DOES MONEY BUY CREDIT? FIRM-LEVEL EVIDENCE ON BRIBERY AND BANK DEBT

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MOTIVATION

- corruption is a major concern in emerging economies
  - it influences growth, productivity, and FDI (Mauro, 1995; Wei, 2000; Méon and Weill, 2010).
- as bank credit is a driving force for growth (Levine et al., 2005), we can wonder whether corruption affects economic development through the micro channel of bank credit

MOTIVATION

- literature - ambiguous effects of corruption on bank credit
- law and finance theory
  - corruption indicates poor quality of legal institutions protecting banks and enforcing contracts => corruption discourages banks from granting loans (La Porta et al., 1997)
- empirical evidence at the macro level
  - poor law enforcement and high corruption are associated with lower bank credit (Bae and Goyal, 2011; Weill, 2011)

MOTIVATION

- the impact of corruption on firms' bank credit is not limited to judicial corruption - it can also take place in lending through bribes given to bank officials to obtain a loan (Beck, Demirgüc-Kunt and Levine, 2006)
  - corruption in lending can reduce bank debt by increasing the cost of the loan to the borrower
  - but it can also favor bank debt if borrower takes the initiative to propose a bribe to bank officials to enhance his chances to obtain a loan

MOTIVATION

- empirical evidence for such positive impact
  - Weill (2011) on bank-level data from all around the world; corruption can enhance bank lending when levels of bank risk aversion associated with greater reluctance of banks to grant loans are high
  - Chen, Liu and Su (2013) on firm-level data for China
- but no cross-country firm-level evidence to clarify the relation between bribery and bank debt

AIM OF THIS PAPER

- to analyze the effect of bribery on firms' bank debt ratios in transition countries
- Why transition countries?
  - corruption is still a big concern in these countries
- How?
  - test the impact of bribery measures on firms' bank debt ratios computed at the firm-level for a very large sample of companies from 14 transition countries

CONTRIBUTION

- the first cross-country analysis on the impact of bribery on firms' bank debt employing micro-level data
- analysis of the effects of bribery on bank debt depending on the maturity of debt
- analysis of the interaction between bribery and the institutional factors of the banking industry
- contribution to the literature on the effects of corruption in transition countries

DATA

- key problem - how to have firm-level information simultaneously on balance sheet data and on bribery
- information on bribery
  - generally collected on anonymous basis to guarantee better quality of responses => difficult to link it with financial information
- solution - combination of firm-level accounting data from the Amadeus database with firm-level data on bribery practices from the BEEPS (Business Environment and Enterprise Performance Survey) database

DATA

- unbalanced panel for 1999-2007 of 660,000 companies
- 14 European transition countries (CEE, Russia, Ukraine)
- firm-level financial data from the Amadeus database
- three variables to measure bank debt
  - short-term bank debt to total assets
  - long-term bank debt to total assets
  - total bank debt to total assets
- control variables
  - firm-level controls – size, tangibility, profitability, growth opportunities (industry-level median of real sales growth)
  - macroeconomic conditions – GDP growth

DATA

- bribery measure from three waves (2001, 2004, 2007) of BEEPS survey conducted by EBRD and the World Bank
- the most neutral question to measure bribery in all waves

  Thinking about officials, would you say the following statement is always, usually, frequently, sometimes, seldom or never true: "It is common for firms in my line of business to have to pay some irregular "additional payments/gifts" to get things done with regard to customs, taxes, licenses, regulations, services etc."

- effectively captures bribery practices between firms and banks (2005 question on informal payments to get loan)
- firms' responses constitute categorical variable varying from 1 to 6, rescaled to [0, 1] measure

DATA

- not possible to directly match firms from both databases as information from BEEPS is anonymous
- we compute the mean of the bribery measure for each cell defined at the intersection of five characteristics
  - country
  - survey wave of the BEEPS (1999-2001, 2002-2004, 2005-2007)
  - industry (2-digit ISIC code)
  - firm size (micro, small, medium and large firms)
  - location size (capital, city with population over 1 million, and others)

=> we assign this bribery measure to each firm-level observation from Amadeus belonging to the same cell

DATA

- assumption that all observations within the same cell face the same level of bribery is in accordance with the literature on corruption
  - bribery levels are industry and region-specific (Svensson, 2003)
  - bribery concerns more large firms (Safavian et al., 2001)

METHODOLOGY

- panel estimations of firms' bank debt ratios on the set of variables including bribery and control variables

$$BankDebt_{it} = \beta * Bribery_{ct-1} + \gamma * X_{it-1} + \alpha_i + \mu_t + \varepsilon_{it}$$

  - $BankDebt_{it}$ is one of the three firms' bank debt ratios
  - $Bribery_{ct-1}$ is the average bribery level in cell c
  - X_{it-1} is the vector of control variables
  - α_i firm fixed effects
  - μ_t time fixed effects
  - standard errors are robust to heteroscedasticity and clustered at firm level

