

Trade and finance: is there more than just “trade finance”? Evidence from matched bank-firm data

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Introduction

- Do credit shocks matter for trade (esp. for the trade collapse after Lehman Brothers)?
- What is in particular the role of trade finance (loans for international trade activities)?
- Banks supply the following services: [▶ diagram](#)
 - Facilitate cross-border payments (letters of credit)
 - Provide short-term loans to finance firms' export working capital or imports of intermediate inputs
 - Provide long-term loans for investments that expand firms' production capacity for exports
- Lack of good measures of trade finance in the existing literature

Related literature

- Exports and credit shocks
 - Mixed results using sector-level proxies: Bricongne et al. (2011), Chor and Manova (2011), Eaton et al. (2011), Levchenko et al. (2011)
 - Bank-firm data: credit shocks account for 20-35 percent of the decline in exports in Japan (Amiti and Weinstein 2011), 15 percent in Peru (Paravisini et al. 2011)
 - Credit constraints and trade: Bellone et al. 2010, Chaney 2005, Greenaway et al. 2007, Manova 2011, Minetti and Zhu 2011, Muuls 2008
- International trade finance practices
 - Ahn (2011), Antràs and Foley (2011), Feenstra et al. (2011), Olsen (2010), Schmidt-Eisenlohr (2009)
- Real effects of finance
 - Bernanke 1983, Peek and Rosengren 2000, Kashyap and Stein 2000

Our contribution

- First study in which loans for export or import transactions are observed in matched bank-firm data
 - Large sample of Italian manufacturing exporters, 2007-2010
- Exploiting the unexpected funding shock on interbank markets after Lehman, we investigate:
 - the effect on trade finance supply vs. ordinary loans
 - the role of trade finance in the trade collapse

Data

- Bank-firm data: quarterly stocks of outstanding loans
 - Central Credit Register (all lines of credit and guarantees above EUR 75,000 threshold)
- Crucially, loans are disaggregated according to the activity
 - Export loans and guarantees
 - Import loans and guarantees
 - Ordinary loans (ST and LT) and guarantees
- Firm-level datasets: annual data on exports (2007-2010)
 - Company Accounts Data Service
 - Bank of Italy's Survey of Industrial and Service Firms
 - Unfortunately no information on destination markets of exports
- Additional bank-level datasets
 - Bank of Italy's Census of Banks, Supervisory Reports, Orbis

Sample

- Sample of Italian manufacturing exporters
 - Unbalanced panel of about 7,800 firms
 - About 105,000 bank-firm observations
 - 40% of sales by Italy's manufacturing sector
 - 48% of exports on Italy's total exports of goods
 - Exports show a similar pattern to official statistics during the trade collapse (-21% in 2009)

Stylized facts on trade finance

- Not all banks are active on trade finance
- Trade finance is more concentrated (especially for guarantees)
 - Top 10 banks account for more than 70% for loans and 90% for guarantees
 - The role of the main bank is more relevant (60% for export loans versus 45% for total loans)
- Multiple credit relationships are however frequent also for trade finance
 - The median firm borrows from 3 banks for trade finance versus 5 banks for total loans

Econometric strategy

- Part 1: Effect of credit shock on supply of trade finance (bank-firm data)
- Part 2: Effect of credit shock on exports (firm data)
- We exploit Italian banks' deposit liabilities vis-à-vis non-residents as a source of identification for the credit shock
- The shock on foreign funding was:
 - Large and sudden (2008Q4 and 2009) [▶ figure](#)
 - Heterogeneous across banks (large banks were much more exposed than small-medium banks)
 - Correlated with credit supply
 - Exogenous to firms' export behavior (tensions in international interbank market)

Estimation strategy (bank-firm data)

- How did the negative funding shock impact on supply of trade finance?

$$\Delta \ln L_{ibt}^{loantype} = \beta exposure_{bt-1} + \sum_{it} \alpha_{it} firm_{it} + Z_{bt} + \epsilon_{ibt}$$

$$\forall loantype = \{export, import, ordinary_{ST}, ordinary_{LT}\}$$

- Change in log loans from bank b to firm i as a function of bank's exposure to foreign funding shock
- Separate estimates for each of the four loan types
- Firm-year FE (control for credit demand shocks), only firms with multiple banks (Khwaja and Mian 2008)
- Bank-level controls (main bank, assets, subsidiaries and branches abroad, foreign ownership)

Effect of funding shock on credit supply by loan type

Table: Credit supply shocks by loan type: baseline estimates

	Dependent variable: $\Delta \ln(\text{loan type})_{ibt}$				
	Total loans (1)	Ordinary LT loans (2)	Ordinary ST loans (3)	Export loans (4)	Import loans (5)
exposure_{bt-1}	-0.252*** (0.054)	-0.230*** (0.064)	-0.350*** (0.096)	-0.131 (0.096)	-0.141 (0.117)
assets_{bt-1}	-0.006** (0.003)	-0.022*** (0.003)	0.008* (0.004)	-0.005 (0.006)	-0.006 (0.006)
foreign_{bt}	0.099*** (0.016)	0.110*** (0.024)	0.107*** (0.027)	0.047* (0.025)	-0.018 (0.033)
abroad_{bt}	0.034*** (0.013)	0.046*** (0.016)	0.011 (0.016)	0.017 (0.021)	0.018 (0.024)
mainbank_{ibt}	0.132*** (0.010)	0.180*** (0.009)	0.072*** (0.016)	0.062*** (0.014)	0.038* (0.020)
Firm-year FE	yes	yes	yes	yes	yes
Observations	41961	25488	32806	14332	6339
No. firms	4800	4415	4430	2854	1123
Clusters	414	371	375	234	187
R^2	0.285	0.357	0.342	0.432	0.432

