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POLITICAL CONNECTIONS AND FINANCIAL CONSTRAINTS: EVIDENCE FROM CENTRAL AND EASTERN EUROPE

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JEL Classification: D22, O17, P12, P14

Keywords: investment, Political Connections, Corruption, Financial constraints

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Political Connections and Financial Constraints: Evidence from Central and Eastern Europe*

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1 Introduction

How beneficial are political connections to firms? In this paper, we answer this questions using a data set covering more than 460,000 firms located in six Central and Eastern European countries. We document the characteristics of politically connected firms in contrast to unconnected firms in order to identify the channels through which political connections might be at play. Specifically, by examining how political connections affect firms access to finance, we show that connections ease credit constraints despite their low productivity. Our findings are consistent with the idea that political connections ease credit constraints, distort capital allocation, and may have welfare costs.

Our paper is related to a vast literature on the benefits enjoyed by politically connected firms (see, among others, Stigler (1971), de Soto Polar (1989), Faccio (2006)) and to Shleifer and Vishny's (1994) work on the incentive structure of state-owned enterprises and private enterprises subject to political influence. Fisman (2001) looks at stock market returns of politically connected firms during the Indonesian crisis of 1997 and shows that most of the value of the firms linked to President Suharto was driven by their political connections with the president and his family.

Our focus on the links between political connections and credit constraints is closely related to a series of papers showing that connected firms tend to have better access to finance. Existing work has focused on Brazil (Claessens, Feijen, and Laeven (2008)), Malaysia (Bliss and Gul (2012)), Indonesia (Leuz and Oberholzer-Gee (2006)), Italy (Sapienza (2004)), and Pakistan (Khwaja and Mian (2005)). There is also a large literature that focuses on China and shows that political connections and affiliation with the communist party give greater access to loans, especially from state-owned banks (see, among others, Li, Meng, Wang, and Zhou (2008), Chen, Shen, and Lin (2014), and Peng, Zhang, and Zhu (2017)).

The role of political connections might be particularly important in the formerly planned economies of Central and Eastern Europe. Faccio's (2006) study of the correlation between the presence of political connections and corruption finds that Russian firms have the highest degree of political connections (in her sample, politically connected firms represent more than 85% of market capitalization).[1] There is, however, limited research on the links between political connections and access to credit in this group of countries. To the best of our knowledge, the only paper that stud-

[1] For surveys on the literature on corruption see Bardhan (1997), Rose-Ackerman and Palifka (1999) and Svensson (2005).

ies the link between political connections and access to finance in Central and Eastern Europe is Hasan, Jackowicz, Kowalewski, and Kozłowski's (2017). The study finds that politically connected Polish firms had easier access to credit in the aftermath of the 2007 financial crisis.

In this paper, we aim at filling this gap in the literature and document the link between political connections and access to credit using a large sample of firms from Bulgaria, Hungary, Romania, the Russian Federation, Serbia and the Slovak Republic observed over the period 2008-2013. Using these data, we show that connected firms, in comparison to their unconnected peers, have higher levels of leverage, are less profitable, have lower marginal productivity of capital, and do not invest more. A major finding is that political connections appear to ease credit constraints. In addition, we find evidence that this privileged access to credit generates distortion in the allocation of capital as connected firms which benefit from easier credit tend to be less productive. In fact, it seems that credit constraints are reduced disproportionally more for the least efficient and least profitable firms, leading to welfare losses for these economies.

The paper is organized as follows: the next section describes the data and how we identify and measure political connections. Section 3 provides an initial assessment of the differences between connected and unconnected firms in terms of their leverage, profitability, and investment activity. Section 4 documents that availability of cash flow is less crucial for investing in the case of connected firms, demonstrating that they have easier access to credit than comparable unconnected firms. Section 5 shows that these connections lead to capital misallocation and welfare losses. Some final remarks follow in section 6.

2 Measuring political connections

We implement our empirical strategy using two sources of data. First, we rely on a proprietary database that documents in detail an exhaustive list of politically exposed persons (PEPs). The data are primarily used by private institutions to undertake due diligence. In the PEP data set, the definition of politically exposed person depends on the classifications by intergovernmental bodies such as Financial Action Task Force (FATF) or legislation such as the European Union's Anti-Money Laundering Directive. More importantly, for our purposes, a wide range of information is collected for each politically exposed person. For example, the data set reports association with specific

companies, and whether these linkages are established directly, or through family members, close business associates or advisers of each individual PEP. Each politically exposed person is further classified into four sub-categories based on their primary affiliation with Local Government, State Government, National Government, and State Enterprises.[2] Bussolo, Commander, and Poupakis (2018) provide a detailed discussion on the PEP data set.

Second, we source firm-level data from the Orbis data set by Bureau van Dijk. Orbis reports corporate ownership and shareholder information, along with balance sheet and financial data for listed and unlisted firms. While Orbis provides an extensive resource for firm-level empirical studies, there are several challenges related to using this data set. We address these challenges by using the three steps approach first proposed by Kalemli-Özcan, Sorensen, Villegas-Sanchez, Volosovych, and Yesiltas (2015) and Kalemli-Özcan, Laeven, and Moreno (2018). First, we drop firms with inconsistent information on generic variables such as date of establishment, type of company, and suspect of inconsistent units.[3] Second, we drop firms for which total assets, fixed assets, sales, number of employees, wages, or cost of goods sold is negative in any year. We also drop firms that report having more than 2 million employees. Third, we drop observations for firm-years with zero or missing values for total assets.

Our main firm-level variables are Investment, Return on Assets (ROA), Leverage, Capitalization, Cash Flow, Sales Growth, and Marginal Product of Capital. Investment is defined as change in fixed assets scaled by total assets. ROA is the percentage share of financial and operational profits (before taxes) to total assets. Leverage is the ratio of total debt to total assets. Capitalization is the ratio of total assets to total funds from shareholders. Cash Flow is taken from balance sheet data directly and is scaled by total assets. Sales Growth is calculated as the annual change in sales over total assets. We follow Hsieh and Song (2015) and use average return to capital (measured as value added over fixed assets) as a proxy for the marginal product of capital. We also use information on firm size, firm age, and on whether a firm is state-owned or not.

[2]The original PEP data set has eight categories of politically exposed persons. These comprise individuals in International and Regional Organizations, National, Sub-national and Local Government, State-Owned Enterprises and State-Invested Enterprises, as well as Non-Governmental Organizations (Bussolo, Commander, and Poupakis (2018)). However, for the countries in our sample, after merging with Orbis data we find the four aforementioned categories to be relevant. Please note that for our analysis we collapse State-Owned Enterprises and State-Invested Enterprises to a single category titled State Enterprises.

[3]The criteria for consistency check are based on a "reasonable" move in total assets. We drop firms if we observe a sudden sharp spike in growth rate of total assets, with a lower threshold of -99% and an upper threshold 19900%.

We identify politically connected firms by merging Orbis with the PEP data set. As a first step we focus on firm names. We identify politically exposed persons and their connections from the PEP data set and merge the PEP data set with Orbis by matching the firm names reported in the two data sets. Next, we focus on the names of politically exposed persons. We match the names of the people reported in the PEP data set with the names of shareholders and owners listed in Orbis. Bussolo, Commander, and Poupakis (2018) exploit the network dimensions of these connections and provide a detailed discussion of these matching strategies.

