity (Eck *et al.*, 2015), and their empirical findings are compatible with the theory. However, no study has been made in the context of a transitional economy. Vietnam provides an interesting framework in which the SMEs account for about 90% of the firm population, and as a transitional economy, the burdensome of financial and institutional constraints may affect most of the firms' activities, including export.

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This paper considers whether the CIA has a significant impact on the export decisions of exporting firms, especially for those that suffer severe financial and institutional constraints in Vietnam. We apply a probit method with firm-level data in 2009 to examine the effect of the CIA on the firm's probability of exporting. This effect may vary due to the existence of financial and institutional constraints or the firm scale. Hence, we regress the model in each subsample. Our finding is that the CIA plays a role in raising the export participation in firms facing the institutional constraint. This effect is particularly strong for SMEs or for those that suffer financial constraint.

The remaining of the paper is organized as follows. Section 2 summarizes the literature review. Section 3 specifies the model, and Section 4 provides our estimation results. Section 5 presents a concluding remark.

2. Literature review

Our paper is built on three streams of literature.

2.1 Trade credit and the use of supplier credit

Trade credit is a credit that is provided by a firm for the trading partner. There are two types of trade credit: supplier credit and cash in advance. In the former form, the supplier extends credit to its customer in which the customer does not need to pay immediately but a given period after shipment is made. Meanwhile, the latter refers to the case in which the buyer is required to pay a part or full amount of contract before the actual shipment. IMF (2009) shows that about 60% of trade transactions involve in trade credit. Despite its importance, the study of trade credit in the financial economy is still scant. In explaining why firms use supplier credit, Lee and Stowe (1993) show that firms extend supplier credit to guarantee their product quality by developing a theoretical model of the transaction in the intermediate product market. In the same line, Long *et al.* (1993) indicate that trade credit helps to distinguish the low-quality goods from the high-quality one. Klapper *et al.* (2011) confirm the prediction of signal motivation by using a small sample of the US and European firms. They find that a longer period of supplier credit reveals a less reliable supplier.

Another reason is that though supplier credit is usually more costly than a bank loan, it helps to reduce uncertainty. Biais and Gollier (1997) build up a model in which the firm extends trade credit to show their trust in their customers and therefore help their trading partners to take advantage of bank-related information. If the sellers willing to extend supplier credits, and thus to bear the buyers' default risk, it must be the case that they have good information about their customers. By observing this fact, banks positively update their beliefs about the buyer and therefore agree to provide bank loans. In brief, supplier credit allows the private information of the seller to be utilized in the relationship of bank lending, and this useful information can alleviate credit rationing due to adverse selection. As the current theory fails to interpret why suppliers provide trade credit to customers rather than offering a price reduction, the ability to improve access to bank credit for the firm through commercial credit financing seems a reasonable explanation

(Burkart and Ellingsen, 2004). They document that firms that obtain supplier credit are less likely to cause moral hazard, and banks are willing to lend more money to such firms.

Furthermore, as international transactions tend to aggravate information asymmetries compared with domestic transactions. Trade credit is expected to play a more important role in relieving asymmetric information issues related to foreign trade. Relating to this point, Schmidt-Eisenlohr (2013) indicates that financial market characteristics and contractual environment of both international and local markets are key factors in determining the selection of trade credit. Hoefele *et al.* (2013) further add the role of financial expenses and contract enforcement, whereas Ahn (2011) highlights the importance of collateral.

2.2 Cash-in-advance in international trade

If payment is called for before the actual delivery, the disadvantages of importing firms arise because they may have to borrow money in his domestic financial market, or the commercial risk occurs when the seller fails to deliver the goods. Meanwhile, obtaining a prepayment will help the exporter with adequate capital to purchase in materials for producing exporting goods and thus foster the export process.