ENDOGENEITY

- endogeneity problem is significantly reduced in our setting
  - we do not observe the bribing behavior of individual firms => individual willingness to bribe is unlikely to affect the results
  - information on bribery and firm characteristics comes from different data sources
  - control for firm fixed effects => thereby remove all unobservable time-invariant variables that can potentially contribute to reversing the causality between bribery and bank debt ratios
  - lag the observations by one year for all of the independent variables

ESTIMATIONS

- main estimations
- interactions with country-level variables
  - the level of financial development
  - share of bank foreign ownership
  - share of bank state ownership
- robustness checks
  - influence of bribery on bank debt ratios in industries more dependent on external finance
  - alternative bribery measures
  - alternative computation of bribery measure
  - alternative control variables
  - estimations excluding two highly corrupt countries; Russia and Ukraine

MAIN ESTIMATIONS

	Short-Term Bank Debt	Long-Term Bank Debt	Total Bank Debt
Bribery	**1.813*** (0.106)**	**-0.272*** (0.079)**	**1.738*** (0.130)**
Size	0.217*** (0.019)	0.207*** (0.012)	0.415*** (0.022)
Profitability	-0.004*** (0.000)	-0.001*** (0.000)	-0.006*** (0.000)
Tangibility	-0.006*** (0.001)	0.011*** (0.001)	0.007*** (0.001)
Growth Opportunities	0.002*** (0.001)	-0.001*** (0.000)	0.002*** (0.001)
GDP Growth	-0.187*** (0.005)	-0.069*** (0.003)	-0.261*** (0.005)
No. of obs.	1 756 393	1 782 913	1 712 626
No. of firms	660 053	665 427	650 100
R2 overall	0.024	0.032	0.054

MAIN RESULTS

- bribery has a positive impact on short-term bank debt ratio but a negative one on long-term bank debt ratio
  - banks are reluctant to grant long-term loans when the institutional framework is weak => in presence of high corruption banks restrict the supply of long term loans
  - long term loans are much more carefully screened by the banks than short term loans (i.e. more secured) => bribery has positive relation only to short term bank credit as bank officials can be bribed in this case

MAIN RESULTS

- bribery has a positive impact on total bank debt ratio
  - positive impact of bribery on short-term bank debt overcomes the detrimental effect on long-term bank debt
  - this conclusion can come from the fact that average short-term bank debt ratio is much higher than long-term bank debt ratio
- our main finding is the absence of an overall adverse effect of bribery on bank debt
- the finding that bribery is not detrimental for bank debt ratio as a whole is not at odds with former empirical literature (Chen, Liu and Su, 2013; Fan et al., 2012)

IMPACT OF FINANCIAL DEVELOPMENT

- the bribery behavior of borrowers is directly related to the easiness of access to bank credit => we can expect that greater financial development reduces the link between bribery and firms’ bank debt
- financial development is measured with the ratio of private credit by deposit money banks and other financial institutions to GDP (World Bank)

IMPACT OF FINANCIAL DEVELOPMENT

	Short-Term Bank Debt	Long-Term Bank Debt	Total Bank Debt
Bribery	2.643*** (0.154)	0.168 (0.109)	2.207*** (0.189)
Bribery×Private Credit	**-0.056*** (0.005)**	**-0.031*** (0.004)**	**-0.045*** (0.007)**
Private Credit	0.051*** (0.002)	0.024*** (0.002)	0.084*** (0.003)
Size	0.234*** (0.019)	0.171*** (0.012)	0.396*** (0.023)
Profitability	-0.004*** (0.000)	-0.001*** (0.000)	-0.005*** (0.000)
Tangibility	-0.007*** (0.001)	0.010*** (0.001)	0.004*** (0.001)
Growth Opportunities	-0.028*** (0.001)	-0.012*** (0.001)	-0.039*** (0.001)
GDP Growth	-0.192*** (0.005)	-0.077*** (0.003)	-0.277*** (0.006)
No. of observations	1 685 018	1 711 538	1 641 251
No. of firms	651 530	656 904	641 577
R2 overall	0.012	0.050	0.050

IMPACT OF FINANCIAL DEVELOPMENT

- interaction term between *Private Credit* and *Bribery* is significantly negative in all three estimations
  - greater financial development reduces the positive influence of bribery on firms' bank debt
  - this is in line with the view that bribery facilitates better access to bank credit when this credit is scarce

=> positive relation of bribery with firms' bank debt should not be taken for granted whatever the level of financial development is

