Trade Integration and Method of Payments in International Transactions

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Introduction

- Trade finance is the lifeblood for international trade. More than 90% of cross border transactions are underpinned by some form of financing, mainly short-term credit.

- Survey reports show that trade credit has become more expensive following the financial crisis in 2008-2009 and global trade experienced a substantial decline in consequence.

- Many studies explored the link between financial conditions and trade especially in the post-crisis era:
  - Greenaway et al. (2007), Muuls (2008), van der Veer (2010), Amiti and Weinstein (2011), Chor and Manova (2012), Manova (2013) and etc.

Introduction

- Trade finance is broadly defined as the methods and instruments designed to support exporters and importers throughout the trade cycle (Menichini, 2009).

- Trade finance performs four basic functions in facilitating international transactions:
  - Financing,
  - Risk mitigation,
  - Payment facilitation,
  - The provision of information about the status of payments or shipment.

- This paper primarily focuses on the payment aspect of trade finance.

Introduction

- Trade finance offer a range of payment mechanisms that enable exporters to obtain secure and timely payment from importers while enabling the importers to obtain the shipment of goods as stated in the contract (i.e. minimize the default and non-delivery risks).

- There are four common methods of payment for international transactions:
  - Open Account,
  - Cash in Advance,
  - Letters of Credit,
  - Documentary Collection.

Introduction

- Each method has different risk levels and provides a different level of protection to exporters and importers.

- Cash in Advance : Importer financed

- Open Account: Exporter financed

- Between these two, banks also offer Letter of Credit or Documentary Collection to prevent the risk of default and non-delivery.

Introduction

- Theoretical and empirical research on the payment contract choice in trade flows remain limited.

- Several recent studies have analyzed the choice between different payment modes (firm-level and bank-level surveys):

  - Glady and Potin (2011), Ahn (2011), Mateui (2012), Schmidt-Eisenlohr (2013), Antras and Foley (2013), Olsen (2013) and Niepmann and Schmidt-Eisenlohr (2013).

- Very few countries (e.g. Brazil, India, Italy, Korea and Turkey) provide sufficient country-level trade finance data on a bilateral basis.

Research Question:

- What is the impact of economic integration on different payment methods in exports?

- Channels:

    Increased trustworthiness

    Increased expectations of profitability

    Agreements prompt sellers to lower their perception of default risk

    And ?????

Data

Turkish industry-level export data provides:

- o trade volumes in each industry

- o the volume of exports shipped under different payment terms.

- o export destinations

Data

Table 1: Average usage of methods of payments in Turkey's exports by income, region and industry group, (in percent, 2002-2012)

| Sample	Open Account	Cash in Advance	Cash against Documents	Letter of Credit	Other
Low income	45.91	8.92	15.69	28.49	0.99
Lower middle income	48.00	8.85	17.32	24.11	1.72
Upper middle income	52.99	8.68	20.14	16.34	1.85
High income	60.37	4.83	18.61	12.90	3.28
Europe	65.36	4.23	19.88	7.04	3.48
America	48.98	6.05	17.01	24.15	3.81
Asia	35.92	8.99	15.90	36.39	2.81
Middle East	39.60	8.51	18.78	31.88	1.23
Africa	39.78	6.49	20.69	32.03	1.00
Low-technology	70.31	3.65	18.52	6.72	0.79
Medium-low-tech	44.02	8.18	13.18	32.16	2.46
Medium-high-tech	53.90	6.48	26.20	7.68	5.75
High-tech	76.67	2.42	3.77	14.04	3.11
Overall	57.59	6.06	18.94	14.54	2.87

Source: TURKSTAT

Data

- On average, Turkey's exports are mainly financed via post-shipment methods (exporter finance), the riskiest method of payment (Table 1):
  - Post-shipment: Open Account (58%), Cash against Documents (19%)
  - Pre-shipment: Cash in Advance (%6), Letter of Credit (%15).

- In line with the prediction of Schmidt-Eisenlohr's (2013) model that exports to countries with strong contract enforcement is more likely to occur on Open Account terms (mainly European markets).