Mateut and Zanchettin (2013) show that advance payments reveal customer creditworthiness while trade credit secure seller product quality. Daripa and Nilsen (2011) build a simple model to show that upstream suppliers will be optimally paid in advance by stronger financial buyers, and the CIA is more likely to occur when the upstream margin is low relative to the downstream margin. Ahn (2011) and Schmidt-Eisenlohr (2013) are a few papers that study the role of the CIA as an optimal tool for international trade. Antras and Foley (2015) show that when contract enforcements in the importing countries are weak, the CIA is preferred to supplier credit. However, in such a transaction, exporters might be tempted to cut the quality or otherwise reduce the quantity of the goods being shipped. Eck *et al.* (2015) point out that the CIA is of greater importance in signaling importer's quality to mitigate the high uncertainty arising in foreign transactions than supplier credit.

2.3 The role of financial and institutional constraints

The export decision heavily depends on the financial constraints as it takes longer to fulfill an export order and obtain payment compared to the domestic contract. In theory, the Melitz (2003)'s model with heterogeneous firms is used to study the mediating effect of financial constraints on export entry. Chaney (2005) incorporates the entry sunk cost into the model and then conducts empirical tests. She shows that sunk costs, such as learning about the foreign market, and administration rule, affect the export decision. Stiebale (2011) documents that exporters are required to have enough liquidity to finance such costs. Muûls (2015) indicates that firms have a higher probability of exporting when they have higher levels of productivity and lower credit constraints. Chaney (2016) further adds credit restriction into the Melitz (2003)'s model to capture the fact that firms have to pay additional costs to enter foreign market. She finds that only firms with sufficient liquidity to overcome liquidity restrictions can export. After that, Manova (2012) explicitly models the financial constraints by highlighting the inter-sectoral differences in terms

of liquidity. He argues that in the existence of credit constraints, the threshold of productivity necessary to exporting is relatively low in financially developed countries.

Empirically, Greenaway *et al.* (2007) employ a large sample of UK panel data from 1993 to 2003 to study the nexus between firms' financial health and export extensity. They find that exporting firms have better health status than non-exporting ones. They, however, fail to confirm the prediction that better health firms are likely to export. Meanwhile, the exporting firms' financial health gets better as exporting makes the firm more liquid and less leveraged. Hence, financial health is regarded as an outcome rather than a driving factor of export participation. Guariglia and Mateut (2010) indicate that firms that operate internationally are less likely to face financial constraints than other firms. The interpretation is that exporting improves firm access to financial markets either by dampening informational asymmetries or by cutting exposure to demand-side shocks through diversification.

Similar to the financial constraint, the institutional constraint, including insecure property rights enforcement, bureaucratic tax administration, business license, and export-quota policies, may raise the sunk cost of a firm and therefore prevent firms from entering the foreign market. In addition, Ghecham (2006) shows that this constraint harms firm performance, and Ma *et al.* (2015) document an adverse effect on firm innovation. Both of them, in turn, reduce the export participation of firms. In this line of research, Tran and Bui (2018) use perceived obstacles of customs and trade regulation as a proxy of the institutional constraint and indicate a significant relationship with trade extensity for the Vietnamese firms.

3. Data and model specification

3.1 Model specification

The model is specified as follows:

$$ExD_i = \alpha_0 + \gamma_j + \beta_1 CIA_i + \beta_2 LnSale_i + \beta 3 LnSize_i + \beta_4 LnAge_i + \beta_5 LnManager_i + \beta_6 Foreign_i + \beta_7 Certification_i + \beta_8 Connection_i + \beta_9 Foreigntech_i + \varepsilon_i \quad (1)$$

Where subscript i denotes firm and γ_j captures sector fixed effects. ExD_i is the dummy variable that takes a value of one if firm i exports and zero otherwise. Our interest variable is CIA_i that is a set of variables {$CIAyn_i$, $CIAshare_i$} in which the former is the dummy variable that takes a value of 1 if a firm receives prepayment whereas the latter is the natural logarithm of the share of pre-paid amount in the total sale. We assign the value of 1 to the share that has a value of 0, so after taking the logarithm, it receives a value of 0.