Our sample consists of about 1.7 million observations from more than 460,000 firms from six countries over the period 2008-2013, of these 460,000 firms about 2,000 are classified as politically connected. Table 1 reports the distribution of firms across the six countries covered in our sample and Table 2 reports the descriptive statistics for all the variables used in our analysis (the top panel reports data for all countries and the mid and bottom panels separate connected and unconnected firms).

There are large differences in the number of firms reported by Orbis and in the share of connected firms. While Orbis includes data form more than 160,000 firms in Hungary and Romania, we have fewer than 50,000 firms for Serbia and the Slovak Republic, and fewer than 30,000 firms for Bulgaria and the Russian Federation (Table 1). The share of connected firms ranges from about 0.15% in Bulgaria, Hungary and the Russian Federation, to nearly 1% in the Slovak Republic (the values for Romania and Serbia are 0.5% and 0.3%, respectively).

Comparing median and average values highlights that the underlying distributions are skewed for most variables. To minimize the influence of outliers, we winsorize the investment, cash flow, and sales growth variables at 1%. Extreme values in the left (right) tail are replaced with the value at the 0.5 (99.5) percentile. We observe a large support for winsorized sales growth which in the full sample ranges between -0.9% and 6.6%. Despite the winsorization, the support of cash flow remains large, with values ranging from 0% to 33,310%. Cash flow ranges between 0 and 1,100% in the subsample of connected firms. However, while the standard deviation of the cash flow of non-connected firms is larger than that of connected firms, there are no large differences in the mean value of cash flow of connected and non-connected firms. In fact, despite the large variability in the data, connected and non-connected firms look similar in terms of the level of investment or

capitalization. Connected firms tend to be slightly older and are more likely to be large.[4]

3 Political connections, leverage, and profitability

We start by studying the correlation between political connections and each of firms' leverage, profitability (as measured by returns on assets), investment rate, capitalization, and marginal product of capital, conditional on a set of industry and country-year fixed effects and firm-specific controls. Formally, we estimate the following model:

$$y_{i,s,c,t} = \beta PC_{i,s,c} + X_{i,s,c,t}\Gamma + \theta_s + \xi_{c,t} + \epsilon_{i,s,c,t} \tag{1}$$

where $y_{i,s,c,t}$ is a measure of firm performance, or leverage, for firm i, in sector s, country c and year t, $PC_{i,s,c}$ is a time-invariant dummy that takes value one if firm i is connected, $X_{i,s,c,t}$ is a matrix of firm characteristics (age, size, and whether the firm is state-owned or not), and θ_s and $\xi_{c,t}$ are sector (measured at the four-digit level) and country-year fixed effects. In estimating Equation 1, we cluster the standard errors at the firm level.

We start by estimating Equation 1 without controlling for firm characteristics (i.e., by setting $\Gamma = 0$). Panel A of Table 3 shows that politically connected firms tend to have higher leverage than unconnected firms. The point estimate suggests that leverage in connected firms is 2.3 percentage points higher than in unconnected firms (column 1 of Table 3). Given that average leverage in our sample of unconnected firms is approximately 13% (see Table 2), this point estimate implies that leverage in connected firms is nearly 20 percent higher than leverage in unconnected firms.

While politically connected firms tend to take more debt than unconnected firms, they are significantly less profitable than firms that do not have political connections. Column 2 of Table 3 shows that profitability (as measure by Return on Assets, ROA) in connected firms is about 1.9 percentage points lower than in unconnected firms (a 15% difference with respect to average profitability in our sample of unconnected firms). Our results are, thus, similar to Bliss and Gul's (2012) findings that politically connected firms in Malaysia have higher leverage and lower profitability.

[4] We cap firm age at 100 years (there are 180 firms, corresponding to 0.04% of the sample, that report being created more than 100 years ago). All the results discussed in subsequent sections are robust to neither winsorizing nor capping firm age.

It is possible that, like the typical start-up, politically connected firms are highly leveraged and have low profitability because they are taking debt to invest and grow. However, there is no evidence that these politically connected firms are using the borrowed funds to finance investment projects. Column 3 of Table 3 suggests that there is no statistically significant difference in the investment rate of politically connected firms vis- à-vis unconnected ones (if anything, the coefficient is negative). We also find that there are no statistically significant differences between the degrees of firm capitalization (measured as equity over total assets) of connected and unconnected firms (column 4 of Table 3). Finally, column 5 of Table 3 shows that the marginal product of capital is significantly lower in connected firms, indicating that these firms either overinvest or adopt less efficient investment strategies.

Panel B of Table 3 shows that all these results are robust to controlling for firm characteristics, with one notable exception. When we control for firm age, size, and ownership, we now find that connected firms are significantly less capitalized than non-connected firms (column 4 of the bottom panel of Table 3).

There are three possible concerns linked to the fact that politically connected firms are able to borrow more while being less profitable than non-connected firms. First, overleveraged unprofitable firms may default on their debts, with consequences for financial stability and, possibly, fiscal costs if the government needs to bail out the banking system. Second, the fact that politically connected firms have privileged access to credit may lead to a suboptimal allocation of capital, and lower economic growth, if these firms are less productive than their unconnected counterparts. Third, even if connected firms happen to have higher future profitability (which we cannot observe in our data) and thus their easy access to credit is not a source of concern for financial stability purposes, the correlation between access to credit and political connections may still reflect the presence of insider trading or corruption. The link between political connections and higher future profitability could be due to the fact that politicians decide to build connections with firms that have bright prospects or to the fact that these future bright prospects are driven by patronage associated with the connections. In the first case, future profitability causes connections, and the fact that politicians know which firms will be more profitable in the future may be associated with the presence of insider trading and corruption. In the second case, connections cause future profitability and the link between easier access to credit and political connections may be associated

with corruption and resource misallocation.

We have already shown that higher leverage cannot be attributed to observable profitability or higher investment ratios, as connected firms are less profitable and do not differ from unconnected firms in terms of investment activity. Nevertheless, connected firms may have characteristics that increase their future profitability which are observable by loan officers but not observable by the econometrician. If this were the case, we would be wrongly attributing to political connections what is in fact proper credit evaluation by bank officers. As in our data political connections are time-invariant, Equation 1 cannot include firm fixed effects which may control for time-invariant firm-specific variables which could be jointly associated with future profitability and political connections. In the next section, we probe this further by using an econometric specification which allows testing whether politically connected firms have privileged access to credit, even after controlling for all observable and unobservable firm-specific characteristics.

4 Political connections and financial constraints

In the presence of perfect capital markets, internal and external funds are perfect substitutes and investment decisions do not depend on a firm's financial structure. In the presence of financial market frictions, instead, investment may be associated with financial factors and with the availability of internal funds. Specifically, in the presence credit rationing associated with asymmetric information or imperfect contract enforcement, internal funds will be cheaper than external funds. This leads to a pecking order for firm financing in which firms first use internal funds to finance investment and only seek outside funds when internal funds are exhausted (Myers (1984) and Myers and Majluf (1984)).

