How Do Risk Preferences Impact the Choice of Trade Credit?

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Abstract

Investigating the impact of patience and risk-taking on trade credit using detailed payments data in imports from Turkey and comprehensive cross-country data on economic preferences from the Global Preference Survey (GPS), our research findings indicate a correlation between a country's risk-taking preferences and the proportion of imports conducted using the open account method. This suggests that countries with a greater propensity for risk-taking tend to engage in more open account transactions for imports. Notably, this paper appears to be the first to explore the behavioral dimension of trade finance in this manner.

1.   INTRODUCTION

Terms of payments used in cross-border transactions mediate the risk exposure faced by importing and exporting companies. When the payment choice is cash-in-advance, the exporter receives the payments before the shipment, so the importer faces a non-delivery risk. Under the open account method, shipments are made before the payment is due and the exporter assumes a default risk. Trade partners can also settle their transaction via bank intermediation and use letter of credit method, which involves a commitment by a financial institution on behalf of the importer that payment will be made to the seller if the terms stated in the sales contract is met.

Extending trade credit requires a willingness to take risks at the benefit of not losing customers to alternative sellers and establishing strong trading relationships. Additionally, delivery of goods may require a substantial amount of time especially when considering the procedures with custom clearance and shipping, so trade credit partly relies on exporters' patience. Accordingly, the hypothesis revolves around the idea that the willingness of exporters to take risks and their level of patience can influence the extent to which trade credit is extended in international transactions. We empirically evaluate this hypothesis and establish that variation in economic preferences over risk-taking indeed affects the payment terms in international transactions.

Our paper aims to integrate two distinct areas of literature. The first involves studying the interplay between trade and finance, while the second focuses on investigating how fluctuations in financial conditions impact the movement of exports. Financial development has been shown to be a source of comparative advantage for the industries that rely more on external finance (Beck, 2003; Manova, 2008). Another line of research in this area focuses on the payment aspect of trade finance. On the theoretical side, Schmidt-Eisenlohr (2013) investigates the trade-off firms have between different payment terms in international trade and the differences in their use across countries. As also noted in Love (2013), this literature suffered from a reliable and comprehensive dataset over the years, since the data was collected from bank and firm surveys, which often had insufficient coverage and did not provide bilateral information on different payment terms in cross-border transactions.

In the last decade, this literature has received several empirical contributions as more detailed payment data on global trade has become available. Hoefele et al. (2016) evaluates the predictions of Schmidt-Eisenlohr (2013) model utilizing the World Bank Enterprise Survey and shows that international trade transactions are more likely to occur under post-shipment terms when financing cost is high and contract enforcement is weak in the source country. Similar conclusion is noted in Antras and Foley (2015). Demir and Javorcik (2018) provide evidence that competitive pressures lead exporters to provide trade credit. In a related study, Habiyaramye and Avsar (2020) shows that trade agreements matter for the choice of payment terms in international trade. Ahn and Sarmiento (2013) show that adverse bank liquidity shocks cause a decrease in imports executed through letters of credit.

Our paper aligns with the literature on the impact of risk-taking preferences and patience as well. Shao et al. (2013) examines the link between individualism and types of corporate investment, depending on individualism's implications for risk-taking. In a similar research, Ashraf (2016) analyzes the risk-taking behavior of banks. Delis et al. (2012) argues that economic preferences over risk-taking affects firm's financing costs and capital structure. Strulik (2012) introduces a savings channel through which patience operates simultaneously as cause and result of prosperity. Sunde et al. (2020) demonstrates that patience is positively related to per capita income and the accumulation of physical and human capital.

Gur (2021) shows that patience enhances financial development. In terms of international trade, Korff and Steffen (2019) provides evidence that countries that are patient and risk-averse trade more differentiated products. Although not directly evaluated, their paper notes the financing channel as one of the explanatory forces for the impact of risk-taking and patience on bilateral trade flows. A major boon from using disaggregated payments data like ours is that we can directly test the trade finance channel.

2.   DATA

The data on economic preferences come from GPS. GPS was part of the 2012 Gallup World Poll, the data is available for 76 countries, and the median sample size was 1000 people for each country. The data covers many developed, developing, and low-income countries and represents the only cross-country dataset for economic preferences.[1] We utilize the risk-taking indexes from this dataset. Each variable in the dataset has been normalized to have a mean of zero and a standard deviation of one. Positive values indicate a deviation above the mean, while negative values indicate a deviation below the mean.

Data on payment choice in import transactions is purchased from Turkish Statistical Institute (TUIK). This database documents the use of different payment arrangement in imports of Turkey at the 2-digit level of ISIC Revision 3. We take the averages from 2011 to 2013 for the industry-country combinations to create our cross section, since the GPS data is coming from the year 2012. Table 2 displays the percentage of imports executed under open account, bank intermediation and cash-in-advance methods.

3.   EMPIRICAL ANALYSIS

To empirically evaluate our hypothesis that a higher share of imports will be executed under open account method when sourced from countries with high risk-taking preferences, we start with the following OLS estimation:

$$XO_{ih} = \varphi_0 + \varphi_1 Risk_i + Z_i + \vartheta_h + \varepsilon_{iht} \qquad (1)$$

where i indexes countries, h indexes industries. XO_{ih} denotes the share of import transactions settled under post-shipment terms (trade credit) in industry h from country i. $Risk_i$ is the risk-taking preference measures obtained from GPS for country i.