We follow the literature on the determinants of the export decision to choose the control variables (Greenaway *et al.*, 2007; Tomiura, 2007; Mateut *et al.*, 2014; Eck *et al.*, 2015). $Sale_{it}$ is defined as the percentage share of total sales received before delivery of products or services. $Size_i$ is defined as the number of full-time labor that the firm employs. The former captures the labor productivity, whereas the latter reflects the scale effect. The number of years of establishment and management experience operating in the same sector will be represented by variables Age_i and $Manager_i$, respectively. It is expected that both of these variables have

positive effects on the probability to export as older firms gain more experience in exporting, while experienced managers tend to lead the firms to export.

The dummy variable, $Foreign_i$, $Certification_i$, and $Foreigntech_i$ are expressed whether or not a firm has foreign investment, certification, and technology. Foreign technology reflects the use of technology licensed from a foreign-own company. We predict the positive effects of these variables as they help firms to cut the sunk entry costs. $Connection_i$ is a dummy variable that takes a value of 1 if a firm has either email or website. Ln stands for natural logarithm. In this paper, the financial constraint reflects whether firm has a credit refusal from bank. We construct a dummy variable that receives a value of 1 if a firm reports that it applies for a bank loan and gets a bank rejection, and 0 otherwise. The institutional constraint captures the degree to which a firm evaluates the obstacle of obtaining a business license and permits. We rescale the institutional constraint into a binary variable that receives a value of 1 if a firm reports that it faces minor, moderate, major, or very severe obstacles. As the dependent variable is a dummy variable, we use a probit method to estimate equation (1) and report the marginal effect at the mean value.

3.2 Data discussion

We use Vietnam data from the World Bank Enterprise Survey for the year 2009. In the survey, a firm was asked what percentage of its total annual sales of the last fiscal year was paid before, on, or after delivery. For Vietnam, the survey in 2009 is the only one containing the information of payment time. We categorize payment before delivery as cash in advance.

We clean the data set to fix the purpose of our analysis. First, we keep only data of manufacturing enterprises as this sector is in line with the standard trade theory. Second, we also drop incomplete observations. Table 1 portrays the summary statistics of our final data set. The data used for our benchmark model contains 683 observations.

Table 8. Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ExD	683	0.467	0.499	0	1
CIAyn	683	0.470	0.499	0	1
CIAshare	683	1.683	1.875	0	4.615
LnSale	656	19.252	1.254	13.410	23.121
LnSize	683	4.418	1.424	1.609	9.616
LnAge	683	2.207	0.830	0	7.610
LnManager	683	2.778	0.561	0.693	3.932
Foreign	683	0.171	0.377	0	1
Certification	683	0.274	0.446	0	1
Connection	683	0.429	0.495	0	1
Foreigntech	683	0.097	0.296	0	1

Source: Author's compilation

4. Empirical results

The empirical results of the estimation of equation (1) are reported in Table 2. The column (1) and (2) are, respectively, the regression results of the full sample on CIA decision and CIA share. It can be seen that productivity captured by LnSale, and the economy scale reflected by LnSize enhance the export probability and these results are consistent with the existing literature (Greenaway *et al.*, 2007; Mateut *et al.*, 2014; Eck *et al.*, 2015). Foreign investment also raises the export likelihood as it may reduce the sunk cost of a firm when entering the foreign market (Tomiura, 2007). However, our main interest variables, CIAyn and CIAshare, are statistically insignificant.

As the financial and institutional constraints may affect the relationship between CIA and export decision, we further regress the subsample based on those constraints. The results are shown from columns (3) to (8). The financial constraint alone plays no role while the institutional one matters. One possible explanation is that when having a loan rejection from a bank, the Vietnamese firms may rely on other informal sources such as a loan from relatives. Nguyen *et al.* (2015) show that about 60% of SMEs in their sample applied for an informal loan. However, due to the limitation of our survey information, we cannot examine this prediction. It is worth noting that when the firms face financial constraint, the coefficient of LnManager become statistically significant and positive. One possible explanation is that the experience of managers in the current sector may help the financially-constrained firms to export. Meanwhile, cumbersome from obtaining business permits causes additional costs and then raises the sunk cost of exporting. As a consequence, it alters the nexus between CIA and export decisions. Interestingly, when the firm suffers both constraints, the joint effects amplify the importance of the CIA to export entry.

