Financing Constraints and Firm Internationalization

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Research question:

- What explains firms' choice between export and "horizontal" FDI?

Argument

Highlights the role of financing capacity in influencing the "pecking order" in the pattern of firm internationalization:

- Firms with the weakest external financing capacity should only serve the domestic market;
- Firms with relatively stronger external financing capacity should engage in exports;
- Firms with the strongest external financing capacity should undertake FDI.

Contributions to Existing Literature

1. Literature on the Effect of Financing Heterogeneity on Firm Internationalization

- effect of financing heterogeneity on firm exports (e.g., Ber et al. 2002; Berman and Héricourt 2008; Campa and Shaver 2002; Chaney 2013; Manova 2013; and Muûls 2008; Manova et al. 2011; Feenstra et al. 2011)
- effect of financing constraints on firms' product scope, number of destinations, and value of foreign sales (Greenaway and Kneller 2007; Muûls 2008; Amiti and Weinstein 2011)
- the influence of financing capacity on firm outward FDI (Buch et. al., 2014; Ge and Luo 2013;

focuses on the effect of financing constraints on firm choice of different modes of international operation

2. Literature on the proximity-concentration trade-off

e.g. Helpmann et al. 2004

→ **extends the existing literature by showing how firm heterogeneity may lead to the proximity-concentration trade-off**

3. → **Enhances our understanding of the internationalization behavior of Chinese firms against the background of the country's unprecedented economic growth and global economic integration**

Data

Firm-Level Data:

- *Foreign-Invested Enterprise List* collected by China’s Ministry of Commerce;
- *Chinese Industrial Enterprise Database*;
- remove firms with missing key financial variables (such as total asset, net value of fixed assets, sales, and gross value of industrial output) or those with fewer than 20 employees;
- Further deleting observations that violate certain rules;
- Final sample composed of 299,340 firms, including 2,288 OFDI firms and 62,076 exporting ones

Empirical Specification

- Multinomial logit model
- $\Pr(\mathrm{y}_i = j) = \varphi(\beta_0 + \beta_1 lnTFP_i + \beta_2 Exfin_i + \beta_3\ Infin_i + Z_i) \quad (j = 1,2,3)$
- Productivity($lnTFP$)
- Internal financing capacity ($Infin$) : ratio of cash flows to total assets
- External financing capacity ($Exfin$) :

  -- share of interest expenses in sales revenue

  -- ratio of liquid assets to sales revenue

  -- ratio of accounts receivable to sales revenue

- Industry external financing dependence
- Regional financial development
- Z_i:

-- firm age;

-- foreign capital inflows;

-- new product development;

-- market power (measured using the share of prime operating revenue in total assets);

-- the number of export enterprises at the industry-region level

Figure 1: Comparison of Firms' External Financing Capacity and Internationalization Decisions