Estimation strategy (firm data)

$$\Delta \ln Y_{it} = \beta \sum_b \omega_{ibt-1} \text{exposure}_{bt-1} + \theta \mathbf{Z}_{it} + \epsilon_{it}$$

- Reduced form estimation of exports on firms' exposure (weighted average of banks' exposure to foreign funding)
- exposure_{bt-1} : bank b 's share of deposits held by non-residents
- ω_{ibt-1} : share of bank b 's loans on total loans borrowed from firm i
- Controls: 2-digit sector*year FE, main bank FE, size, leverage, distressed
- Sample estimation period: 2009-2010 (annual data)

Exports and credit shocks

Table: Exports and credit shocks

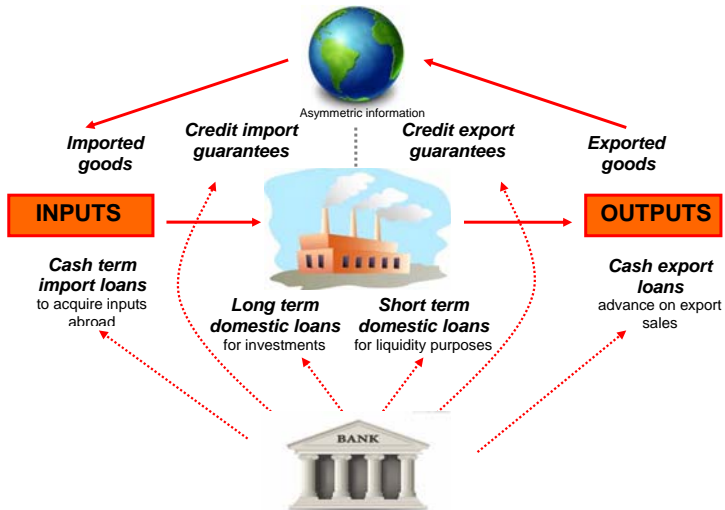
	$\Delta \ln(\text{export})_{it}$				
	(1)	(2)	(3)	(4)	(5)
exposure_{it-1}	-0.116*** (0.044)	-0.091** (0.045)	-0.105** (0.048)	-0.091* (0.050)	-0.087* (0.049)
assets_{it-1}		-0.010*** (0.003)	-0.011*** (0.003)	-0.008** (0.004)	-0.014*** (0.004)
leverage_{it-1}			0.064** (0.025)	0.063** (0.025)	0.096*** (0.027)
distressed_{it-1}					-0.003 (0.025)
$\text{exposure}_{it-1} \times \text{distressed}_{it-1}$					-0.249* (0.146)
Industry-year FE	2d	2d	2d	3d	2d
Main bank FE	yes	yes	yes	yes	yes
Observations	8034	7664	7422	7422	7415
Clusters	4829	4626	4502	4502	4497
R^2	0.231	0.239	0.243	0.277	0.245

Concluding remarks

- What was the role of 'trade finance' in the trade collapse?
 - Trade finance was not more responsive to the post-Lehman funding shock compared with other forms of bank finance
 - The fall in the overall credit supply did have anyway a significant negative effect on firms' exports
- There is more than just 'trade finance'
 - The effect of credit shocks on exports is not only limited to the specific financing of export transactions...
 - ... but reflects more general credit constraints for the exporting firm (e.g. loans for investments, working capital, etc.)

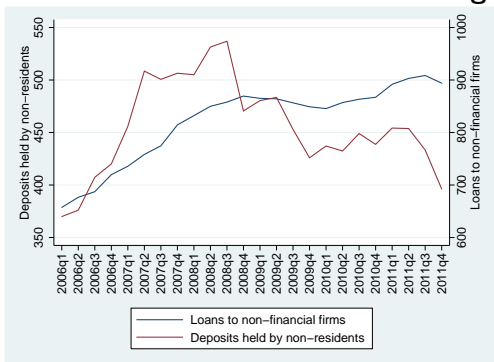
Thank you for your attention

A simplified diagram of trade and finance



Foreign funding and credit to non-financial firms

Banks' loans to non-financial firms and foreign deposits



Stylized facts on trade finance

Table: Summary statistics on trade finance

	Type of loan or guarantee				
	All	Ordinary short-term	Ordinary long-term	Export	Import
Loans					
No. banks with loans > 0	383	353	339	231	180
% share of top ten banks	65.9	62.7	68.4	77.8	73.6
% loans on total loans	100.0	22.8	60.8	11.6	4.9
No. banks with loans > 0 per firm (median)	5.0	4.0	3.0	3.0	3.0
% loans from main bank (median)	45.0	49.1	61.3	60.0	58.2
Guarantees					
No. banks with guarantees > 0	237	233	-	16	66
% share of top ten banks	77.8	73.5	-	99.9	96.5
% guarantees on total guarantees	100.0	70.8	-	8.5	20.7
No. banks with guarantees > 0 per firm (median)	1.0	1.0	-	1.0	1.0
% guarantees from main bank (median)	100.0	100.0	-	100.0	100.0