As SMEs account for the majority of firms in Vietnam, we re-examine the relationship between CIA and export participation for the SMEs sample, and the results are reported in Table 3. To construct the SMEs sample, we follow the World Bank classification to drop the firms which have more than 100 employees. It can be seen that the results of the SMEs sample are consistent with those of the full sample, and the effects of CIA on export decision become pronounced when the SMEs face institutional constraints. When the firms have both types of constraint, the role of foreign certification and technology becomes crucial. This suggests that having a foreign certificate may help the firm to start export by signaling the quality of its products to foreign customers. Meanwhile, when a firm receives a technology from foreign firms, it can produce goods efficiently and therefore has a comparative advantage to export.

As the amounts of SMEs facing institutional constraints are small, we also consider the case in which SMEs suffer either constraint. However, the effect of the CIA is insignificant in this sub-sample as the result may be dominated by the financially-constrained firms.

Table 2. The relationship between CIA and export decision: Full sample

	Full sample		Financial constraint		Institutional constraint		Both constraints	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CIAyn	-0.007		0.095		1.060**		1.868***	
	(0.115)		(0.146)		(0.422)		(0.576)	
CIAshare		-0.005		0.021		0.257**		0.384***
		(0.030)		(0.039)		(0.116)		(0.144)
LnSale	0.116**	0.116**	0.097	0.098	0.205	0.225	0.729**	0.648**
	(0.052)	(0.052)	(0.066)	(0.066)	(0.215)	(0.214)	(0.367)	(0.315)
LnSize	0.477***	0.477***	0.435***	0.436***	0.737**	0.747***	0.894**	0.855**
	(0.060)	(0.060)	(0.075)	(0.075)	(0.287)	(0.289)	(0.365)	(0.361)
LnAge	-0.026	-0.026	-0.082	-0.082	0.083	0.0781	0.056	0.077
	(0.076)	(0.076)	(0.103)	(0.103)	(0.216)	(0.219)	(0.276)	(0.296)
LnManager	0.177	0.177	0.345**	0.344**	0.586	0.472	1.129**	0.805
	(0.109)	(0.109)	(0.160)	(0.160)	(0.448)	(0.462)	(0.543)	(0.578)
Foreign	0.692***	0.690***	0.576**	0.577**	-0.189	-0.009	-1.753**	-1.170
	(0.173)	(0.173)	(0.240)	(0.240)	(0.509)	(0.519)	(0.768)	(0.749)
Certification	-0.003	-0.003	0.159	0.161	0.075	0.058	1.050	1.101*
	(0.152)	(0.152)	(0.185)	(0.185)	(0.412)	(0.408)	(0.643)	(0.617)
Connection	0.071	0.071	0.065	0.068	0.016	0.018	-0.094	0.156
	(0.124)	(0.124)	(0.156)	(0.156)	(0.506)	(0.494)	(0.647)	(0.617)
Foreigntech	0.183	0.184	0.041	0.043	0.762	0.708	0.597	0.441
	(0.212)	(0.212)	(0.242)	(0.241)	(0.522)	(0.508)	(0.734)	(0.664)
Constant	-4.842***	-4.841***	-4.549***	-4.569***	-9.672**	-9.721**	-22.90***	-20.25***
	(1.050)	(1.049)	(1.375)	(1.374)	(4.501)	(4.606)	(7.747)	(6.571)
Observations	654	654	404	404	73	73	50	50
Pseudo R^2	0.281	0.281	0.271	0.271	0.359	0.346	0.500	0.468

