Financial Constraints and Foreign Market Entries or Exits:

Firm-Level Evidence from France

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Motivation

- An increasing literature suggests that financial constraints impact firm trade activities
- Theory (e.g. Chaney, 2005): entry cost in a market
- Empirics: liquidity constraints and export status. Heterogeneous findings (Campa and Shaver 2002, Bellone et al 2010, Greenaway et al. 2007, Muûls 2008, Berman and Héricourt 2009, Bricongne et al 2010…)

- **HERE**: disentangle **entry and exit** from foreign markets
- A simple structural model: discriminates between constraints on entry and constraints on survival
- Exploitation of a unique panel of French firms

The Model. A. without constraint

- Given destination x, given firm
- Costly effort to gain a market: probability p_0, cost $cp_0^2/2$
- For a firm already exporting to x:

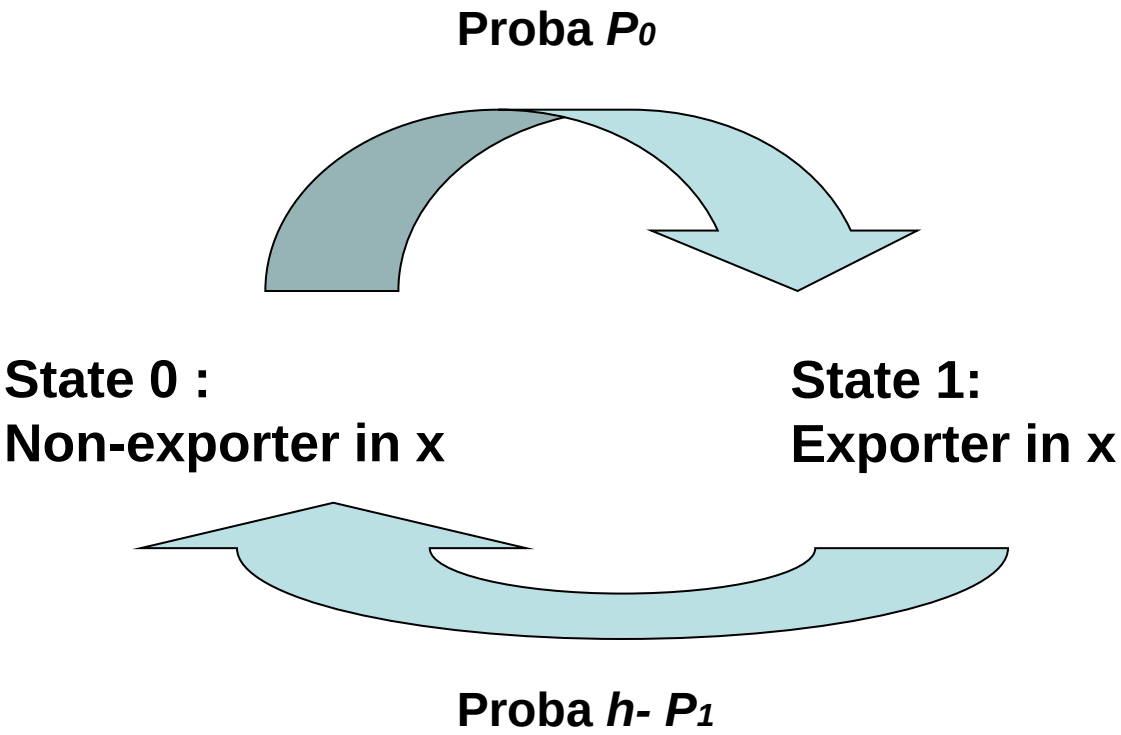
✓ Profit from exporting to x : π_1

✓ exogenous probability to lose the market x: h…

✓ … mitigated by the effort p_1, with cost $cp_1^2/2$

- ➔ Two types of costs:
- 1) recurrent costs to avoid to lose a market
- 2) foreign market entry costs

The Model. A. without constraint



The Model. A. without constraint

- Value *V* of a destination for a given firm
- => Standard asset equations

  1 = exporting; 0= non exporting

➢ Solving the model gives unconstrained optimal choice for p_0 and p_1

$$rV_1^x = \pi_1 + (h - p_1)(V_0^x - V_1^x) - cp_1^2/2,$$

$$rV_0^x = p_0(V_1^x - V_0^x) - cp_0^2/2.$$

The Model. B. with financial constraint

- Two cases: financial constraints play on financing the entry costs or alternatively the recurrent costs
- Constraints take the form: cost<f(firm values)
- Different consequences

