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Does Money Buy Credit? Firm-Level Evidence on Bribery and Bank Debt

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Summary. — We combine information on bribery practices with firm-level accounting data to examine how bribery influences bank debt ratios for a large sample of firms in 14 transition countries. We find that bribery is positively related to firms' total bank debt ratios, which provides evidence that bribing bank officials facilitates firms' access to bank loans. This impact varies with the maturity of the bank debt, as bribery contributes to higher short-term bank debt ratios but lower long-term bank debt ratios. Finally, we find that the institutional characteristics of the banking industry influence the relation between bribery and firms' bank debt ratios.

Key words — bank lending, bribery, corruption, Eastern Europe

1. INTRODUCTION

Corruption is a major concern in emerging and developing countries because it influences growth, productivity, and foreign direct investment (Mauro, 1995; Méon & Weill, 2010; Wei, 2000). As bank credit has been shown to be a driving force for growth (e.g., Levine, Loayza, & Beck, 2000), it is important to understand whether corruption affects economic development via the microeconomic channel of bank credit provided to firms.

This paper provides new empirical evidence of how corruption influences the level of bank credit at the firm level. The existing literature is ambiguous regarding the effect of corruption on bank credit. Based on the law and finance theory pioneered by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997), we would expect corruption to reduce bank credit. Namely, because more corruption indicates a lower quality of the legal institutions that protect banks and enforce contracts, corruption is likely to discourage banks from granting loans. A large body of empirical research supports the finding that poor law enforcement reduces bank credit, with some studies relying on rule of law measures (Bae & Goyal, 2009) and others on corruption measures (Weill, 2011).

However, viewing corruption solely within a judicial framework seems to be very restrictive. Corruption can also be present within the lending process, through bribing bank officials to obtain loans, as observed by Beck, Demirgüc-Kunt, and Levine (2006). [1] Corruption in lending can contribute to a reduction in firms' bank debt due to the increasing cost of the loan for the borrower. In this case, a bribe amounts to a tax on borrowers, thus constituting an obstacle to credit. Nevertheless, corruption can also contribute to an increase in a firm's bank debt if the borrower proposes a bribe to a bank official to enhance his chances of obtaining a loan. Weill (2011) employs bank-level data from all over the world to show that corruption can enhance bank lending when levels of bank risk aversion associated with greater reluctance to grant loans are particularly high. Chen, Liu, and Su (2013) find evidence of a positive impact of corruption on access to bank credit in China, as they observe a positive link between a proxy for the amount of bribes provided by the firm and the importance of the firm's bank credit.

Surprisingly, this single-country study is to our knowledge the only work to investigate the effect of corruption on bank credit at the firm level. Several studies examine the impact of corruption on bank credit ratios at the aggregate country level (e.g., Jõeveer, 2013; Weill, 2011), but the evidence remains absent at the firm level, which is key to examining the channels of access to bank credit.

Our investigation aims to fill this gap by analyzing the effect of bribery on the bank debt of firms in transition countries. These countries provide an excellent opportunity to study the effects of bribery as corruption is still a major concern there (e.g., Javorcik & Wei, 2009). To answer our research question, we test the impact of bribery on bank debt ratios computed at the firm level for a sample of approximately 665,000 companies from 14 transition countries, including former communist countries of Central and Eastern Europe as well as Russia and Ukraine. This group of countries is characterized by substantial variation in terms of corruption, financial, and economic development.

A major concern in analyzing the impact of bribery on bank debt ratios is the need to have firm-level information on both balance sheet items and bribery practices. As corruption is by nature a hidden phenomenon, information on bribery is generally collected on an anonymous basis to guarantee higher quality responses. However, firms remain reluctant to provide accounting data that would jeopardize anonymity.

To solve this issue, we combine 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. [2] Relying on the latter database, we measure bribery as the frequency of additional unofficial payments to officials to "get things done". We

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cannot directly match firms from both databases, as BEEPS information is anonymous. Therefore, we compute the mean of the bribery measure for each cell defined at the intersection of five characteristics: country, BEEPS survey wave (three waves covering 1999–2001, 2002–04, 2005–07), industry (2-digit ISIC code), firm size (micro, small, medium and large firms), and location size (capital, city with a population over 1 million, and others). We then assign this bribery measure to each firm-level observation from the Amadeus database belonging to the same cell. As a consequence, we assume that all firms in the same cell practice the same level of bribery. This hypothesis is in accordance with the literature on corruption. Svensson (2003) and Fisman and Svensson (2007), among others, stress that bribery practices are industry- and region-specific, and firm size has also been shown to impact bribery (e.g., Beck *et al.*, 2006; Safavian, Graham, & Gonzalez-Vega, 2001).