Fazzari, Hubbard, and Petersen (1988) were the first to exploit this idea and propose a test of credit constraints based on the sensitivity of investment to internally generated funds (measured by cash-flow). They argued that, conditional on firm-specific factors that affect investment demand, a positive correlation between investment and cash flow would be prima facie evidence of the presence of credit constraints.

Kaplan and Zingales (2000) criticized the original approach of Fazzari, Hubbard, and Petersen (1988) by pointing out that cash flow could be a proxy for investment opportunities. Hence, its

positive association with investment could be explained by the fact that cash flow has a direct effect on investment demand. One answer to this criticism is that, if we were to find that this correlation varies across types of firms and tends to be higher for firms that are more likely to be credit constrained, it would then be possible to claim that this differential effect is a signal of the presence of credit constraints for these particular types of firms (Fazzari, Hubbard, and Petersen (2000); see also Huang, Pagano, and Panizza (Forthcoming), and Huang, Panizza, and Varghese (2018)).

We exploit this idea and assess whether politically connected firms are less credit constrained than unconnected firms by estimating the following model:

$$I_{i,s,c,t} = \alpha I_{i,s,c,t-1} + \gamma SG_{i,s,c,t} + \theta Age_{i,s,c,t} + CF_{i,s,c,t}(\delta + \beta PC_{i,s,c}) + \varphi_i + \xi_{c,t} + \epsilon_{i,c,t} \qquad (2)$$

where $I_{i,s,c,t}$ is the investment rate (investment over total assets) for firm i, country c and year t, $SG_{i,s,c,t}$ measures sales growth and proxies for future investment opportunities, $Age_{i,s,c,t}$ is the age of the firm (in decades), $CF_{i,s,c,t}$ is cash flow over total assets, φ_i is a set of firm fixed effects, and all other variables are defined as in Equation 1. Note that Equation 2 controls for firm fixed effects and hence does not allow estimating the main effect of political connections. In this set-up, instead, the political connection dummy is interacted with cash flow which varies across firms and across time. Hence, the interactive effect can be estimated even in the presence of firm fixed effects.

In Equation 2 the parameter δ measures the correlation between investment and cash flow for unconnected firms, and $\delta + \beta$ measures the correlation between investment and cash flow for politically connected firms. Unless cash flow is a better proxy of investment opportunities for connected firms than for unconnected firms, β is a good measure of the difference between these two correlations and thus an indicator of the difference in the credit constraints faced by these two types of firms. A negative value of β would suggest that politically connected firms are less credit constrained than unconnected firms, conditional on all observable and unobservable time-invariant firm characteristics.

We start by estimating Equation 2 without including the interaction between political connections and cash flow. This is the original model of Fazzari, Hubbard, and Petersen (1988). We find that cash flow is positively and significantly correlated with investment: firms with available

internal funds tend to be firms that invest more (column 1, Table 4). The point estimate implies that a 1 percent increase in the cash flow is associated with a half percentage point increase in investment, corresponding to a 10% increase with respect to the mean value of 5.7%. This positive correlation can either indicate that in our sample of firms cash flow is a proxy for future investment opportunities, that the firms in our sample are credit constrained, or both.

More interesting for our purposes is the finding that the interaction between cash flow and the political connection dummy is negative, statistically significant and large in absolute value (column 2, Table 4). In fact, the interactive effect is about the same size (but with the opposite sign) as the main effect. When we add the two estimated parameters, we find that the correlation between cash flow and investment for politically connected firms is essentially zero ($0.472 - 0.468 = -0.004$): for connected firms, changes in cash flow are uncorrelated with investment. Unless one is ready to claim that cash flow is less likely to predict future business conditions in politically connected firms than in unconnected firms , these results suggest that politically connected firms are less credit constrained than unconnected firms. In fact, connected firms may not be credit constrained at all as there is no correlation between cash flow and investment for connected firms.

It is possible to think of firm characteristics that are jointly associated with the presence of political connections and credit constraints. Firm size is one of these characteristics. Hadlock and Pierce (2010) have shown that large firms are less likely to be credit constrained. If in our sample, politically connected firms are more likely to be large, the fact that large firms are less likely to be credit constrained could lead to a negative bias in our estimate of β as our political connection dummy could simply capture the effect of firm size.[5]

To control for this possibility, we define as large firms those that employ at least 250 people and augment our model with a second interaction and allow the correlation between cash flow and investment to also vary with firm size. While we do find that connected firms are larger (8 percent of connected firms are classified as large, while only 2 percent of unconnected firms are classified as large) and that large firms are less constrained than smaller firms, we also find that controlling for firm size does not alter our baseline results. Column 3 of Table 4 suggests that political connections and firm size are two separate and independent channels that ameliorate

[5]Suppose that the true model is $y = \alpha + \beta x + \gamma z + \epsilon$ with $\gamma < 0$ and $cov(x, z) > 0$. If one estimates $y = a + bx + e$ the bias is $E(b) - \beta = \gamma \frac{cov(x,z)}{var(x)} < 0$.

credit constraints and reduce the need to finance investment with internal funds. Specifically, while the interaction between cash flow and firms' size is negative and statistically significant, controlling for this variable does not change the value or the explanatory power of the interaction between cash flow and the political connections dummy.

We also check whether our results are affected by augmenting our baseline model with a triple interaction ($CF \times Large \times PC$). The coefficient of the triple interaction captures whether political connections have a different effect in small and large firms. A negative coefficient would signal that connections are more helpful for large than small firms. We find that the triple interaction is not statistically significant (suggesting that connections exert the same influence in large and small firms).). Moreover, controlling for this triple interaction does not alter our baseline results (column 4, Table 4).

Next, we check whether our results are driven by a specific country by estimating the different models of Table 4 allowing different coefficients for the six countries included in our sample. The top left panel of Figure 1 reports the results for the baseline model (this is equivalent to column 2 of Table 4). It shows that the interactive effect is always negative, ranging between -0.12 for Bulgaria and -0.63 for the Slovak Republic, and statistically significant in 5 of the 6 countries included in our sample. Moreover, for the 5 countries for which the interactive effect is statistically significant, we also find similar point estimates (ranging from -0.4 for Serbia and the Russian Federation to -0.63 for the Slovak Republic). Bulgaria is the only country for which the coefficient is not significant and, at -0.12, substantially lower (in absolute value) than in the other countries in our sample. This result is likely due to the fact that our PEP data set identifies a surprisingly small number of political connections for Bulgaria with only 36 firms are identified as politically connected. Hence, the statistically insignificant results are likely to be due to a mix of lack of power and to the presence of substantial measurement error.

The top right and bottom panels of Figure 1 show that the results are unchanged if we control for the interaction between cash flow and firm size (the equivalent of column 3 in Table 4) and for the triple interaction among cash flow, firm size, and political connections (the equivalent of column 4 of Table 4). In these models, the interaction between cash flow and firm size is always negative, but statistically significant only in Romania and the Slovak Republic.

