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Financing Patterns of Firms in Transition Countries and Its Implications

Evidence from Croatia

Katja Gattin Turkalj and Nora Srzentic

Young Economists' Seminar, Dubrovnik 2011

June 29, 2011

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Note

The views expressed in this presentation do not represent the views of the Croatian National Bank

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Overview

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Motivation

▶ Knowing the financing structure helps deciding on the
  direction of future institutions' and markets' development

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Motivation

- ▶ Knowing the financing structure helps deciding on the direction of future institutions' and markets' development
- ▶ Estimate the possible efficiency of government programs

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Motivation

- ▶ Knowing the financing structure helps deciding on the direction of future institutions' and markets' development
- ▶ Estimate the possible efficiency of government programs
- ▶ Recognizing the role of foreign and big banks in firms' financing decisions

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Motivation

- ▶ Knowing the financing structure helps deciding on the direction of future institutions' and markets' development
- ▶ Estimate the possible efficiency of government programs
- ▶ Recognizing the role of foreign and big banks in firms' financing decisions
- ▶ Testing different hypothesis - one data set

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Motivation

- ► Knowing the financing structure helps deciding on the direction of future institutions' and markets' development
- ► Estimate the possible efficiency of government programs
- ► Recognizing the role of foreign and big banks in firms' financing decisions
- ► Testing different hypothesis - one data set
- ► Currently no similar study of these topics in CESEE countries

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Research questions

► What determines the maturity structure of financing sources?

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Research questions

- ▶ What determines the maturity structure of financing sources?
- ▶ What determines the choices between various classes of liabilities?

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What do we know about determinants of firms' financing structure in transition countries?

▶ Klapper et al., 2002: EE countries; analysis of general financing patterns;
   in Cro they are not able to distinguish structure of total liabilities

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What do we know about determinants of firms' financing structure in transition countries?

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- Beck et al., 2008: Fifty countries, including CESEE
- Terra, 2009: Latin America, choice between debt and equity and between ST and LT debt
- Volz, 2008: Transition countries including CESEE and Baltics, analysis of financing conditions of firms regarding access to and cost of finance

Data set

- Data: end of 2008

Data set

- Data: end of 2008
- Balance sheets of 65,535 companies

Data set

- ▶ Data: end of 2008
- ▶ Balance sheets of 65,535 companies
- ▶ Augmented by loans' information from the CNB

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Descriptive statistics

Firms in the sample

Region	Firm size (number)				Asset size		Total Income	
	Small	Medium	Big	TOTAL	in million EUR	% sample	in million EUR	% sample
Zagreb	25908	561	234	26703	83,439.73	61.46%	54,058.41	58.60%
Dalmatia	12033	211	55	12299	16,361.49	12.05%	10,410.42	11.29%
Istria and Primorje	11482	169	53	11704	14,653.15	10.79%	9,241.34	10.02%
Northern Croatia	5453	158	43	5654	7,805.33	5.75%	7,417.16	8.04%
Slavonia	5305	178	47	5530	9,111.52	6.71%	7,368.66	7.99%
Central Croatia	3546	85	14	3645	4,381.93	3.23%	3,752.83	4.07%
TOTAL	63727	1362	446	65535	135,753.15	100.00%	92,248.82	100.00%

[1]

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[1]Source: Authors' calculations