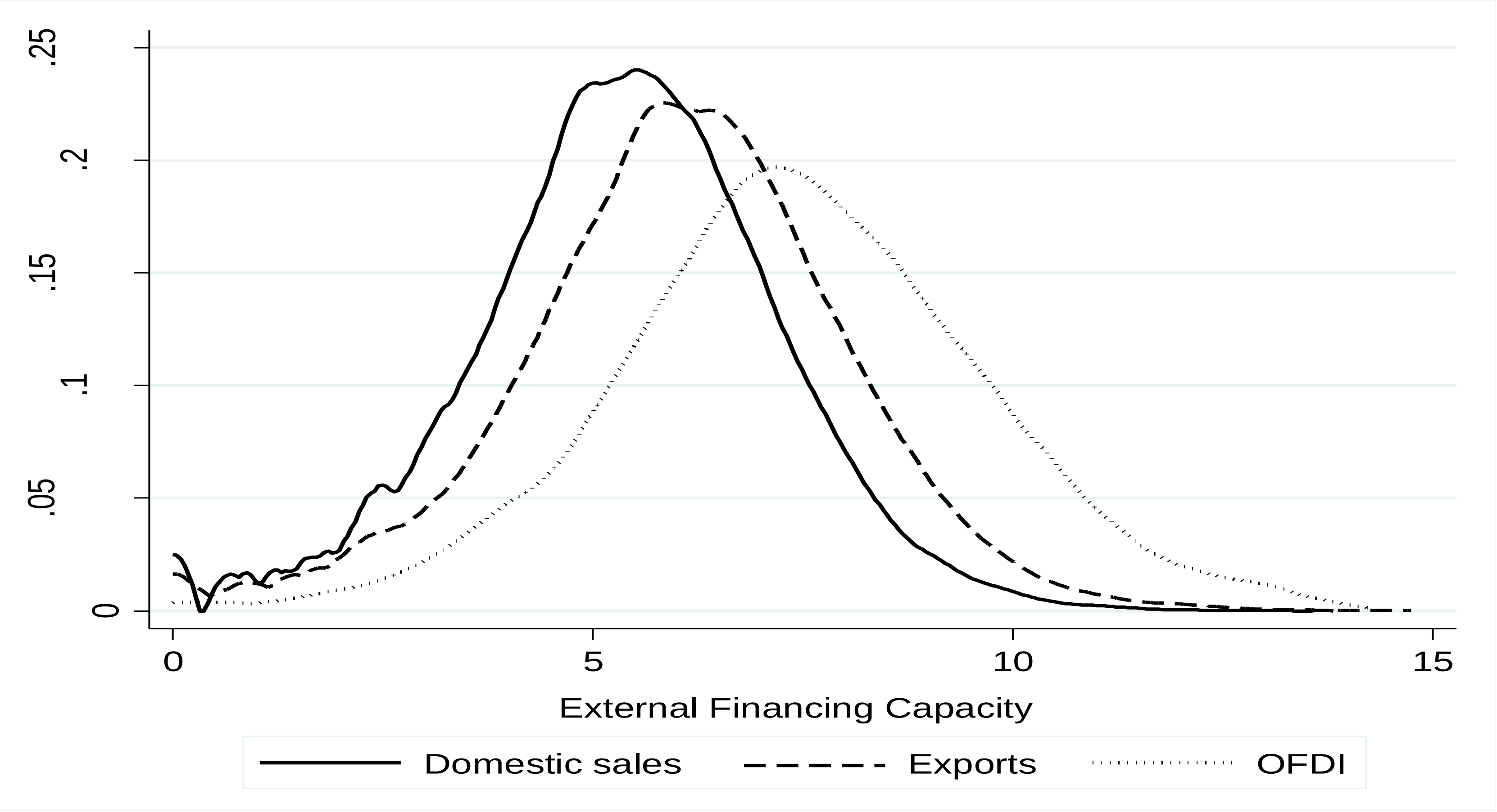

Table 1: Financing Constraints and Firm Internationalization

Dependent Variable	(1)		(2)		(3)		(4)	
	Exporter	OFDI firm	Exporter	OFDI firm	Exporter	OFDI firm	Exporter	OFDI firm
External financing capacity	4.669***	7.549***	4.537***	7.639***	4.712***	7.775***	4.150***	6.868***
	(20.02)	(20.22)	(15.97)	(16.38)	(15.70)	(15.99)	(13.46)	(14.30)
Internal financing capacity	0.629***	1.246***	0.610***	1.283***	0.443***	1.163***	0.377***	1.110***
	(29.58)	(15.08)	(22.59)	(12.97)	(15.86)	(11.62)	(11.92)	(10.24)
TFP			0.259***	0.411***	0.273***	0.411***	0.147***	0.276***
			(38.09)	(14.06)	(40.82)	(14.17)	(21.78)	(10.61)
Age							0.382***	0.480***
							(34.89)	(12.50)
Foreign capital ratio							2.125***	1.347***
							(124.66)	(20.74)
R&D							1.431***	2.041***
							(72.92)	(36.88)
Market power							0.00008***	0.0001***
							(8.18)	(7.76)
Internationalization ratio							0.0004***	0.0003**
							(46.83)	(7.91)
Constant	-1.517***	-5.011***	-2.110***	-6.025***	-1.585***	-5.630***	-3.054***	-6.997***
	(-217.39)	(-163.35)	(-92.71)	(-59.60)	(-69.61)	(-53.74)	(-92.23)	(-52.98)
Sector fixed effect	No		No		Yes		Yes	
Region fixed effect	No		No		Yes		Yes	
Observations	299,340		179,917		179,917		179,807	
Pseudo R^2	0.005		0.016		0.067		0.191	

Table 2: Financing Constraints and Firm Internationalization

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Table 3: Financing Constraints and Firm Internationalization: Industry- and Region-specific Characteristics

Dependent Variable	(1)		(2)		(3)	
	Exporter	OFDI firm	Exporter	OFDI firm	Exporter	OFDI firm
External financing capacity	12.50***	9.561***	3.539***	5.658***	11.35***	11.52***
	(11.61)	(6.23)	(8.49)	(8.39)	(15.46)	(10.98)
Internal financing capacity	0.397***	1.122***	0.402***	1.125***	0.411***	1.153***
	(12.56)	(10.35)	(12.73)	(10.38)	(13.02)	(10.66)
TFP	0.111***	0.245***	0.111***	0.247***	0.141***	0.268***
	(16.92)	(9.14)	(16.83)	(9.28)	(20.88)	(10.23)
External financing capacity * Dependence on bank loans	-0.898***	-0.264				
	(-8.75)	(-1.77)				
External financing capacity * Dependence on subsidies			1.194*	2.231*		
			(1.99)	(2.26)		
External financing capacity * Regional financial development					-21.01***	-11.17***
					(-12.62)	(-4.96)
Constant	-3.191***	-7.141***	-3.195***	-7.148***	-3.324***	-7.268***
	(-97.46)	(-54.42)	(-97.32)	(-54.51)	(-103.30)	(-56.28)
Control variables	Yes		Yes		Yes	
Sector fixed effect	No		No		Yes	
Region fixed effect	Yes		Yes		No	
Observations	179,807		179,807		179,807	
Pseudo R^2	0.187		0.187		0.182	