- Cash in Advance method and L/C were mostly preferred when trading with Asian, Middle Eastern and Low-income countries, consistent with Love (2013).

Data

- The share of open account has risen from 52% to 57.8%.

- This is due to the intense competition in traditional export markets (Europe) fuelled by the financial crisis.

- The use of Cash in Advance method dramatically increased from 3.1% to 14.7%.

- This is likely due to the reorientation of Turkey's exports towards faster growing non-traditional markets (such as the Middle East and Africa) where the financial system is less developed and contract enforcement is weak.

- However, the shares of L/C and cash against documents have declined due to the increased financial costs and tightened credit conditions.

Data

Figure 3 Share of Methods of Payments in Exports (in percent, 2002-2012)
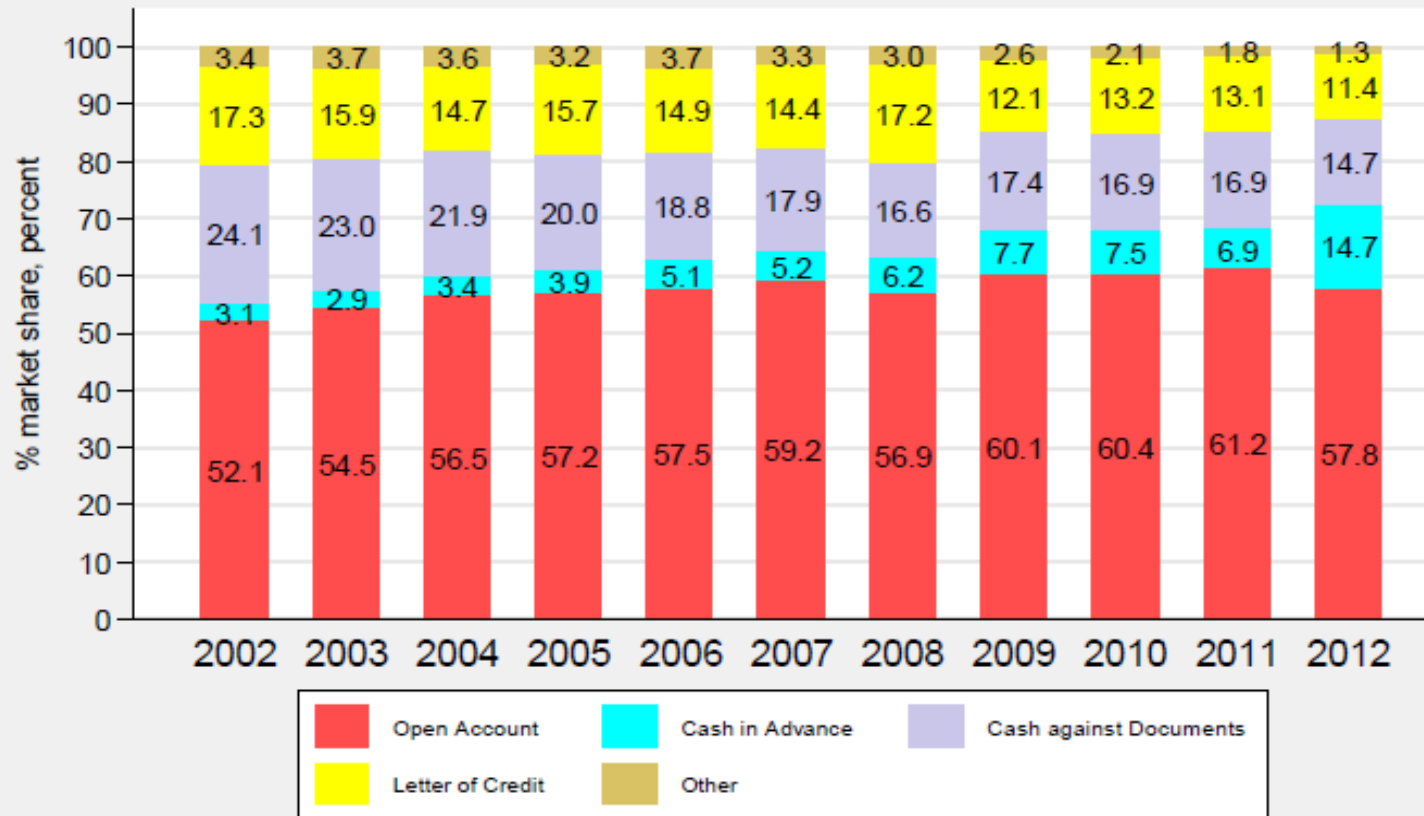
Source: TURKSTAT