Descriptive statistics

Firms in the sample

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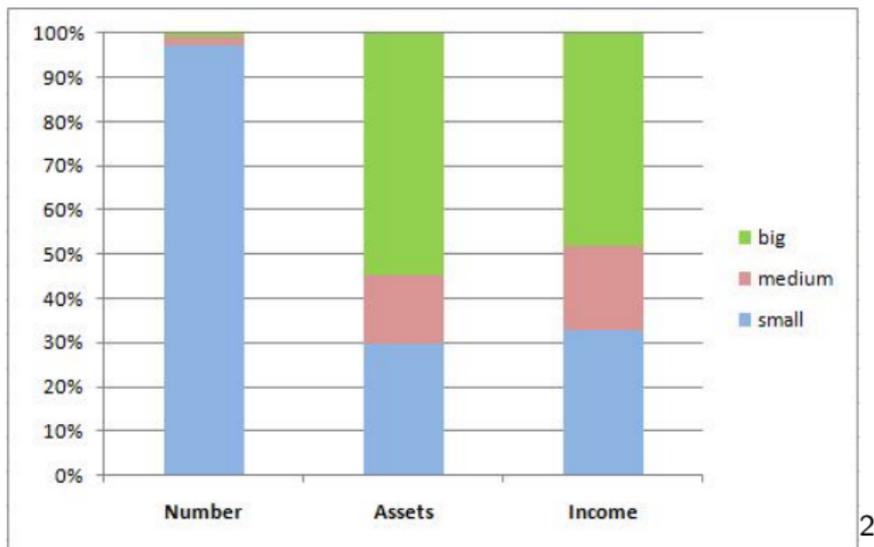
Descriptive statistics

Industries breakdown

Industry	Number of firms	Asset size		Total income	
		in million EUR	% sample	in million EUR	% sample
Agriculture, forestry, fishing	1,451	4,212.40	3.10%	2,351.08	2.55%
Mining, quarrying	154	1,521.78	1.12%	1,338.32	1.45%
Manufacturing	8,186	26,854.73	19.78%	23,044.04	24.98%
Electricity, gas, steam, air conditioning	96	8,868.18	6.53%	3,355.71	3.64%
Water supply, sewerage, waste management and remediation	417	3,450.54	2.54%	1,037.20	1.12%
Construction	7,876	27,549.44	20.29%	9,268.12	10.05%
Wholesale and retail trade, repair of motor vehicles/motorcycles	20,329	23,114.89	17.03%	33,549.41	36.37%
Transporting and storage	2,600	7,111.54	5.24%	4,282.48	4.64%
Accomodation and food service activities	3,053	7,051.57	5.19%	1,660.99	1.80%
Information and communication	2,775	4,764.42	3.51%	3,858.60	4.18%
Financial and insurance activities	609	2,982.93	2.20%	708.82	0.77%
Real estate activities	2,123	6,657.59	4.90%	1,193.71	1.29%
Professional, scientific and technical activities	10,026	8,905.05	6.56%	4,248.80	4.61%
Administrative and support service activities	2,393	1,163.67	0.86%	1,210.91	1.31%
Public administration and defence, compulsory social security	19	147.13	0.11%	42.49	0.05%
Education	705	97.42	0.07%	129.53	0.14%
Human health and social work activities	642	199.30	0.15%	211.35	0.23%
Arts, entertainment and recreation	569	864.22	0.64%	511.96	0.55%
Other services	1,512	236.34	0.17%	245.31	0.27%
TOTAL	**65,535**	**135,753.15**	**100.00%**	**92,248.82**	**100.00%**

[3]

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[3]Source: Authors' calculations

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Descriptive statistics
Industries breakdown

Asset size
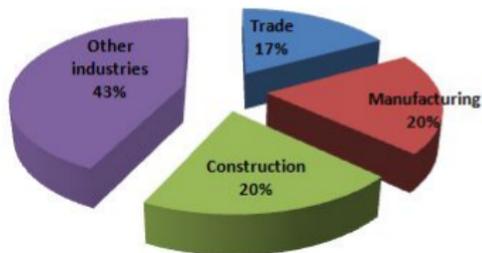
Trade 17%

Manufacturing 20%

Construction 20%

Other industries 43%

Total income

Trade 36%

Manufacturing 25%

Construction 10%

Other industries 29%

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[4]Source: Authors' calculations

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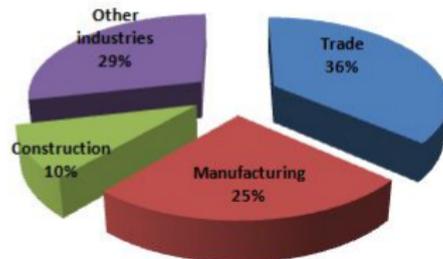
Descriptive statistics
Ownership structure