IMPACT OF FOREIGN BANK OWNERSHIP

- hypotheses on the influence of foreign ownership on the relation between bribery and firms' bank debt
  - higher share of foreign banks can reduce the positive link between bribery and bank debt - stronger control of employees inside foreign banks and presence of foreign managers less involved in domestic networks
  - "cherry-picking behavior" of foreign banks by decreasing access to credit for a vast number of companies (in particular the SMEs) can provide higher incentives for firm managers to bribe bank officials to get a loan
- foreign ownership of banks is measured by the asset share of foreign-owned banks (EBRD)

IMPACT OF FOREIGN BANK OWNERSHIP

	Short-Term Bank Debt	Long-Term Bank Debt	Total Bank Debt
Bribery	1.907*** (0.193)	0.323** (0.137)	2.424*** (0.226)
Bribery×Foreign Ownership	**0.001** **(0.004)**	**-0.017***** **(0.003)**	**-0.014***** **(0.005)**
Foreign Ownership	0.046*** (0.002)	0.013*** (0.002)	0.072*** (0.003)
Size	0.220*** (0.019)	0.205*** (0.012)	0.418*** (0.022)
Profitability	-0.004*** (0.000)	-0.001*** (0.000)	-0.005*** (0.000)
Tangibility	-0.006*** (0.001)	0.011*** (0.001)	0.007*** (0.001)
Growth Opportunities	-0.005*** (0.001)	-0.003*** (0.000)	-0.008*** (0.001)
GDP Growth	-0.169*** (0.005)	-0.070*** (0.003)	-0.237*** (0.005)
No. of observations	1 756 393	1 782 913	1 712 626
No. of firms	660 053	665 427	650 100
R2 overall	0.001	0.040	0.016

IMPACT OF FOREIGN BANK OWNERSHIP

- the interaction between *Foreign Ownership* and *Bribery* for long-term bank debt is negative
  - in line with the view that foreign banks are more reluctant than domestic banks to grant long-term loans in a corrupt environment
- the interaction between *Foreign Ownership* and *Bribery* for short-term bank debt is not significant
  - foreign banks are differently influenced by the institutional framework => shorter maturity is associated with lower perceived credit risk and is thus less sensitive to a flawed legal environment
- *Foreign Ownership* is significant and positive
  - foreign banks tend to promote access to bank credit

IMPACT OF STATE BANK OWNERSHIP

- corruption is generally observed in the public administration => state-owned banks can be more prone to bribery than other banks
- hence, greater state ownership of banks can influence the relation between bribery and firms' bank debt through corruption in lending being more common
- state ownership of banks is measured by the assets share of state-owned banks (EBRD)

IMPACT OF STATE BANK OWNERSHIP

	Short-Term Bank Debt	Long-Term Bank Debt	Total Bank Debt
Bribery	-0.992*** (0.143)	-1.913*** (0.130)	-2.682*** (0.184)
Bribery×State Ownership	**0.121*** (0.005)**	**0.069*** (0.004)**	**0.189*** (0.006)**
State Ownership	-0.024*** (0.002)	-0.010*** (0.001)	-0.032*** (0.002)
Size	0.263*** (0.019)	0.245*** (0.012)	0.505*** (0.023)
Profitability	-0.003*** (0.000)	-0.001*** (0.000)	-0.004*** (0.000)
Tangibility	-0.002** (0.001)	0.012*** (0.001)	0.012*** (0.001)
Growth Opportunities	0.010*** (0.001)	0.000 (0.000)	0.011*** (0.001)
GDP Growth	-0.140*** (0.005)	-0.069*** (0.004)	-0.213*** (0.006)
No. of observations	1 371 406	1 395 451	1 330 042
No. of firms	471 930	475 909	463 306
R2 overall	0.022	0.040	0.059

IMPACT OF STATE BANK OWNERSHIP

- interaction term between *State Ownership* and *Bribery* is significantly positive in all estimations
- greater presence of the state in the ownership of banks strengthens the positive impact of bribery on bank debt
- we interpret this result so that greater state ownership of banks contributes to strengthening of the impact of bribery on bank debt in a positive way, i.e. by favoring the use of bribes given to bank officials to obtain a loan

CONCLUSION

- bribery increases firms' bank debt ratio as a whole
  - a higher degree of bribery would hence on average not be detrimental but rather beneficial for bank debt in transition countries
  - bribery would encourage bank lending through bribes given to bank officials and would favor bank debt through this channel
- the effects of bribery on bank debt ratios differ with the maturity
  - bribery is positively related to short-term bank debt but hampers long-term bank debt

CONCLUSION

- institutional factors of the banking industry influence the relation between bribery and bank debt ratios
  - higher level of financial development reduces the positive impact of bribery on bank debt ratios
  - higher market share of state-owned banks strengthens the positive relation between bribery and bank debt ratios
  - the presence of foreign banks reinforces the effects of bribery on bank debt by strengthening the positive impact on short-term bank debt and the negative impact on long-term bank debt