We now explore if different types of political connections have a differential impact on credit

constraints faced by politically connected firms. On the one hand, a firm connected to a person in national government (as opposed to a local government) might have relatively easier access to finance, potentially due to the greater influence wielded by national politicians. On the other hand, lending decisions by local banks or even lending decisions by local branches of national banks might have direct links with local political communities.[6] Our results could also be driven by the fact that a number of politically connected firms are state-owned enterprises, and, in many countries, state-owned enterprises tend to have easier access to credit.

As our data allow to identify different types of political connections, we estimate separate models for four types of connections: (i) connections with the national government (this is the most common type of connection, 58 percent of connected firms have a link with an official in the national government); (ii) connections with state governments (in our sample, 31 percent of connected firms have a connection with an official in a state government); (iii) connections with local government (6 percent of connected firms belong to this group);[7] and (iv) state-owned enterprises (3 percent of connected firms in our sample are state-owned enterprises).[8]

Table 5 shows that that there are no differences across the different types of connection. Our results suggest that political connections, irrespective of their exact nature, ease credit constraints with no clear pecking order in their impact. As before, we augment our specification in Table 5 with an interaction term that allows the correlation between cash flow and investment to vary with firm size. Table A.1 shows that our baseline findings are robust to the inclusion of this additional interactive effect. The results are also robust to augmenting the model with a triple interaction differentiating firms that are both large and politically connected (see Table A.1 in the appendix).

[6] For a discussion on German savings banks and local politics, see Markgraf and Véron (2018).

[7] PEPs connected to sub-national government comprise: senior members of the executive, legislature, judiciary, and police of sub-national governments such as provinces, states, and regions within a national government; this category includes also senior civil servants, senior government officials at sub-national level, and senior executives of sub-national level state owned enterprises. PEPs connected to local government comprise: mayors and deputy mayors of local government, senior executives of state-owned enterprises administered or owned at the local level.

[8] We code these different categories using the politically exposed person primary affiliation. See Table 5 for details. The shares indicated in the text are for the pooled sample and vary across countries. These shares add 98% as there are a few small omitted groups (international organizations, regional organizations, and non-governmental organizations) accountings for 2% of the observations.

5 Political connections and capital misallocation

So far, we have shown that connected firms are able to borrow more (they have higher leverage and face fewer credit constraints than unconnected firms). We now check whether political connections are also associated with distortion in the allocation of capital and lower economywide efficiency, as one would expect if unconnected firms are more efficient than connected firms.[9] If this is the case, we should find that, for connected firms, there is a negative correlation between leverage and marginal product of capital.

We test this hypothesis by regressing the marginal product of capital on leverage, the interaction between leverage and political connection, a set of controls, and firm and country-year fixed effects:

$$MPK_{i,s,c,t} = LEV_{i,s,c,t}(\delta + \beta PC_{i,s,c}) + \mathbf{X}_{i,s,c,t}\Gamma + \varphi_i + \xi_{c,t} + \epsilon_{i,s,c,t} \tag{3}$$

where $MPK_{i,s,c,t}$ is the marginal product of capital, $LEV_{i,s,c,t}$ is leverage, the matrix $\mathbf{X}_{i,s,c,t}$ includes firm size and age, and φ_i and $\xi_{c,t}$ are a set of firm and country-year fixed effects. In this set up, a negative value of β would suggest that, when they borrow, politically connected firms do a worse job at allocating capital with respect to unconnected firms, even after controlling for firm fixed effects.

We find that there is a negative and statistically significant correlation between leverage and the marginal return to capital, indicating that the average firm with access to credit does not allocate its capital well (column 1 of Table 6). What is interesting for our purposes is that β is also negative and about three times as large as δ. While the coefficient is not statistically significant, this result is consistent with the idea that connected firms that increase their leverage tend to decrease the efficiency of their investment more than in unconnected firms. Column 2 of Table 6 shows that we obtain similar results if, instead of focusing on the marginal product of capital, we look at returns on assets (ROA).

Note that the computation of the marginal product of capital for Russian firms is far from perfect because of data limitations.[10] In columns 3 and 4 of Table 6, we estimate the same model

[9] Table 3 shows that connected firms are less profitable and have lower marginal product of capital

[10] Several issues affect the calculation of value added in the Russian Federation. First, data on wages are largely missing. We replace missing values with the average (at the year-main section NACE level) wages for the period 2008-2013. This is clearly an imprecise way to measure wage costs at the firm level, so measurement error becomes a serious concern. Second, data on depreciation and amortization are also largely missing, so we cannot compute EBITDA

as the first two columns by dropping the Russian Federation from the sample and obtain similar results.

To probe further, we also estimate if political connections are particularly useful for poorly performing firms. We test the idea that political connections distort capital allocation by estimating the following model:

$$\begin{aligned} I_{i,s,c,t} = \alpha I_{i,s,c,t-1} + \gamma SG_{i,s,c,t} + CF_{i,s,c,t}(\delta + \zeta MPK_{i,s,c,t} + PC_{i,s,c}(\beta + \theta MPK_{i,s,c,t})) \\ + \lambda MPK_{i,s,c,t} + \mathbf{X}_{i,s,c,t}\Gamma + \varphi_i + \xi_{c,t} + \epsilon_{i,s,c,t} \end{aligned} \tag{4}$$

where $MPK_{i,s,c,t}$ is a dummy variable identifying firms with a marginal product of capital below the 25th percentile of the country-year specific sample of firms.[11] Within this setup a positive value of λ suggests that firms with lower marginal product of capital tend to overinvest, a positive value of ζ suggests that unconnected firms with low marginal product of capital face tighter credit constraint and a negative value of θ suggests that political connections are particularly useful for firms with a low marginal product of capital. All other parameters should be interpreted as in Equation 2. The results of columns 1 and 3 of Table 7 provide some evidence that political connections are particularly useful for firms with low capital productivity. However, while θ is always negative, it is not statistically significant at conventional confidence levels (in column 1 of Table A.2 the t-statistics associated with the parameter θ is 1.5, corresponding to a p-value of 0.13).

We also estimate Equation 4 by substituting the marginal product of capital with returns on assets (ROA). Columns 3 and 4 of Table 7 show that θ is now negative and statistically significant, indicating that political connections are particularly useful for firms with low profitability. Table A.2 in the appendix shows that the results are robust to estimating the model by classifying as low MPK and low ROA firms in the bottom half in the distribution of MPK and ROA.

5.1 Welfare analysis

So far, we saw that connected firms borrow more than unconnected firms (the leverage of connected firms is about 6.5 times higher than that of unconnected firms) and that the link going from being

and rely on EBIT.

[11] This dummy identifies firms that are in the bottom quarter of the scale of efficiency in their own country in a specific year.

a connected firm to ability to borrow is likely to be causal. We also saw that, even though they have more leverage, connected firms do not invest more than unconnected firms. Connected firms are also characterized by lower levels of profitability as measured by their return on assets and less efficient investment strategies as measured by their average productivity of capital.

We now conduct a series of back-of-the-envelope calculations aimed at assessing whether the process of credit misallocation documented in the paper could have a quantitatively important effect on economic growth. It should be highlighted that these calculations are based on simple correlations. Hence, this section does not make any claim of causality.