Ownership	Number of firms			% sample	Asset size		Total income	
	Small	Medium	Big		in million EUR	% sample	in million EUR	% sample
State and mixed-with major state stake	688	162	85	**1.43%**	43,544.46	**32.08%**	11,304.77	**12.25%**
Private since established	61607	830	215	**95.60%**	63,142.78	**46.51%**	59,474.98	**64.47%**
Private after privatization and mixed-with major private stake	924	361	146	**2.18%**	28,611.53	**21.08%**	21,156.38	**22.93%**
Common	508	9	-	**0.79%**	454.39	**0.33%**	312.70	**0.34%**
TOTAL	63727	1362	446	**100.00%**	135,753.15	**100.00%**	92,248.82	**100.00%**

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[5]Source: Authors' calculations

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Descriptive statistics

Ownership structure

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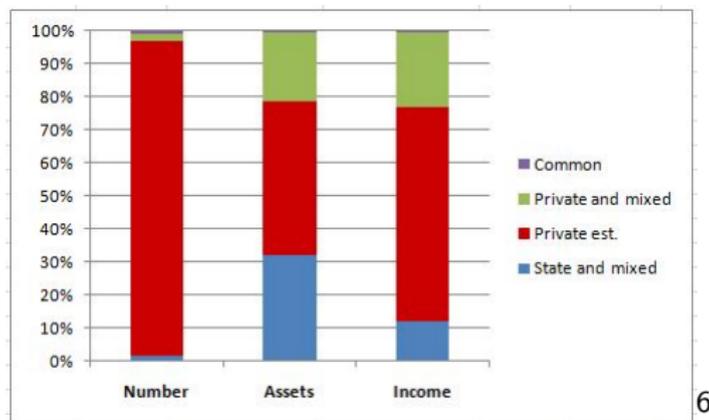
Descriptive statistics

Liabilities structure

Firm size	Equity	Long term liabilities	Short term liabilities	Other	TOTAL Liabilities
Small	31.64%	13.87%	52.94%	1.55%	100.00%
Medium	37.54%	18.05%	39.70%	4.71%	100.00%
Big	40.94%	15.90%	38.62%	4.55%	100.00%

[7]Source: Authors' calculations

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Liabilities structure

Composition of liabilities

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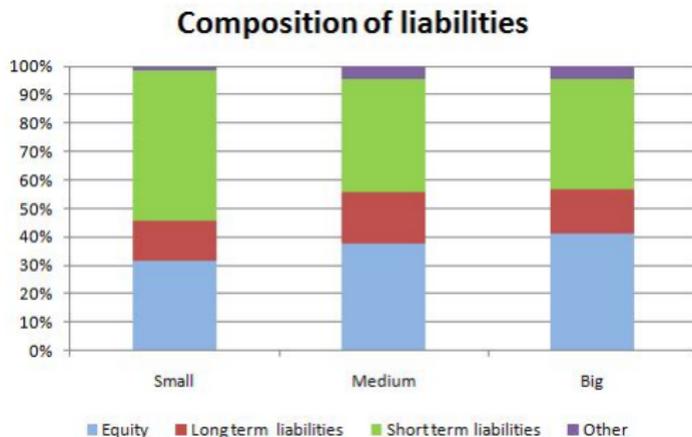
Descriptive statistics

Debt breakdown

Debt class	Term[1]/Firm size	Small	Medium	Big	Average
Trade credit	Long term	0.62%	0.47%	0.23%	**0.44%**
	Short term	31.53%	34.90%	27.78%	**31.40%**
Loans from banks and other FI	Long term	10.06%	21.71%	19.70%	**17.16%**
	Short term	3.64%	10.51%	11.63%	**8.59%**
Other loans, deposits and similar	Long term	5.31%	3.40%	2.29%	**3.67%**
	Short term	13.82%	3.18%	3.22%	**6.74%**
Loans from Group[2]	Long term	0.68%	2.00%	3.58%	**2.09%**
	Short term	1.22%	6.64%	11.38%	**6.41%**
Advance payment	Long term	0.08%	0.02%	0.09%	**0.06%**
	Short term	1.85%	2.54%	2.86%	**2.41%**
Issued securities	Long term	0.02%	0.23%	0.46%	**0.24%**
	Short term	0.27%	0.49%	1.59%	**0.78%**
Other debt[3]	Long term	0.91%	1.41%	1.01%	**1.11%**
	Short term	29.84%	12.51%	13.98%	**18.78%**
TOTAL DEBT		100.00%	100.00%	100.00%	100.00%