Economic Integration

- **Preferential Trade Agreement:**

  tariffs countries apply to each other's products are lower than the rates on the same goods coming from other countries.

- **Free Trade Agreement:**

  goods can be shipped to the other country without tariffs. (but countries set tariffs against the outside world independently.)

- **Customs Union**

  free trade area with a common external tariff.

Trade Integration and Payment Methods (A first glance at the data)

Average payment method shares for different agreement types

Share of exports	No agreement	PTA	FTA	Customs Union
Open account terms	0.569	0.639	0.658	0.691
Advanced Payment	0.148	0.112	0.095	0.078
Letter of Credit	0.256	0.185	0.105	0.068

Empirical Analysis

- We start with the following estimation:

$$X_{ijt}$$
$$= \beta_1 PTA_{ij} + \beta_2 FTA_{ij} + \beta_3 CU_{ij}$$
$$+ \beta_4 GDPPC_J + \beta_5 \log(distance)_{ij}$$
$$+ industry\ fixed\ effects$$
$$+ year\ fixed\ effects$$

X_{ijt}: Share of Open AccountTransactions

Table 1: The effect of Economic Integration on Methods of Payments in Export Transactions

Dependent variable: Share of Post-Shipment Financed Transactions				
	1	2	3	4
EIA	0.076***	0.039***		
	(0.001)	(0.001)		
GDP per capita		0.004***		0.009***
		(0.001)		(0.001)
Distance		-0.107***		-0.112***
		(0.003)		(0.003)
PTA			0.194***	0.116***
			(0.008)	(0.008)
FTA			0.255***	0.108***
			(0.005)	(0.006)
CU			0.277***	0.127***
			(0.004)	(0.006)
R-squared	0.247	0.280	0.244	0.278
N	45793	43884	45793	43884

Table 2: The effect of Economic Integration on Methods of Payments in Export Transactions

(Sample of countries with a change in agreement status)

Dependent variable: **Share of Post-Shipment Financed Transactions**

	1	2	3	4
EIA	0.022***	0.028***		
	(0.002)	(0.003)		
GDP per capita		-0.023***		-0.014***
		(0.004)		(0.004)
Distance		-0.022***		-0.029***
		(0.006)		(0.006)
PTA			0.130***	0.123***
			(0.010)	(0.010)
FTA			0.170***	0.164***
			(0.008)	(0.009)
CU			0.191***	0.199***
			(0.008)	(0.011)
R-squared	0.363	0.369	0.367	0.373
N	8349	8303	8349	8303

- To see the dynamic effect of economic integration, we interact our variables of interest with *duration of agreement, which is the number of years since the agreement became effective.*

Table 3: The effect of Economic Integration on Methods of Payments in Export Transactions

(Sample of countries with a change in agreement status)

Dependent variable:	Share of Post-Shipment Financed Transactions			
	1	2	3	4
EIA	0.020***	0.026***		
	(0.002)	(0.003)		
EIA x Duration	0.000	0.001**		
	(0.001)	(0.001)		
GDP per capita		-0.025***		-0.014***
		(0.004)		(0.004)
Distance		-0.021***		-0.026***
		(0.006)		(0.006)
PTA			0.113***	0.110***
			(0.014)	(0.014)
FTA			0.163***	0.161***
			(0.010)	(0.011)
CU			0.172***	0.174***
			(0.013)	(0.015)
PTA x Duration			0.024***	0.021***
			(0.005)	(0.006)
FTA x Duration			0.009***	0.007***
			(0.003)	(0.003)
CU x Duration			0.015***	0.014***
			(0.003)	(0.003)
R-squared	0.363	0.370	0.370	0.375
N	8349	8303	8349	8303

Robustness

- Use the export values instead of shares ✓

- Probit estimation ✓

- Multinomial Logit ✓

Probit Estimation

1) The dependent variable is a dummy variable and unity if the post-shipment terms have at least 90% share for the particular industry-export market combination.