We start with the assumption that if connected firms did not have a preferential treatment, connected and unconnected firms would have the same leverage. In fact, the leverage of connected firms should be lower, given that they are less productive and profitable than unconnected firms, but we adopt a conservative assumption of equal leverage. If this indeed is the case and if total credit remains constant, we should observe a redistribution of credit from connected to unconnected firms. The amount of this redistribution depends on the difference in leverage between connected and unconnected firms as well as on the total share of credit captured by connected firms in each economy that we study. The black bars of Figure 2(a) show that the effect would be negligible for Bulgaria, Hungary, Serbia and Slovak Republic (the bars are almost invisible in these countries), but very large for Romania and the Russian Federation (15% and 40%, respectively).

Next, we assume that this increase in leverage is translated into an increase in investment equal to the country-specific correlation between leverage and investment in our sample of unconnected firms. This correlation ranges between 7% in Serbia and 12% in the Slovak Republic (the correlation between investment and leverage in the full sample of firms is 10% and that for the full sample of connected firms is close to zero). Using this assumption, we estimate that in Romania and Russian Federation a reallocation of credit from connected to unconnected firms would lead to an increase in investment that ranges between 1.4% and 5% (see the black bars of Figure 2(b)).

Finally, we use the share of investment of GDP in our sample of countries to estimate the growth effect of this counterfactual reallocation of credit and find a potential growth effect in Romania and Russian Federation that ranges between 0.4 and one percentage points. Notice that here we are estimating a pure demand effect based of GDP accounting. If investment affects future growth and if private investment is especially effective in increasing future growth, the growth effect of credit

reallocation could be much larger.

Moreover, we have seen that connected firms tend to have low levels of profitability. It is thus possible that if banks were not under pressure to lend to these firms, they could devote more resources to unconnected and profitable firms. This could promote financial depth, and total lending to these firms could increase by more than the reduction in credit to connected firms. The grey, striped, and dotted bars of Figure 2(a) show what would happen if total credit to unconnected firms were to increase by either 3%, or 5%, or 10%, and the bars in Figures 2(b) and 2(c) of the figure plot the corresponding effects on investment and growth. The figure shows that, under the most optimistic scenario, GDP growth could increase between one-fifth of a percentage point (in Bulgaria, Hungary, Serbia and the Slovak Republic) and 1.4 percentage points (in the Russian Federation). Thus, providing suggestive evidence for the economic growth impact of the credit misallocation documented above.

6 Conclusions

Using firm-level data, we develop an empirical strategy to examine if politically connected firms have easier access to external finance than unconnected firms. We start by documenting that politically connected firms: (i) have high levels of leverage, (ii) have low levels of profitability; (iii) are less capitalized; (iv) have low marginal productivity of capital; and (v) do not invest more than unconnected firms.

The fact that connected firms have more debt, while having similar investment rates and lower marginal productivity of capital than unconnected firms, suggests that connected firms do often borrow to invest and when they do invest, they are likely to misallocate capital.

Motivated by these facts, we ask whether politically connected firms borrow more because they have easier access to credit. We test this hypothesis by checking whether connected firms are less likely to rely on their own internally generated funds for undertaking investment and find evidence in this direction. On the one hand, firms without connections must rely on their own cash flow to overcome credit constraints. These constraints are not only statistically significant, but also economically relevant. An unconnected firm able to increase its cash flow by 1 percent is also able to boost its investments by a half percentage point. This is equivalent to a remarkable 10%

increase, when compared to the average rate of investment in these economies which is about 5%. On the other hand, the benefit of the connection completely releases connected firms from the need to raise internal cash flow to finance investment, as the coefficient of the connection has the same magnitude (but opposite sign) as the coefficient of the cash flow. This result is robust across the different countries and across different types of connections; and it remains unchanged even after controlling for other firm characteristics, such as size or age, that could act to support the reduction of credit constraints.

Next, we explore the welfare implications of our findings by checking if political connections lead to misallocation of capital. We find some evidence that the negative correlation between leverage and the marginal product of capital tends to be stronger for politically connected firms and also show that low profitability firms tend to benefit the most from political connections, by experiencing disproportionally larger reductions of credit constraints.

Our findings highlight a couple of points worth of future research. Our evidence that access to credit may be a mechanism through which political connections generate an unlevel playing field does not imply that this is the only, or the most important, mechanism. It is likely that firms (or PEPs) with connections also attempt to obtain additional benefits in terms of lenient applications of laws and regulations, lower tax rates, or access to cheaper imported inputs, or protection from foreign or domestic competition, or privileged access to public procurement. Future research with access to additional data could test some of these other mechanisms and find out that the welfare costs of state capture may be much larger. A second important avenue for research is finding a source of exogenous variation of connections and thus attempting to establish causality. In the course of working on this paper, we explored whether winning an election and becoming an active PEP could have a discernable impact. However, given the short time periods sand restricted number of PEP connections in each country, our data did not have enough shifts of political power to test this. The literature (Fisman (2001)) has shown that event studies could be a fruitful approach and hopefully this could be pursued in the future.

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Tables

Table 1: Firms' distribution by country

		Number of firms	Number of observations
Bulgaria	Connected	36	155
	Not connected	22,308	75,476
Hungary	Connected	236	875
	Not connected	163,525	590,244
Romania	Connected	870	3,800
	Not connected	163,704	644,775
Russian Federation	Connected	368	1,374
	Not connected	28,304	105,910
Serbia	Connected	150	598
	Not connected	42,472	148,850
Slovak Republic	Connected	342	1,256
	Not connected	44,238	160,446

Table 2: Summary statistics

	Mean	SD	Median	Min	Max	N
	Full sample					
Investment_t	0.057	0.46	0.014	-81.3	405.5	1,733,759
Capitalization	0.509	0.33	0.503	0.0	97.1	1,733,227
Sales growth	0.082	0.77	-0.045	-0.9	6.6	1,733,759
Cash flow	0.202	0.56	0.122	0.0	333.1	1,733,759
Leverage	0.127	0.21	0.008	0.0	44.9	1,732,830
Returns to capital	-74.708	0.22	-74.714	-100.0	100.0	1,673,710
ROA	0.122	0.17	0.059	-1.0	1.0	1,723,469
Large	0.022	0.15	0.000	0.0	1.0	1,733,759
Age	1.148	0.71	1.000	0.1	10.0	1,733,759
Local Government	0.000	0.02	0.000	0.0	1.0	1,733,759
State Government	0.001	0.04	0.000	0.0	1.0	1,733,759
National Government	0.003	0.05	0.000	0.0	1.0	1,733,759
State Enterprise	0.000	0.01	0.000	0.0	1.0	1,733,759
Returns to capital below median	0.496	0.50	0.000	0.0	1.0	1,673,710
Returns to capital below 25^th pctl	0.243	0.43	0.000	0.0	1.0	1,673,710
ROA below median	0.500	0.50	0.000	0.0	1.0	1,723,469
ROA below 25^th pctl	0.250	0.43	0.000	0.0	1.0	1,723,469