[9]Source: Authors' calculations

Descriptive statistics
Debt breakdown

Classes of liabilities
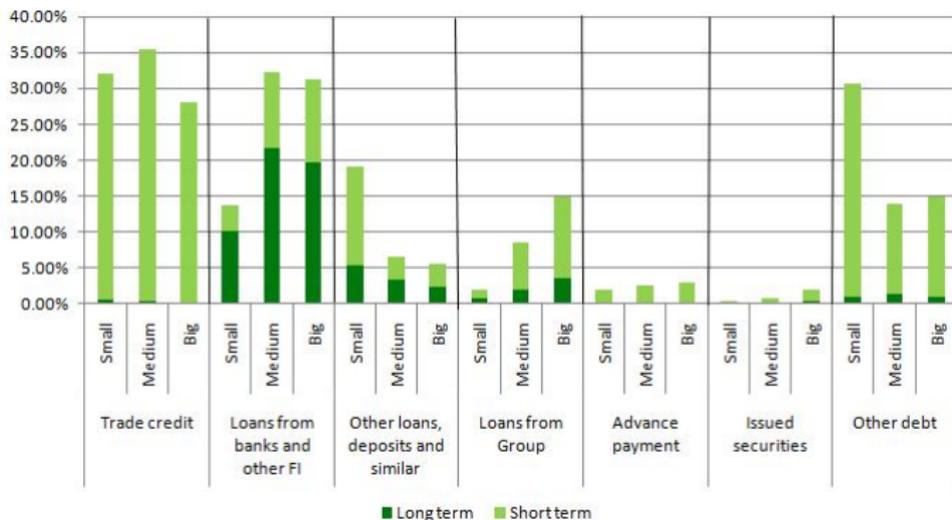
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Descriptive statistics
Concentration of borrowings from banks

Total assets (000EUR)	Assets Percentile	Number of banking relationships			From single biggest lender		
		Average	Minimum	Maximum	Average	Minimum	Maximum
Less than 100.7	0-25	1.07	1.00	4.00	0.99	0.39	1.00
100.7-311.8	25-50	1.16	1.00	4.00	0.97	0.30	1.00
311.8-1,126.5	50-75	1.25	1.00	8.00	0.96	0.26	1.00
Over 1,126.5	75-100	1.62	1.00	16.00	0.90	0.18	1.00

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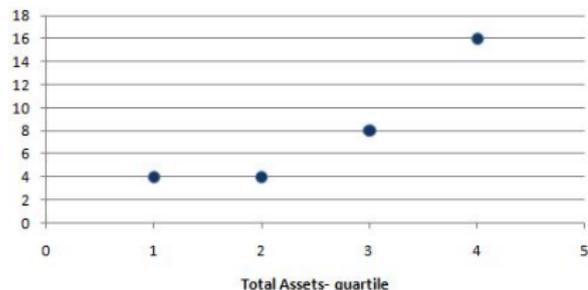Results
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Descriptive statistics
Concentration of borrowings from banks

Max number of banking relationships

Min % of loans from single biggest lender

[12]Source: Authors' calculations

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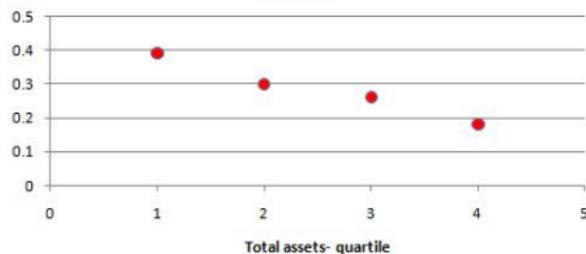
Descriptive statistics
Percentage of bank loans borrowed from big and foreign banks