2) All estimations include year and industry fixed effects.

3) Specifications 3 and 4 include the countries with a change of status in trade integration

Table 7: Probit Estimation

	1	2	3	4
EIA	0.140***		0.138***	
	(23.07)		(10.78)	
GDP per capita	-0.046***	-0.047***	-0.0343*	-0.0423*
	(-9.93)	(-9.92)	(-2.17)	(-2.44)
Distance	-0.057***	-0.067***	0.0486*	0.00603
	(-6.08)	(-6.97)	(2.11)	(0.26)
PTA		0.013		0.427***
		(0.35)		(7.31)
FTA		0.292***		0.103*
		(10.01)		(2.18)
CU		0.598***		0.661***
		(23.80)		(12.14)
N	41976	41076	7942	7942

	Cash in Advance vs. Postshipment	Letter of Credit vs. Postshipment	Cash in Advance vs. Letter of Credit	Cash in Advance vs. Postshipment	Letter of Credit vs. Postshipment	Cash in Advance vs. Letter of Credit
Table 8. Multinomial Logit Estimation						
Type of financing terms						
EIA	0.295***	0.235***	0.059**			
	(15.24)	(18.86)	(2.87)			
PTA				0.107	0.196***	0.389***
				(1.11)	(15.76)	(10.30)
FTA				0.881***	0.448***	0.403***
				(9.35)	(7.86)	(3.92)
CU				0.967***	0.462***	0.804***
				(14.34)	(8.91)	(8.49)
GDP per capita	0.122***	0.340***	-0.219***	0.124***	0.396***	-0.271***
	(8.09)	(37.23)	(-14.66)	(8.21)	(42.57)	(-18.06)
Distance	-0.142***	-0.96***	0.826***	-0.144***	-1.018***	0.873***
	(-4.84)	(-49.93)	(27.25)	(-4.82)	(-50.69)	(28.09)
N	42808	42808	42808	42808	42808	42808

Table 9. Multinomial Logit Estimation

(Sample of countries with a change in agreement status)

Type of financing terms

	Cash in Advance vs. Postshipment	Letter of Credit vs. Postshipment	Cash in Advance vs. Letter of Credit	Cash in Advance vs. Postshipment	Letter of Credit vs. Postshipment	Cash in Advance vs. Letter of Credit
EIA	0.176***	0.161***	0.337***			
	(4.22)	(6.49)	(7.54)			
PTA				0.623***	0.601***	0.223***
				(7.33)	(5.34)	(9.60)
FTA				0.743	0.619***	0.376*
				(0.29)	(4.28)	(2.27)
CU				0.799**	0.905***	0.695***
				(3.11)	(10.37)	(8.27)
GDP per capita	0.129**	0.262***	0.149**	0.262***	0.334***	0.049***
	(2.62)	(8.45)	(2.88)	(8.45)	(9.55)	(4.18)
Distance	-0.469***	-0.0751	-0.679***	-0.0751	-0.0493	-0.679***
	(-6.22)	(-1.61)	(-8.77)	(-1.61)	(1.00)	(-8.77)
N	8164	8164	8164	8164	8164	8164

Conclusion

We analyze the effects of economic integration agreements on the payment choice in international transactions. Using annual two-digit industry level export data, we find evidence that:

1) trade integration have a positive impact on the value and the share of exports executed under open account terms

2) the positive impact of trade agreements increase with the duration of agreements and the degree of integration.

Further research questions

- Relationship between temporary trade barriers and trade finance.

- How are the exporters to third countries affected by the change in economic integration?

- How are the exporters from Turkey to country i affected by the change in economic integration between country i and j ?

Thank you!

- Questions, suggestions?