Only connected firms						
Investment$_t$	0.049	0.29	0.015	-21.0	1.5	8,058
Capitalization	0.498	0.29	0.481	0.0	2.5	8,058
Sales growth	0.084	0.79	-0.038	-0.9	6.6	8,058
Cash flow	0.156	0.26	0.091	0.0	11.2	8,058
Leverage	0.163	0.22	0.048	0.0	2.2	8,058
Returns to capital	-74.711	0.06	-74.714	-74.7	-70.3	7,835
ROA	0.102	0.15	0.045	-1.0	1.0	8,035
Large	0.083	0.28	0.000	0.0	1.0	8,058
Age	1.418	0.97	1.400	0.1	10.0	8,058
Local Government	0.059	0.24	0.000	0.0	1.0	8,058
State Government	0.309	0.46	0.000	0.0	1.0	8,058
National Government	0.575	0.49	1.000	0.0	1.0	8,058
State Enterprise	0.034	0.18	0.000	0.0	1.0	8,058
Returns to capital below median	0.614	0.49	1.000	0.0	1.0	7,835
Returns to capital below 25^th pctl	0.355	0.48	0.000	0.0	1.0	7,835
ROA below median	0.548	0.50	1.000	0.0	1.0	8,035
ROA below 25^th pctl	0.287	0.45	0.000	0.0	1.0	8,035
Only non-connected firms						
Investment$_t$	0.057	0.46	0.014	-81.3	405.5	1,725,701
Capitalization	0.509	0.33	0.503	0.0	97.1	1,725,169
Sales growth	0.082	0.77	-0.045	-0.9	6.6	1,725,701
Cash flow	0.202	0.56	0.122	0.0	333.1	1,725,701
Leverage	0.127	0.21	0.008	0.0	44.9	1,724,772
Returns to capital	-74.708	0.22	-74.714	-100.0	100.0	1,665,875
ROA	0.122	0.17	0.060	-1.0	1.0	1,715,434
Large	0.022	0.15	0.000	0.0	1.0	1,725,701
Age	1.147	0.71	1.000	0.1	10.0	1,725,701
Local Government	0.000	0.00	0.000	0.0	0.0	1,725,701
State Government	0.000	0.00	0.000	0.0	0.0	1,725,701
National Government	0.000	0.00	0.000	0.0	0.0	1,725,701
State Enterprise	0.000	0.00	0.000	0.0	0.0	1,725,701
Returns to capital below median	0.495	0.50	0.000	0.0	1.0	1,665,875
Returns to capital below 25^th pctl	0.243	0.43	0.000	0.0	1.0	1,665,875
ROA below median	0.500	0.50	0.000	0.0	1.0	1,715,434

ROA below 25^th pctl	0.250	0.43	0.000	0.0	1.0	1,715,434

Investment$_t$ is $\frac{\Delta_t Fixedassets}{Totalassets}$; Capitalization is $\frac{Equity}{Totalassets}$; Sales growth is $(\frac{Sales_t}{Sales_{t-1}} - 1) * 100$; Cash flow is $\frac{Cashflow}{Totalassets}$; Leverage is $\frac{Debt}{Totalassets}$; Returns to capital are $\frac{Valueadded}{Fixedassets}$ and rescaled to range between -100 and $+100$; ROA is $\frac{EBIT}{Totalassets}$; Large is a dummy taking value 1 if a firm has at least 250 employees; Age is expressed in decades; the remaining are dummy variables.

Table 3: Political connections and firm leverage and profitability

This table reports a set of regressions where the dependent variable is either firms leverage measured as debt over total assets (column 1), firms profitability measured as return on assets (column 2), firms investment rate measured as investment over total assets (column 3), firms capitalization measured as equity over total assets (column 4), or returns to capital measured as value added over fixed assets (column 5). All regressions control for a dummy taking value one of connected firms and for 4-digit sector fixed effects and country-year fixed effects.

	(1) Leverage	(2) ROA	(3) Investment	(4) Capitalization	(5) Returns to capital
			Panel A		
Connected	0.023***	-0.019***	-0.002	-0.009	-0.002***
	(0.005)	(0.003)	(0.003)	(0.006)	(0.001)
Sector FE	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes
Mean dep. var.	0.13	0.12	0.06	0.51	-74.71
R^2	0.062	0.079	0.005	0.058	0.000
N. firms	466,434	465,309	466,553	466,552	460,148
N. observations	1,732,830	1,723,469	1,733,759	1,733,227	1,673,710
			Panel B		
Connected, excl. SOE	0.019***	-0.013***	0.003	-0.018**	-0.002***
	(0.005)	(0.003)	(0.002)	(0.008)	(0.001)
State Enterprise	-0.027	-0.005	-0.004	0.100***	0.012
	(0.021)	(0.014)	(0.007)	(0.032)	(0.018)
Age	-0.007***	-0.027***	-0.022***	0.043***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Large	0.051***	-0.008***	0.014***	-0.054***	-0.001
	(0.002)	(0.001)	(0.001)	(0.003)	(0.001)
Sector FE	Yes	Yes	Yes	Yes	Yes
Country-Year FE	Yes	Yes	Yes	Yes	Yes
Mean dep. var.	0.13	0.12	0.06	0.51	-74.71
R^2	0.063	0.090	0.006	0.066	0.000
N. firms	466,434	465,309	466,553	466,552	460,148
N. observations	1,732,830	1,723,469	1,733,759	1,733,227	1,673,710

Robust standard errors clustered at the firm level are reported in parenthesis. *** $p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Table 4: Political connections and financing constraints, baseline

This table reports a set of regressions where the dependent variable is Investment$_t$. Investment and cash flow variables are scaled by total assets. A firm is large if it has total assets for at least 100 million USD in a given year.

Investment$_{t-1}$	-0.177***	-0.177***	-0.177***	-0.177***
	(0.048)	(0.048)	(0.048)	(0.048)
Sales growth	-0.062***	-0.062***	-0.062***	-0.062***
	(0.011)	(0.011)	(0.011)	(0.011)
Cash flow	0.472**	0.472**	0.472**	0.472**
	(0.202)	(0.202)	(0.202)	(0.202)
Age	-0.085***	-0.084***	-0.079***	-0.079***
	(0.019)	(0.019)	(0.019)	(0.019)
Cash flow × Connected		-0.468**	-0.467**	-0.468**
		(0.195)	(0.194)	(0.195)
Cash flow × Large			-0.175*	-0.175*
			(0.095)	(0.097)
Cash flow × Connected × Large				0.017
				(0.148)
Country-Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Mean dep. var.	0.06	0.06	0.06	0.06
R^2	0.568	0.568	0.568	0.568
N. firms	466,553	466,553	466,553	466,553
N. observations	1,733,759	1,733,759	1,733,759	1,733,759

Robust standard errors clustered at the firm level are reported in parenthesis. *** $p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Table 5: Are financial constraints less binding for connected firms? Varying the type of connection

This table reports a set of regressions where the dependent variable is Investment$_t$. Investment and cash flow variables are scaled by total assets.