	Constraint on entry costs	Constraint on recurrent costs
Entry	-	-
Exit	-	+

Intuition: more difficult to regain a lost market: the firm tries more not to lose the destination: less exit

The Data 1

Destination of Exports

- French Customs database
- Very comprehensive administrative dataset
- All firms (before merging with our second dataset) that export at least one year between:
- 1995-2007

The Data 2

Firm's balance sheet data & payment incidents

- Detailed firm's balance sheet from FIBEn (Banque de France)
- Employment (Emp), …, total factor productivity (TFP)
- Debt, …, Equity
- Using this information we construct a number of financial ratios that we use to measure credit constraints
- Exhaustive firm-level information on trade credit defaults from an **internal** longitudinal database from the Banque de France to construct a proxy for credit constraints: payment incidents

The Data 3

42,000 firms operating in the manufacturing sector during the period 1995-2007

Table 1: Number of firms over the sample period

Year	All firms	Non-exporters	Exporters
1995	42 480	20 076	22 404
1996	43 096	20 150	22 946
1997	43 771	19 940	23 831
1998	43 845	19 605	24 240
1999	43 894	19 705	24 189
2000	43 595	19 321	24 274
2001	43 391	19 540	23 851
2002	42 510	19 131	23 379
2003	41 597	19 019	22 578
2004	40 609	18 662	21 947
2005	42 732	20 046	22 686
2006	42 192	20 151	22 041
2007	37 897	18 205	19 692
1995-2007	42 431	19 504	22 928

Notes: Non-exporters are firms that only sell in the French market. Exporters are firms that report positive export values.

Table 2: Description of financial variables used in the paper

Financial variables	Description
liquidity ratio	Short term debts over current assets
Inverse trade credit ratio	Turnover over accounts payable to suppliers
Equity to asset ratio	Total shareholders equity over total assets
Payment incidents	Dummy equal 1 if the firm has defaulted to its trade creditors, 0 otherwise

Weekly correlated

The Data 4

Definition of entries and exits

- With Xict the value exported by firm i in country c at date t
- We define an export entry whenever we observe that a firm exports to a destination the current year but did not export to that destination the previous two years:

$$Xict-2 = 0 \;\&\; Xict-1 = 0 \;\&\; Xict > 0$$

- We define an export exit whenever we observe that a firm exported to a destination during the previous years, but it does not currently export to that destination in the current year nor in the next year:

$$Xict-1 > 0 \;\&\; Xict = 0 \;\&\; Xict+1 = 0$$

Variable	Mean	Median	SD	Obs.
Employment	86.42	28.00	361.69	227,060
ln(TFP)	−1.68	−1.64	0.58	227,060
Liquidity ratio	0.61	0.58	0.41	227,060
Inverse trade credit ratio	8.99	6.85	16.64	227,038
Equity to assets ratio	0.03	0.03	1.44	226,992
Payment incidents	0.06	0.00	0.24	203,158
Firms exporting at least 1 year—merged dataset				
Number of destinations	8.20	3.00	13.56	270,420
Number of entries	1.40	1.00	2.68	270,420
Number of exits	1.10	0.00	1.93	270,420
Firms exporting at least French Customs dataset				
Number of destinations	1.82	0.00	5.99	2,890,890
Number of entries	0.46	0.00	1.45	2,890,890
Number of exits	0.44	0.00	1.38	2,890,890
Permanent exporters—merged dataset				
Number of destinations	14.30	8.00	16.59	92,547
Number of entries	1.96	1.00	2.48	92,547
Number of exits	1.64	1.00	2.15	92,547
Permanent exporters—French Customs dataset				
Number of destinations	10.01	5.00	13.11	337,329
Number of entries	1.64	1.00	2.34	337,329
Number of exits	1.48	1.00	2.37	337,329

Econometrics

- **Dependent variables**: number of exits/entries at date t
- **Explanatory variables**: 4 credit-constraint indexes (separately) at date t-1
- + Firm fixed effects, year fixed effects
- + TFP (similar results for value added -VA- or turnover)
- + Size (here employment (Emp); similar results for VA or turnover)
- *A priori*, Poisson distribution (probability of a given number of events occurring in a fixed interval of time). But mean=variance
- Actually, **over-dispersion** => negative binomial estimations

Table 4: Baseline regression results -Effects of financial constraints on entries into the export market