Size	Average loans from big banks in Total bank loans	Average loans from foreign banks in Total Bank loans
Small	62.49%	89.91%
Medium	59.99%	88.19%
Big	68.89%	91.30%
F test value	4.615	2.133
p value	0.0099	0.1184

The F-test is used for equality of means hypothesis

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Tobit regression

$F = const + \beta_1 * FirmCharacteristics + \beta_2 * LenderCharacteristics + \beta_3 * RelationshipCharacteristics + \beta_4 * InteractionTerm + u_t$

where Financing source is
1. Equity, LT and ST liabilities/Total assets
2. Particular financing source/Total assets

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Tobit regression

Firm characteristics	Lender characteristics	Relationship characteristics	Interaction term
Size	Big bank	Single vs multiple	Domestic
Asset structure	Domestic vs foreign bank		and
Collateral strength			single
Growth opportunities			
Ownership			
Industry, Region			

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Results of Equation 1

Financing source is a ratio of Equity, LT and ST liabilities to TA

	Equity	Long-term Liabilities	Short-term Liabilities
medium	-0.042**	0.031	0.007
small	-0.151***	0.027	0.082***
Foreign ownership	-0.144***	0.291***	-0.090***
Manufacturing	0.031***	-0.040***	0.019***
Construction	-0.055***	0.020***	0.055***
Wholesale and retail trade	-0.003	-0.051***	0.055***
Professional and technical activities	0.104***	-0.053***	-0.060***
reg 1- Zagreb	0.032***	-0.030***	-0.016***
Private since establishment	-0.078***	0.112***	0.124***
Private and majorly private ownership	0.123***	0.063***	-0.027*
Common ownership	-0.071***	0.029	0.0961***
Collateral strength	0.721***	0.314***	-0.688***
Growth opportunities	0.645***	0.143	-0.612***
ST/TA	0.948***	-0.393***	-0.557***
Inventories/TA	-0.292***	0.281***	0.189***
Single bank	-0.085***	0.265***	-0.006
Multiple bank	-0.106***	0.348***	-0.015**
Borrowing only from domestic banks	-0.083**	0.007	0.061
Borrowing only from foreign banks	0.028***	-0.012	-0.015
Borrowing >50% from big banks	0.009***	0.038***	-0.008**
Single*Borrowing only from domestic	0.066*	0.009	-0.065*

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Results of Equation 2

Financing source is a ratio of particular source to TA

	Equity	Other loans, deposits and similar	Loans from banks and other FI	Trade credit	Other LT&ST debt
medium	-0.042**	-0.028	0.037***	0.045***	-0.003
small	-0.151***	0.095***	0.002	0.071***	0.039***
Foreign ownership	-0.144***	0.172***	-0.081***	0.007***	-0.090***
Manufacturing	0.031***	-0.065***	-0.000	0.040***	-0.007***
Construction	-0.055***	-0.000	0.036***	0.0218***	0.017***
Wholesale and retail trade	-0.003	-0.029***	-0.009**	0.080***	-0.022***
Professional and technical activities	0.104***	-0.074***	-0.009*	-0.050***	0.008***
reg 1- Zagreb	0.032***	-0.008**	-0.021***	-0.003*	-0.017***
Private since establishment	-0.078***	0.295***	0.118***	0.009	0.017***
Private and majorly private ownership	0.123***	0.122***	0.069***	-0.026***	-0.027***
Common ownership	-0.071***	0.200***	0.031	0.025**	-0.001
Collateral strength	0.721***	-0.117***	0.240***	-0.096***	-0.227***
Growth opportunities	0.645***	-0.315*	0.053	-0.154	-0.266***
ST/TA	0.948***	-0.608***	-0.163***	0.059***	-0.157***
Inventories/TA	-0.292***	0.413***	0.198***	0.056***	-0.040***
Single bank	-0.085***	-0.048***	0.369***	0.059***	-0.046***
Multiple bank	-0.106***	-0.065***	0.465***	0.070***	-0.069***
Borrowing only from domestic banks	-0.083**	0.036	-0.001	0.006	0.012
Borrowing only from foreign banks	0.028***	-0.014	-0.033***	-0.000	0.010
Borrowing >50% from big banks	0.009***	-0.023***	0.033***	0.029***	-0.017***

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Determinants of financing structure
Implications

Conclusions

▶ The most important: firm-level attributes, followed by lending
   relationship and lender characteristics

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- ▶ The most important: firm-level attributes, followed by lending relationship and lender characteristics
- ▶ Small firms use less equity and more debt, especially the short term one, such as trade credit

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Conclusions

- ▶ The most important: firm-level attributes, followed by lending relationship and lender characteristics
- ▶ Small firms use less equity and more debt, especially the short term one, such as trade credit
- ▶ Foreign owned companies finance themselves less with equity and more with long term liabilities, in particular Other loans.

