

Trade Credit and Relationships

Felipe Benguria, Alvaro Garcia-Marin, Tim Schmidt-Eisenlohr

University of Kentucky, Universidad de los Andes, and Federal Reserve Board

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Disclaimers

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Trade Credit is a Central Source of Finance

What is trade credit?

Suppose a firm sells to another firm. The buyer can pay:

- Before delivery: **cash in advance**
- After delivery: **trade credit**

Trade credit is used widely across developed and emerging economies:

- Most important source of short-term finance for U.S. firms: non-financial sector had \$5.2 trillion USD in 2021 (24 percent of U.S. GDP)
- Trade credit dominant in domestic transactions (Ellingsen et al. (2016)) and international transactions (Ahn (2014), Demir and Javorcik (2018))

This Paper

Theory: Build a model combining two channels:

- Commitment problem and learning (as in Antras and Foley (2015)).
- Financing cost advantage (as in Garcia-Marin et al. (2020)).

Empirics: In Colombian (and Chilean) transaction-level data:

- Trade credit **increases** with **relationship age**.
- Learning effects **stronger for** differentiated products and source (destination) countries with stronger (weaker) rule of law.
- Commitment problem dominates in the **short run**; financing cost channel dominates in the **long run**.

Related literature

International Payment Choice:

- Schmidt-Eisenlohr (2013), Ahn (2014), Antras and Foley (2015), Niepmann and Schmidt-Eisenlohr (2017), Demir and Javorcik (2018), Garcia-Marin et al. (2023)

▷ Importance of relationships and learning for payment choice.

Trade Relationships (two-sided data):

- Blum et al. (2012), Eaton et. al (2014), Heise (2015), Bernard et al. (2018), Carballo et al. (2018), Benguria (2021), Monarch (2022)

▷ Link relationships to payment choice.

Advantages of trade relationships:

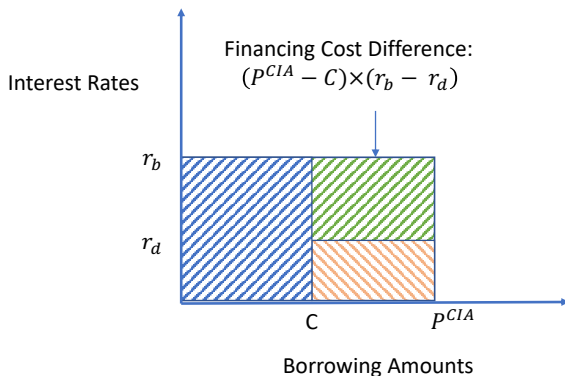
- Monarch and Schmidt-Eisenlohr (2018): more trade, higher survival, more resilient in crisis.
- Heise: sharing of exchange-rate risk.
- Macchiavello and Morjaria (2015): overcome enforcement frictions.

▷ Relationships allow using more trade credit, saving financing costs.

Theory

Financing Cost Channel

- Positive markup: $P > C$
- Financial friction: $r_b > r_d$



- Trade credit has a financing cost advantage over cash in advance.

Trade is risky

- **Trade credit:** Buyer may not pay.
- **Cash in advance:** Seller may not deliver.

Buyers and sellers learn about each other's type:

- Probability that partner is reliable increases with history of no defaults.
⇒ Enforcement friction declines with learning.
- Financing cost advantage dominates in the long run.
⇒ Firms switch to trade credit over time.

Key Model Predictions

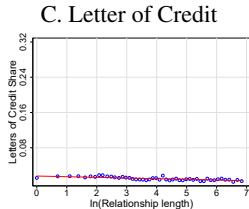
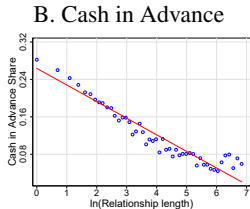
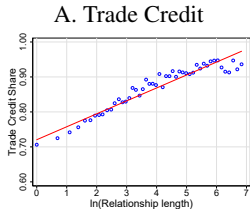
- Trade credit **increases** with **relationship age**.
- Learning effects **stronger** for more complex products and for source (destination) countries with stronger (weaker) rule of law.
- Commitment problem dominates in the **short run**.
- Financing cost channel dominates in the **longer run**.

Data and Empirical Results

- 1 Colombian Customs data (2007-2016)
 - Transaction-level import data
 - Importer and Exporter ID, 10-digit HS code, FOB value and volume
 - Payment form
- 2 Chilean National Customs Service (2003-2007)
- 3 Annual National Industrial Survey (ENIA)
 - Detailed plant-product level information for markup and productivity estimation
- 4 Additional data sources:
 - WB Worldwide Governance Indicators: rule of law
 - IMF IFS: deposit and lending rates (home + foreign)

Empirical Evidence

Financing Terms and Relationship Age



- Most transactions are trade credit or cash in advance.
- Trade credit provision increases with relationship age.
- Trade credit mostly increases at the expense of cash in advance.