Table 4: Robustness Checks

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>Exporter</u>								
External financing	4.150***			3.701***	3.303***	2.723***	4.019***	3.585***
capacity	(13.46)			(11.30)	(8.73)	(5.29)	(12.98)	(11.16)
Internal financing	0.377***	0.663***	0.428***	0.364***	0.305***	0.0990	0.388***	0.411***
capacity	(11.92)	(19.49)	(13.32)	(10.47)	(7.48)	(1.77)	(12.16)	(12.23)
TFP	0.147***	0.154***	0.146***	0.117***	0.0866***	0.0639***	0.143***	0.124***
	(21.78)	(21.14)	(21.30)	(16.84)	(11.59)	(6.95)	(20.66)	(16.50)
Tangible assets ratio		0.892***						
		(28.85)						
Accounts payable ratio			0.809***					
			(19.40)					
Constant	-3.054***	-3.302***	-3.078***	-2.797***	-2.556***	-2.276***	-2.998***	-2.852***
	(-92.23)	(-90.65)	(-91.92)	(-79.41)	(-63.37)	(-43.03)	(-88.75)	(-77.32)
<u>OFDI firm</u>								
External financing	6.868***			6.600***	6.355***	6.040***	6.731***	6.283***
capacity	(14.30)			(12.90)	(10.78)	(7.97)	(13.69)	(11.82)
Internal financing	1.110***	1.541***	1.199***	1.156***	1.202***	1.095***	1.075***	1.098***
capacity	(10.24)	(12.70)	(10.88)	(10.19)	(9.90)	(7.59)	(9.21)	(8.18)
TFP	0.276***	0.281***	0.267***	0.233***	0.166***	0.107***	0.248***	0.201***
	(10.61)	(10.21)	(10.24)	(8.86)	(6.12)	(3.65)	(8.03)	(5.56)
Tangible assets ratio		1.515***						
		(15.34)						
accounts Payable ratio			0.616***					
			(4.21)					
Constant	-6.997***	-7.424***	-7.009***	-6.660***	-6.194***	-5.473***	-6.783***	-6.397***
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 5: Bivariate Probit Models

Dependent Variable	(1)		(2)		(3)		(4)	
	EX	OFDI	EX	OFDI	EX	OFDI	EX	OFDI
External financing capacity	2.642***	3.099***	4.455***	3.039***	2.817***	2.617***	4.493***	3.675***
	(16.52)	(14.98)	(13.50)	(10.05)	(12.80)	(8.12)	(19.08)	(15.45)
Internal financing capacity	0.379***	0.446***	0.376***	0.447***	0.379***	0.448***	0.356***	0.439***
	(23.68)	(11.03)	(23.46)	(11.04)	(23.66)	(11.07)	(22.06)	(10.85)
TFP	0.142***	0.112***	0.142***	0.112***	0.142***	0.112***	0.141***	0.112***
	(40.31)	(11.27)	(40.37)	(11.23)	(40.33)	(11.24)	(39.89)	(11.21)
External financing capacity * Dependence on bank loans			-3.474***	0.0620				
			(-9.84)	(0.15)				
External financing capacity * Dependence on subsidies					-0.320	0.776		
					(-1.11)	(1.86)		
External financing capacity * Regional financial development							-14.05***	-3.005***
							(-15.14)	(-4.79)
Constant	-1.228***	-2.833***	-1.226***	-2.834***	-1.228***	-2.832***	-1.214***	-2.832***
	(-103.50)	(-81.68)	(-103.27)	(-81.36)	(-103.51)	(-81.66)	(-100.87)	(-81.49)
Log likelihood Test	0.429*** (34.74)		0.430*** (34.80)		0.430*** (34.76)		0.427*** (34.69)	
Observations	179,917		179,917		179,917		179,917	

Conclusion

- the importance of financing heterogeneity on firm choice between exports and OFDI;
- the importance of efforts to reduce financial frictions and firm financing constraints for the internationalization of Chinese firms;
- The importance of further financial reform for China’s integration into the global market.
- The need to increase the role of the market in financial resource allocation.