In addition to gaining information on both firm-level characteristics and bribery practices, the use of the merged dataset presents the advantage of reducing endogeneity concerns between bank debt and bribery. First, as the bribery measure is computed for cells of firms and comes from a different data source than bank debt ratios, it is unlikely that bank debt ratios computed at the individual firm level have an impact on the bribery measure. Second, the panel structure of our dataset allows us to control for firm-level fixed effects and thus remove all time-invariant unobservable effects that could potentially affect both bribery and bank debt ratios.

This work contributes to the literature in four important respects. First, we provide the first cross-country analysis on the impact of bribery on firms' bank debt using micro-level data. We therefore contribute to the understanding of institutional factors that influence the level of firms' bank indebtedness. While many works analyze the effect of institutional determinants on financial structure (e.g., Fan, Titman, & Twite, 2012; Giannetti, 2003), they all use country-level variables, which suffer from aggregation when linked to firm-level financial variables.

Second, we contribute to the literature on the effects of corruption in transition countries. A large set of studies confirms the persistence and economic consequences of corruption in these countries even though cross-country differences can be observed (e.g., Shleifer & Treisman, 2004, on Russia). In her study dealing with the determinants of capital structure in transition countries, Jõeveer (2013) examines the impact of corruption on debt ratios. Our analysis goes a step further, as we employ a disaggregated measure of bribery and consider a broader sample of countries including Russia and Ukraine, two countries characterized by much greater corruption than CEE countries, and we also use more recent data.

Third, we examine whether the effects of bribery on firms' bank debt differ depending on the maturity of that debt. When bank credit is analyzed as a whole, the differences between short-term and long-term bank credit are not taken into account, even though this may be an important consideration. First, short-term and long-term bank credit are not subject to the same requirements by banks, with the latter requiring more careful screening of firms. As a consequence, the mechanisms through which corruption affects firms' bank debt can work differently for these two types of credit. Second, short-term bank credit is much more common than long-term bank credit for firms in transition countries (De Haas & Peeters, 2006). However, long-term bank credit plays a more significant role in supporting economic growth, as it finances investment. The literature on the impacts of financial development on growth refers in particular to long-term bank credit when analyzing the role of banks as a coordinating device that allocates capital to efficient uses (Beck, 2013). Therefore, whether bribery influences short-term bank credit and long-term bank credit differently is an important question because the macroeconomic implications differ according to the type of credit.

Fourth, we investigate the potential effect of bribery by examining the interactions of bribery with institutional factors of the banking industry. Financial development can influence the impact of bribery on firms' bank debt by easing or tightening such indebtedness. Moreover, bank owners can influence this relation as corruption in lending might be more or less prevalent depending on bank ownership. As a consequence, the influence of bribery on firms' bank debt may be conditional on the institutional environment of banks and hence can differ across countries.

The remainder of the paper is organized as follows. Section 2 presents the data and the methodology. Section 3 discusses the results, and Section 4 provides the conclusions of this work.

2. DATA AND METHODOLOGY

(a) *Firm- and country-level variables*

Our sample includes approximately 665,000 companies from 14 Central and Eastern European countries which are covered widely by both the Amadeus and BEEPS databases: Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, and Ukraine. This selection of countries is of particular interest for our research question as they have somewhat similar histories of transition to market economies, while exhibiting heterogeneous institutional and economic development.

The primary source of firm-level data is the Amadeus database from Bureau Van Dijk, which contains financial data on companies from all European countries. This database has standardized income statement and balance sheet data, and includes virtually all registered firms. [3] We use three variables to measure bank debt: the ratio of short-term bank debt to total assets (*Short-Term Bank Debt*), the ratio of long-term bank debt to total assets (*Long-Term Bank Debt*), and their sum (*Total Bank Debt*). By considering these three variables, we are able to analyze the overall effect of bribery not only on aggregate firm bank debt but also on the different maturities of that debt.

To select firm-level control variables, we follow the existing literature on the determinants of capital structure (Fan *et al.*, 2012; Jõeveer, 2013; Li, Yue, & Zhao, 2009). Firm size is measured by the logarithm of real sales (*Size*). [4] We expect a positive relation between firm size and bank debt, as greater size is associated with a lower bankruptcy risk from the bank's perspective. The ratio of tangible fixed assets to total assets indicates the tangibility of assets (*Tangibility*). A positive relation is also expected with firms' bank debt, as the tangibility of assets is associated with higher collateral value, which facilitates access to bank loans. Nevertheless, these results can differ between short-term bank debt and long-term bank debt. Tangible assets are generally financed by long-term means, with equity or long-term bank debt. As a consequence, firms with greater shares of tangible assets should have lower levels of short-term bank debt on their balance sheet, as they are less dependent on such debt for financing.

Profitability is measured by the ratio of profit before tax to total assets (*Profitability*). [5] The expected effect of profitability on bank debt is ambiguous. Banks value greater profitability when making credit decisions as profitability reduces