Financing Terms: Transition Matrix

Transition Probability Between Payments Forms (%)

	Payment term in $t + 1$:		
	Trade Credit	Cash in Advance	Letter of Credit
Payment term in t :			
Trade Credit	99.1	0.8	0.1
Cash in Advance	7.0	92.9	0.2
Letter of Credit	7.6	1.2	91.2

▷ Exporters often switch from cash in advance to trade credit, but rarely away from trade credit.

Financing Terms and Relationship Age I

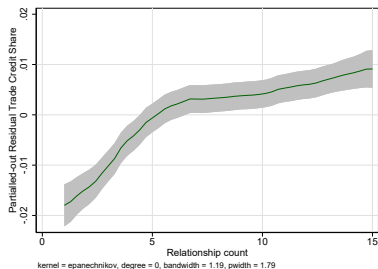
	(1)	(2)
ln(Relationship Length)	0.412*** (0.016)	0.387*** (0.049)
Sample	All	Balanced
Importer-Exporter-HS10 FE	Yes	Yes
Source Country-Year FE	Yes	Yes
Importer-HS10-Year FE	Yes	Yes
Observations	12,164,470	956,301
R ²	0.83	0.83

▷ Trade credit dynamics are within relationships.

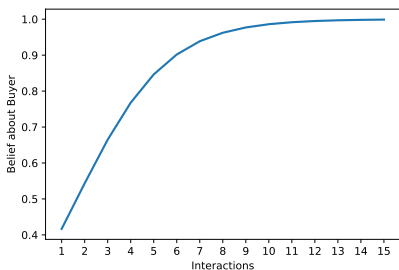
Financing Terms and Relationship Age II

Trade Credit and Relationship Length: Semi-Parametric Estimation (Chile)

A. Semi-parametric Estimation



B. Learning Model



▷ Trade credit dynamics consistent with Bayesian learning.

Relationships and Contract Enforcement

Relationship Length and Contract Enforcement

A. Colombian Imports	(1)	(2)
$\ln(\text{Rel. Length}) \times \text{Low ROL Exp.}$	0.367*** (0.018)	0.332*** (0.070)
$\ln(\text{Rel. Length}) \times \text{High ROL Exp.}$	0.461*** (0.018)	0.452*** (0.066)
<hr/> B. Chilean Exports		
$\ln(\text{Rel. Length}) \times \text{Low ROL Imp.}$	1.164*** (0.178)	1.068*** (0.346)
$\ln(\text{Rel. Length}) \times \text{High ROL Imp.}$	0.684*** (0.164)	0.199 (0.266)
Sample	All	Balanced
Exporter-Destination Country-HS8 FE	Yes	Yes
Destination Country-Year FE	Yes	Yes
Exporter-HS8-Year FE	Yes	Yes

▷ Learning effects are stronger for source (destination) countries with stronger (weaker) rule of law.

Relationships and Trade Credit by Product Type

Relationship Length and Trade Credit by Product Type in Chilean Exports

	(1)	(2)
$\ln(\text{Relationship Length}) \times \text{Differentiated}$	1.093*** (0.242)	1.150*** (0.414)
$\ln(\text{Relationship Length}) \times \text{Non-Differentiated}$	0.825*** (0.130)	0.310 (0.244)
Sample	All	Balanced
Exporter-Destination Country-HS8 FE	Yes	Yes
Destination Country-Year FE	Yes	Yes
Exporter-HS8-Year FE	Yes	Yes
Observations	604,843	47,177

▷ Learning effects are stronger for more complex products.

Trade Credit, Markups and Learning

Trade Credit, Markup and Relationship Length in Chilean Exports: 2SLS Results

	(1)	(2)	(3)
ln(Relationship Length)	0.623*** (0.151)	1.277*** (0.156)	0.0702 (0.355)
ln(Markup)	6.738** (3.233)	1.858 (5.261)	11.44** (5.124)
First-Stage F-Statistic	75.3	118.3	22.5
Relationships	All	<10 trades	≥10 trades
Exporter-Destination Country-HS8 FE	Yes	Yes	Yes
Destination Country-Year FE	Yes	Yes	Yes
Observations	202,507	109,950	92,557

▷ Commitment problem dominates in the short run; financing costs channel dominates in the longer run

Conclusions

Relationships are central for trade credit:

- Results indicate importance of **learning about trading partners**.
- In the **short run**, enforcement and learning are key.
- In the **longer run**, financing cost advantage of trade credit dominates.

New benefit of long-term relationships:

- Reduce commitment problems, ease the use of trade credit, and **lower financing costs**.

Thank You!

Exporter, Importer and Relationship Learning

	(1)	(2)
ln(Relationship Length)	0.915*** (0.045)	0.706*** (0.050)
ln(Importer Experience)	-0.245*** (0.033)	0.097 (0.100)
ln(Country-Specific Importer Experience)	-0.014 (0.009)	-0.058 (0.058)
ln(Exporter Experience)	-0.478*** (0.045)	-0.412*** (0.119)
Sample	All	Balanced
Importer-Exporter-HS10 FE	Yes	Yes
Source Country-Year FE	Yes	Yes
Importer-HS10-Year FE	Yes	Yes
Observations	12164470	956301
R ²	0.83	0.82