We included a set of control variables (Z_i) in our model. First, the trade finance theory suggests that financing cost of the exporting country matters for the payment method in cross border transactions. So, we added the net interest margin, the net interest income of the banks relative to their total earning assets, of the exporting country as one of our control variables. It is less likely for a cross-border transaction to be financed if the net interest margin increases in the exporting country. Thus, the expected sign for this variable is negative. We also included contract viability index from International Country Risk Guide to proxy contract enforcement. These variable measures the risk of unilateral contract modification or cancellation in a country. As mentioned in Schmidt-Eisenlohr (2013), open accounts become more attractive for an exporter located in countries with weak contract enforcement, so we expect a negative sign for this variable. Another crucial factor that affects the payment choice is the distance between countries because of informational barriers and delivery lags. We expect the share of imports on credit to decrease with distance. Finally, our model has regional dummies for European, North American, South American, African, and Middle Eastern regions as well industry dummies to control for certain industry characteristics, such as technology intensity and complexity of products.

Table 2 displays the results for model (1). We used the risk taking, patience and trust indexes respectively in models 1, 2 and 3. As shown, all variables enter the regressions with a significant and positive estimate across all specifications. Our hypothesis that risk-taking preferences in the source country increases the share of imports on credit is supported by our estimates. In addition, our estimates show that a lower share of imports occurs under post-shipment terms if distance between trade partners increases, contract enforcement strengthens, and financing becomes more expensive in the exporter's country.

Robustness Checks

In this subsection, we subject our findings to alternative estimation methods. First, Hoefele et al. (2016) suggests the use of fractional response model since the dependent variable is 0 and 1. Table 3 displays the estimates from this exercise. As shown, the estimates mirror the results before. All variables of interest remain positive and significant.

Further, we also employed ordered logit model to explore the relationship between certain variables and payment choices including pre-shipment, bank intermediation, and open account. The classification of each observation into one of these categories is based on the dominance of specific terms or factors. Expressly, the dependent variable takes on a value of 1 if many imports for a country-industry combination were executed under cash in advance terms. Likewise, the dependent variable becomes 2 for bank intermediation and 3 for open account term. So, there is an order of payment terms based on importer financing.

The marginal effects in Table 4 suggest that an increase in the risk-taking preferences in the exporter country increases the likelihood of observing open account terms but decreases the likelihood of cash in advance. Therefore, a unit increase in the risk-taking index increases the likelihood of having an export transaction under open account terms by 4.3%.

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[1] See Falk et al. (2018) for more information.

4. CONCLUSION

Trade finance has become a prominent topic of conversation in the last decade. The IMF report shows that 80% of international trade is underpinned by some form of trade credit. While a substantial amount of literature has focused on a range of factors related to payments in global business, the behavioral dimension has not received as much attention. Notably, this paper represents the first attempt to investigate the behavioral component of trade finance. We document robust evidence on the role of risk-taking preferences of the trade partner on payment choice in cross-border transactions. Hence, our research demonstrates that a greater proportion of import transactions take place using post-shipment terms when the exporting country exhibits a stronger preference for risk-taking. This finding remains consistent across various estimation approaches and alternative measures of risk-taking.

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Table 1. Shares of different payment terms in imports

	Open Account	Bank Intermediation	Cash-in-Advance
Overall	20%	22%	58%
Europe	22%	16%	62%
Asia	19%	23%	58%
Africa	18%	25%	57%
South America	22%	21%	57%
North America	18%	22%	60%
Middle East	18%	27%	55%
Low Income	20%	24%	56%
Middle Income	18%	24%	58%
High Income	19%	21%	60%
High technology industries	17%	19%	64%
Low technology industries	19%	24%	57%

Table 2. OLS Estimation Results

Dependent variable: *Share of imports transactions on credit*

	(1)	(2)	(3)
Risk Taking	0.045***		
	(0.011)		
Patience		0.016**	
		(0.008)	
Trust			0.067***
			(0.008)
Net Interest Margin	-0.004***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)
Contract Viability	-0.012***	-0.011***	-0.013***
	(0.005)	(0.005)	(0.004)
Distance	-0.018***	-0.015***	-0.015***
	(0.003)	(0.002)	(0.002)
Industry Dummies	Yes	Yes	Yes
Regional Dummies	Yes	Yes	Yes
N	1116	1116	1116

Notes: Constant term is suppressed. Distance is in logarithm. *t* statistics in parentheses,
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3. Fractional Response Model

Dependent variable: *Share of imports transactions on credit*

	(1)	(2)	(3)
Risk Taking	0.178***		
	(0.060)		
Patience		0.354***	
		(0.101)	
Trust			0.347***
			(0.043)
Net Interest Margin	-0.007**	-0.006**	-0.006**
	(0.003)	(0.003)	(0.003)
Contract Viability	-0.075***	-0.072***	-0.073***
	(0.194)	(0.191)	(0.189)
Distance	-0.055***	-0.052***	-0.051***
	(0.010)	(0.010)	(0.010)
Industry Dummies	Yes	Yes	Yes
Regional Dummies	Yes	Yes	Yes
N	1116	1116	1116

Notes: Constant term is suppressed. Distance is in logarithm. *t* statistics in parentheses,
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4. Ordered Logit Estimation

	Marginal effects for Cash in advance	Marginal effects for Bank intermediation	Marginal effects for Open Account
Risk Taking	-0.085***	0.041***	0.043***
	(0.014)	(0.006)	(0.007)
Patience	-0.040**	0.002**	0.038**
	(0.018)	(0.000)	(0.017)
Trust	-0.041***	0.010***	0.031***
	(0.016)	(0.004)	(0.012)
N	1116	1116	1116

Notes: *1) This table presents the marginal effects for three payment methods. 2) Each model includes a constant term, control variables, regional and industry dummies. 3) t statistics in parentheses.* * *p < 0.10,* ** *p < 0.05,* *** *p < 0.01*