Investment$_{t-1}$	-0.177***	-0.177***	-0.177***	-0.177***
	(0.048)	(0.048)	(0.048)	(0.048)
Sales growth	-0.062***	-0.062***	-0.062***	-0.062***
	(0.011)	(0.011)	(0.011)	(0.011)
Cash flow	0.472**	0.472**	0.472**	0.472**
	(0.202)	(0.202)	(0.202)	(0.202)
Age	-0.085***	-0.085***	-0.084***	-0.085***
	(0.019)	(0.019)	(0.019)	(0.019)
Cash flow × Local Government	-0.500**			
	(0.195)			
Cash flow × State Government		-0.471**		
		(0.188)		
Cash flow × National Government			-0.470**	
			(0.197)	
Cash flow × State Enterprise				-0.372*
				(0.208)
Country-Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Mean dep. var.	0.06	0.06	0.06	0.06
R^2	0.568	0.568	0.568	0.568
N. firms	466,553	466,553	466,553	466,553
N. observations	1,733,759	1,733,759	1,733,759	1,733,759

Robust standard errors clustered at the firm level are reported in brackets. *** $p < 0.01$, **$p < 0.05$, *$p < 0.1$

Table 6: Returns to capital and credit constraints

Returns to capital is $\frac{Valueadded}{FixedAssets}$; Value added is the sum of EBITDA and wages. For almost all Russian firms, value added is the sum of EBIT and wages.

	Full sample		**Excl.the Russian Federation**	
	Returns to capital	**ROA**	**Returns to capital**	**ROA**
Leverage	-0.003***	-0.133***	-0.003***	-0.134***
	(0.001)	(0.004)	(0.001)	(0.004)
Connected × Leverage	-0.015	-0.003	-0.017	-0.009
	(0.017)	(0.020)	(0.019)	(0.022)
Age	0.004***	-0.028*	0.002***	-0.061***
	(0.001)	(0.016)	(0.000)	(0.023)
Large	0.000	0.006***	0.000	0.006***
	(0.001)	(0.002)	(0.001)	(0.002)
Country-Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Mean dep. var.	-74.71	0.12	-74.71	0.12
R^2	0.469	0.681	0.467	0.680
N. firms	446,198	463,330	419,982	434,772
N. observations	1,659,014	1,720,721	1,560,886	1,613,970

Robust standard errors clustered at the firm level are reported in parenthesis. *** $p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Table 7: Below the first quartile returns to capital and credit constraints

This table reports a set of regressions where the dependent variable is Investment$_t$. Investment and cash flow variables are scaled by total assets. Returns to capital is $\frac{Valueadded}{FixedAssets}$; Value added is the sum of EBITDA and wages. For almost all Russian firms, value added is the sum of EBIT and wages.

	Full sample		**Excl. the Russian Federation**	
Investment$_{t-1}$	-0.186***	-0.144***	-0.185***	-0.141***
	(0.051)	(0.035)	(0.054)	(0.036)
Sales growth	-0.044***	-0.048***	-0.043***	-0.047***
	(0.008)	(0.004)	(0.008)	(0.004)
Cash flow	0.325*	0.390**	0.331*	0.396**
	(0.188)	(0.156)	(0.191)	(0.158)
Age	-0.084***	-0.079***	-0.131***	-0.119***
	(0.019)	(0.019)	(0.034)	(0.033)
Large	0.018***	0.010***	0.021***	0.011***
	(0.003)	(0.003)	(0.004)	(0.003)
Cash flow × Connected	-0.309*	-0.425***	-0.320*	-0.437***
	(0.178)	(0.129)	(0.180)	(0.130)
Returns to capital below 25^th pctl	0.114***		0.123***	
	(0.028)		(0.030)	
Cash flow × Returns to capital below 25^th pctl	0.091		0.081	
	(0.133)		(0.139)	
Cash flow × Connected × Returns to capital below 25^th pctl	-0.033		-0.044	
	(0.095)		(0.100)	
ROA below 25^th pctl		-0.003		-0.003
		(0.027)		(0.028)
Cash flow × ROA below 25^th pctl		0.391		0.386
		(0.239)		(0.240)
Cash flow × Connected × ROA below 25^th pctl		-0.478***		-0.476***
		(0.161)		(0.159)
Country-Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Mean dep. var.	0.06	0.06	0.06	0.06
R^2	0.438	0.425	0.442	0.430
N. firms	446,508	463,644	420,292	435,086
N. observations	1,660,070	1,721,804	1,561,942	1,615,053

Robust standard errors clustered at the firm level are reported in parenthesis. *** $p < 0.01$, **$p < 0.05$, *$p < 0.1$.

Figure

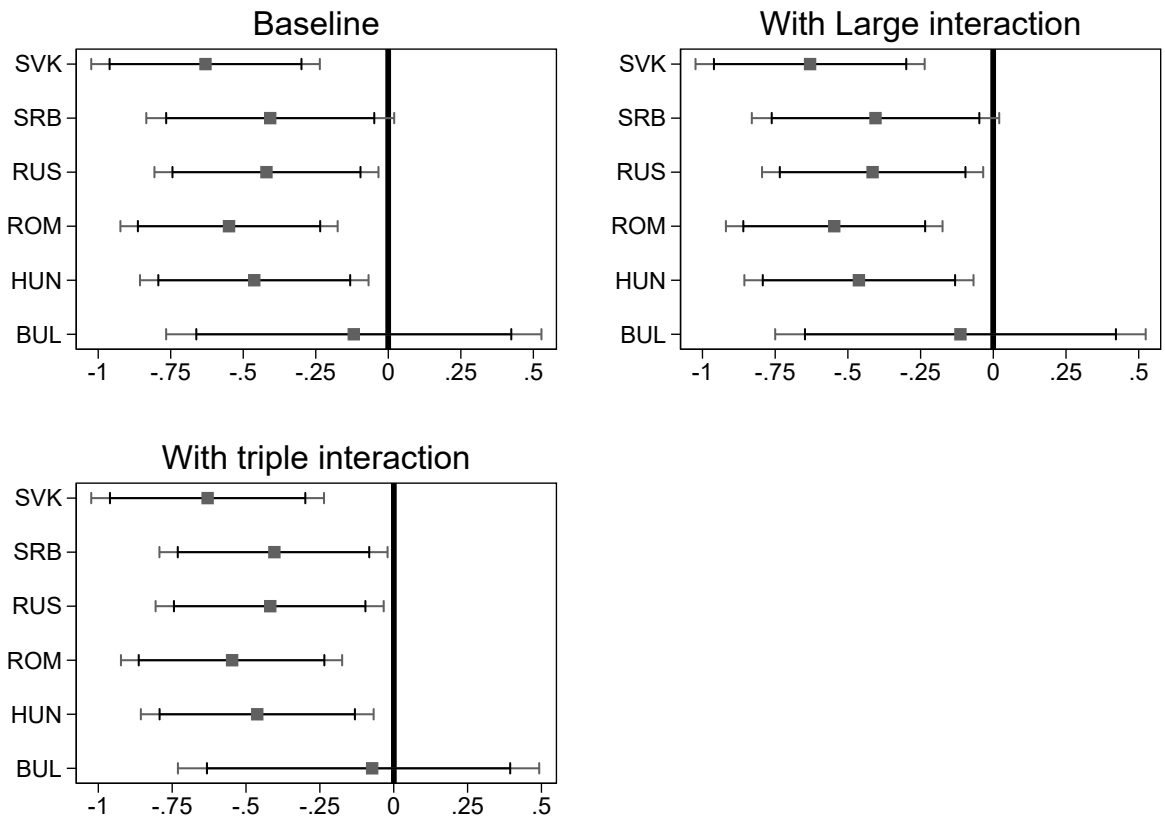
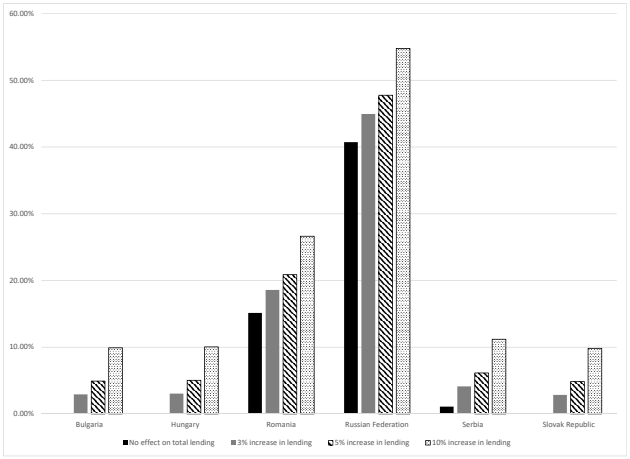
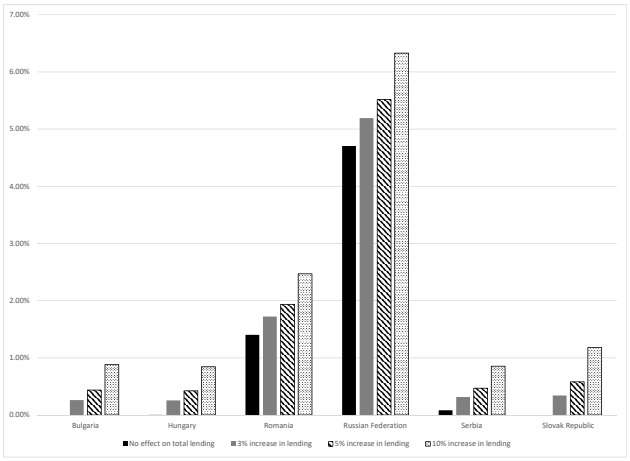