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- ▶ The most important: firm-level attributes, followed by lending relationship and lender characteristics
- ▶ Small firms use less equity and more debt, especially the short term one, such as trade credit
- ▶ Foreign owned companies finance themselves less with equity and more with long term liabilities, in particular Other loans.
- ▶ Private companies use less equity than the state or privatized ones, and prefer short- and long term bank and other loans instead

Conclusions

▶ Professional activities opt for equity

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- ▶ Professional activities opt for equity
- ▶ Companies that have more collateral to pledge rely on equity and long term bank loans, similar to the companies with more pronounced growth opportunities. They resist short term debt, such as trade credit, non-bank loans and other debt

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▶ Higher ratio of inventories in TA implies less equity and bigger utilization of debt, whereas a higher ratio of ST assets in TA implies higher utilization of equity.

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- Higher ratio of inventories in TA implies less equity and bigger utilization of debt, whereas a higher ratio of ST assets in TA implies higher utilization of equity.

- ?

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Conclusions

▶ Higher ratio of inventories in TA implies less equity and bigger utilization of debt, whereas a higher ratio of ST assets in TA implies higher utilization of equity.

▶ ?

▶ Feasible explanation: another category withing ST assets, typically ST claims, which are hard to collect. Companies that have more non-collected claims prefer having more own capital than ending up bankrupted, whereas the companies which have more inventories trust they can pledge them and obtain a loan if necessary.

Conclusions

▶ Small companies have less lenders and borrow more from the single one

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Conclusions

▶ Small companies have less lenders and borrow more from the single one

▶ Foreign banks borrow similarly to firms of all sizes

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- ▶ Small companies have less lenders and borrow more from the single one
- ▶ Foreign banks borrow similarly to firms of all sizes
- ▶ Big banks borrow significantly more to big companies, although this may come as a consequence of legal provisions

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Conclusions

▶ Businesses that borrow only from domestic banks have less need for equity funding compared to the businesses that borrow only from foreign banks. However, businesses that have a unique banking relationship with a domestic bank have similar need for equity as the ones borrowing only from foreign banks. Hence, no safe haven, no substitute for equity.

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▶ Businesses obtaining most of their loans from big banks have reduced need for other types of loans.

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Conclusions

▶ Businesses that borrow only from domestic banks have less need for equity funding compared to the businesses that borrow only from foreign banks. However, businesses that have a unique banking relationship with a domestic bank have similar need for equity as the ones borrowing only from foreign banks. Hence, no safe haven, no substitute for equity.

▶ Businesses obtaining most of their loans from big banks have reduced need for other types of loans.

▶ Number of banking relationships does not influence financing patterns-implies transaction instead of relationship lending-no zombies.

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▶ Because of the high popularity of the short term credit as a funding source, a strong legal enforcement of payment agreements is crucial for a sound liquidity of the system

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Conclusions

- ▶ Because of the high popularity of the short term credit as a funding source, a strong legal enforcement of payment agreements is crucial for a sound liquidity of the system
- ▶ Policies such as government sponsored loan programs should consider greater dependence of small enterprises on external short-term funding

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Conclusions

- ▶ Because of the high popularity of the short term credit as a funding source, a strong legal enforcement of payment agreements is crucial for a sound liquidity of the system

- ▶ Policies such as government sponsored loan programs should consider greater dependence of small enterprises on external short-term funding

- ▶ There is no argument for preference of domestic banks over foreign banks regarding the soundness of corporate financing

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Thank you for your attention!

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Croatian National Bank