Negative binomial fixed effects model of count of number of entries				
Dependent variable: Number of newly served export destinations by firm i in t				
Financial variables	Equity to asset ratio	Inverse current ratio	Inverse trade credit	Payment incidents
	(1)	(2)	(3)	(4)
Financial variable$_{it-1}$	-0.246	-0.062	-0.006	-0.025
	(2.24)**	(3.00)***	(7.05)***	(1.94)*
lnEmp$_{it-1}$	0.194	0.189	0.190	0.204
	(20.47)***	(20.47)***	(20.63)***	(19.99)***
lnTFP$_{it-1}$	0.108	0.110	0.121	0.118
	(9.32)***	(9.74)***	(10.76)***	(9.65)***
Total no. destinations$_{it-1}$	-0.003	-0.003	-0.003	-0.005
	(5.51)***	(5.16)***	(5.44)***	(8.50)***
Intercept	0.944	0.966	0.992	1.108
	(23.56)***	(24.26)***	(24.86)***	(26.12)***
Observations	187 537	194 304	193 964	171 121
Number of firms	27 409	28 050	28 030	26 998

Notes: The regressions include year and firm fixed effects. Absolute value of z statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 5: Baseline regression results -Effects of financial constraints on exits from the export market

Negative binomial fixed effects model of count of number of exits				
Dependent variable: Number of destinations stopped to be served by firm i in t				
Financial variables	Equity to asset ratio	Inverse current ratio	Inverse trade credit	Payment incidents
	(1)	(2)	(3)	(4)
Financial variable$_{it-1}$	0.629	0.042	0.004	0.027
	(6.19)***	(2.06)**	(4.54)***	(2.37)**
lnEmp$_{it-1}$	-0.239	-0.251	-0.248	-0.253
	(19.44)***	(21.22)***	(20.98)***	(19.24)***
lnTFP$_{it-1}$	-0.108	-0.117	-0.126	-0.119
	(9.20)***	(10.33)***	(11.12)***	(9.72)***
Total no. destinations$_{it-1}$	0.072	0.072	0.072	0.078
	(111.42)***	(113.25)***	(113.18)***	(109.98)***
Intercept	2.424	2.417	2.355	2.426
	(38.09)***	(38.92)***	(38.29)***	(33.76)***
Observations	146 890	151 806	151 594	134 980
Number of firms	24 126	24 717	24 704	23 706

Notes: The regressions include year and firm fixed effects. Absolute value of z statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 6: Extensions -Effect of financial constraints on different types of exporters

Negative binomial fixed effects model of count of number of entries				
Dependent variable: Number of newly served export destinations by firm i in t				
Financial variables	Equity to asset ratio	Inverse current ratio	Inverse trade credit	Payment incidents
	(1)	(2)	(3)	(4)
Effect of financial constraints on entries into the export market--Continous exporters				
Financial variable$_{it-1}$	-0.240	-0.051	-0.005	-0.024
	(2.10)**	(2.39)**	(6.00)***	(1.85)*
Observations	140753	145224	144983	129244
Number of firms	22104	22571	22550	21773
Effects of financial constraints on exits from the export market--Firms that remain exporters				
Financial variable$_{it-1}$	0.668	0.046	0.003	0.026
	(6.38)***	(2.19)**	(4.06)***	(2.19)**
Observations	135 870	140 198	140 010	124 754
Number of firms	21 380	21 838	21 825	21 024

Notes: The regressions include the same controls as in Table 4 and 5. The regressions include year and firm fixed effects. Absolute value of z statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 7: Sensitivity with respect to alternative definitions of entry and exit

Financial variables	Equity to asset ratio (1)	Inverse current ratio (2)	Inverse trade credit (3)	Payment incidents (4)
Alternative definition of entry				
Financial variable$_{it-1}$	-0.179	-0.050	-0.006	-0.010
	(2.49)**	(3.62)***	(10.80)***	(1.11)
Observations	261283	271115	270671	225158
Number of firms	31733	32462	32448	30501
Alternative definition of exit				
Financial variable$_{it-1}$	0.300	0.006	0.004	0.012
	(4.61)***	(0.49)	(6.69)***	(1.48)
Observations	193 975	200 595	200 282	168 797
Number of firms	27 771	28 467	28 451	26 591

Notes: The regressions include the same controls as in Tables 4 and 5, and year and firm fixed effects . Absolute value of z statistics in parentheses. * significant at 10%; ** significant at 5%; *** significant at 1%.

Conclusion

- Various financial constraints seem :
  - ➢ to reduce entry in new foreign markets
  - ➢ **and** to increase exit from foreign markets

- Consistent with a "recurrent cost" model of exports rather than an "entry cost" model.
- In France, most exporting firms get financial support (oseo, ubifrance, coface) the first year of entry. Very few firms are helped beyond the second years of export