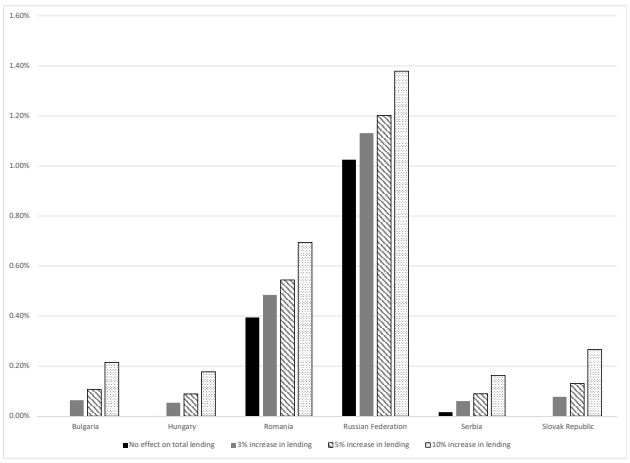
Figure 1: Political connections and financing constraints



(a) Panel A: Leverage



(b) Panel B: Investment



(c) Panel C: GDP growth

Figure 2: Counterfactual analysis

A Appendix

Table A.1: Are financial constraints less binding for connected firms? Varying the type of connection and controlling for size

This table reports a set of regressions where the dependent variable is Investment$_t$. Investment and cash flow variables are scaled by total assets. A firm is large if it has total assets for at least 100 million USD in a given year.

Investment$_{t-1}$	-0.177***	-0.177***	-0.177***	-0.177***
	(0.048)	(0.048)	(0.048)	(0.048)
Sales growth	-0.062***	-0.062***	-0.062***	-0.062***
	(0.011)	(0.011)	(0.011)	(0.011)
Cash flow	0.472**	0.472**	0.472**	0.472**
	(0.202)	(0.202)	(0.202)	(0.202)
Age	-0.080***	-0.080***	-0.079***	-0.080***
	(0.019)	(0.019)	(0.019)	(0.019)
Cash flow × Large	-0.178*	-0.178*	-0.176*	-0.178*
	(0.097)	(0.096)	(0.096)	(0.097)
Cash flow × Local Government	-0.499**			
	(0.195)			
Cash flow × State Government		-0.471**		
		(0.188)		
Cash flow × National Government			-0.469**	
			(0.197)	
Cash flow × State Enterprise				-0.371*
				(0.207)
Country-Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Mean dep. var.	0.06	0.06	0.06	0.06
R^2	0.568	0.568	0.568	0.568
N. firms	466,553	466,553	466,553	466,553
N. observations	1,733,759	1,733,759	1,733,759	1,733,759

Robust standard errors clustered at the firm level are reported in brackets. *** $p < 0.01$, **$p < 0.05$, *$p < 0.1$

Table A.2: Below the median returns to capital and credit constraints

This table reports a set of regressions where the dependent variable is Investment$_t$. Investment and cash flow variables are scaled by total assets. Returns to capital is $\frac{Valueadded}{FixedAssets}$; Value added is the sum of EBITDA and wages. For almost all Russian firms, value added is the sum of EBIT and wages.

	Full sample		**Excl. the Russian Federation**	
Investment$_{t-1}$	-0.188***	-0.141***	-0.187***	-0.138***
	(0.049)	(0.035)	(0.052)	(0.037)
Sales growth	-0.044***	-0.048***	-0.044***	-0.047***
	(0.007)	(0.003)	(0.007)	(0.003)
Cash flow	0.322*	0.437***	0.328*	0.444***
	(0.194)	(0.165)	(0.197)	(0.167)
Age	-0.085***	-0.076***	-0.127***	-0.110***
	(0.021)	(0.019)	(0.033)	(0.033)
Large	0.017***	0.011***	0.019***	0.012***
	(0.003)	(0.003)	(0.004)	(0.003)
Cash flow × Connected	-0.304*	-0.434***	-0.317*	-0.446***
	(0.177)	(0.114)	(0.179)	(0.115)
Returns to capital below median	0.118**		0.121**	
	(0.051)		(0.054)	
Cash flow × Returns to capital below median	0.231		0.261	
	(0.265)		(0.269)	
Cash flow × Connected × Returns to capital below median	-0.128		-0.147	
	(0.172)		(0.173)	
ROA below median		0.029		0.031
		(0.040)		(0.042)
Cash flow × ROA below median		0.229		0.221
		(0.253)		(0.255)
Cash flow × Connected × ROA below median		-0.503***		-0.508***
		(0.156)		(0.155)
Country-Year FE	Yes	Yes	No	No
Firm FE	Yes	Yes	No	No
Mean dep. var.	0.06	0.06	0.06	0.06
R^2	0.448	0.425	0.453	0.430
N. firms	446,508	463,644	420,292	435,086
N. observations	1,660,070	1,721,804	1,561,942	1,615,053

Robust standard errors clustered at the firm level are reported in parenthesis. *** $p < 0.01$, **$p < 0.05$, *$p < 0.1$.