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author's compilation

Table 3. The relationship between CIA and export decision: SMEs sample

	SMEs		Financial constraint		Institutional constraint		Either constraint	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CIAyn	-0.057		-0.024		1.997***		-0.049	
	(0.150)		(0.202)		(0.748)		(0.194)	
CIAshare		-0.019		-0.015		0.454*		-0.015
		(0.0385)		(0.0516)		(0.253)		(0.0503)
LnSale	0.161**	0.161**	0.183**	0.182**	0.175	0.102	0.189**	0.188**
	(0.067)	(0.067)	(0.0902)	(0.090)	(0.233)	(0.243)	(0.0820)	(0.0819)
LnSize	0.566***	0.566***	0.687***	0.689***	2.168***	2.179***	0.668***	0.669***
	(0.118)	(0.118)	(0.159)	(0.159)	(0.688)	(0.721)	(0.151)	(0.151)
LnAge	0.125	0.125	0.067	0.068	0.078	-0.003	0.0054	0.006
	(0.112)	(0.112)	(0.149)	(0.149)	(0.412)	(0.532)	(0.142)	(0.142)
LnManager	0.042	0.042	0.068	0.066	-0.376	-0.359	-0.000	-0.001
	(0.155)	(0.156)	(0.230)	(0.231)	(0.880)	(1.101)	(0.193)	(0.193)
Foreign	0.264	0.261	0.262	0.257	-0.275	0.027	0.202	0.195
	(0.282)	(0.284)	(0.486)	(0.488)	(0.991)	(1.164)	(0.351)	(0.353)
Certification	0.302	0.301	0.359	0.362	1.927*	1.869	0.155	0.154
	(0.238)	(0.237)	(0.303)	(0.302)	(1.104)	(1.153)	(0.272)	(0.272)
Connection	0.292*	0.293*	0.407*	0.410*	-0.696	-0.426	0.457**	0.457**
	(0.162)	(0.162)	(0.215)	(0.214)	(0.895)	(0.862)	(0.203)	(0.203)
Foreigntech	0.105	0.103	0.010	0.0079	0.457	0.355	-0.083	-0.085
	(0.277)	(0.277)	(0.328)	(0.328)	(0.993)	(1.082)	(0.320)	(0.320)
Constant	-6.025***	-6.007***	-6.688***	-6.655***	-13.02**	-11.43*	-6.823***	-6.802***
	(1.359)	(1.355)	(1.907)	(1.900)	(6.069)	(6.338)	(1.683)	(1.684)
Observations	371	371	210	210	32	32	225	225
Pseudo R^2	0.173	0.173	0.187	0.187	0.486	0.447	0.169	0.169

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Author's compilation

5. Conclusion

By using a firm-level dataset for Vietnam, we find that the CIA has a positive impact on the export extensity of firms that suffer an institutional constraint or both institutional and financial constraints. The effect of the CIA in the latter case is more evident than that in the former one. Moreover, both CIA extensity and intensity play a role. Concerning the sub-sample of SMEs, we find that the effect of the CIA on export decision becomes stronger for the SMEs facing institutional constraint and even higher when suffering both types of constraints. These findings have some policy implications. First, the role of institutional and financial constraints in guiding firm export activity suggests that the Vietnamese government should implement the policies that reduce financial market imperfections as well as institutional frictions. Second, the effect of the institutional constraint is more evident than that of financial constraints, so the government should pay more attention to removing the former.

It can be seen that when SMEs face the two types of constraints, foreign certification and technology play a decisive role. This suggests that in order to help SMEs to export, the government should facilitate the firms in achieving international certificates and obtaining technology transfer from foreign firms.

One of the drawbacks of this study is the existence of an endogeneity problem that may arise due to the reverse causality of CIA and export extensity. Employing an instrumental variable can solve this problem, but this is not available in our data set. Hence, future research can be conducted to use richer data with a suitable instrumental variable to investigate the effect of the CIA on export decisions more accurately.

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