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Abstract

Using a large sample of private firms over the period from 2001 to 2013, we study the effect of corruption uncertainty on corporate investments and cash holdings. We find that a higher uncertainty about the level of corruption is associated with lower corporate investments and lower cash holdings. These results are sensitive to the ownership structure of a firm. Firms with no foreign majority ownership appear to be more sensitive to corruption-induced uncertainty than majority-controlled foreign firms. They significantly decrease their investments and cash holdings. We hypothesize that they move their cash off-balance-sheet to create cash reserves as the uncertainty of when, whom, and how much to bribe increases.

JEL Classification: C33, D24, G32, L60, L80, M21

Keywords**:** corporate investment; corruption; uncertainty; cash holdings; firms; panel data; Europe

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1. Introduction

The harmful effects of corruption levels on investments are well-documented in the literature (Mauro, 1995). While the average level of corruption in a particular environment can be incorporated as an additional cost into a firm's decision-making process, uncertainty regarding the level of corruption could also have important consequences for firms' corporate policies. Building on real options theory, our paper empirically investigates the impact of corruption uncertainty on corporate investments and cash holdings.

The effects of overall economic uncertainty faced by firms has been studied extensively. Scholars employ a number of uncertainty proxies, such as volatilities of stock returns (Leahy and Whited, 1996; Bloom, Bond and Van Reenen, 2007) and exchange rates (Campa and Goldberg, 1995), input and output prices (Ghosal and Loungani, 1996), total factor productivity and measures of firm performance (Minton and Schrand, 1999) to highlight a few. However, measuring the portion of overall uncertainty attributable to corruption uncertainty is challenging. The difficulties are determined not only by the elicit nature of corrupt activities, but also by the availability of data. This paper fills this gap in the literature by constructing a corruption uncertainty measure using the Business Environment and Enterprise Performance Survey (BEEPS), which examines the quality of the business environment as determined by a wide range of interactions between firm and state.[1] Our corruption uncertainty measure reflects the variation in perception of corruption in a given environment (see section 3.1 for details). We then merge the corruption information with firm-level financial and ownership data to estimate the effect of corruption uncertainty on corporate investment and cash holdings.[2] This unique sample allows us to take advantage of two things. First, we exploit the characteristics of the panel data structure to control for firm and time fixed effects and eliminate time-invariant factors that could simultaneously cause corruption uncertainty and firm policy decisions. Second, the combination of two independent data sources helps diminish the endogeneity of the corruption uncertainty measure, given the recognized difficulties in finding exogenous variation to explain corruption.

Our analysis is based on 148,286 firm-year observations from 13 Central and Eastern European (CEE) countries from 2001 to 2013. We find evidence of a negative relationship between

[1] BEEPS is an anonymous survey of firms about local business practices created in part by the World Bank Enterprise Survey (WBS) and in part by the European Bank for Reconstruction and Development (EBRD).

[2] To ensure that the effect we are estimating is attributed to corruption uncertainty and not to the level or corruption or some other source of uncertainty, we also control for the level of corruption, judiciary uncertainty, uncertainty associated with access to financing, and general economic uncertainty.

corruption uncertainty and corporate investment. For example, a 9% increase in corruption uncertainty in a country such as the Czech Republic, which is a European Union and NATO member, may be accountable for at least a 0.63% decrease in corporate investment for an average firm over the period from 2000 to 2013. Clearly, the aggregated impact on GDP growth is not negligible, given that firm-level investments are a key driver for economic growth (Mauro 1995). This finding is in line with theoretical and empirical literature on the relations between different types of uncertainty and corporate investment (Dixit and Pindyck, 1994; Leahy and Whited, 1996; Guiso and Parigi, 1999; Bloom et al., 2007; Gulen and Ion, 2016; Kim and Kung, 2017). Interestingly, the relationship between corruption uncertainty and corporate investment is conditional on the ownership structure of the firm. While firms with no foreign majority ownership scale back their investments substantially, majority-controlled foreign firms seem to be unaffected by corruption uncertainty. One explanation is that foreign-controlled firms could be able to reach favorable agreements with local governments before entering the market. For example, concentrated foreign direct investment can exert external pressure to obtain preferential treatment against local firms.[3] This external pressure could even take the form of corrupting bureaucrats and politicians, effectively reducing the corruption uncertainty they will face in a given environment. At the same time, foreign firms are often subject to strict anti-bribery regulation[4] in their home countries, and therefore they may self-select themselves into environments with low corruption and low uncertainty about corruption. We cannot empirically distinguish between these two explanations as to why majority-controlled foreign firms are not affected by corruption uncertainty, but it is worth noting that average corruption uncertainty is significantly lower for environments in which majority-controlled foreign firms are located.[5]

Typically, a decrease in investments is accompanied by an increase in cash holdings. We therefore further study the impact of corruption uncertainty on cash holdings. Under macroeconomic uncertainty companies tend to hold more cash to protect themselves against adverse shocks (Baum, Caglayan, Ozkan and Talavera, 2006; Gao and Grinstein, 2014; Acharya, Almeida and Campello, 2013). In contrast, we find a negative relationship between corruption uncertainty and cash holdings. Firms seem to purposefully decrease their cash

[3] Kostevc, Redek and Rojec (2011) argue that competition for FDI has substantially increased in the past two decades in transition economies. This increase in competition resulted in a strong increase in provision of fiscal and financial incentives for foreign investors. Moreover, individualized treatment of major projects and individually-tailored incentive packages are available to attract the right kind of FDI that introduce new technologies, promote export, R&D activities, employment and environmentally-friendly projects.

[4] For example, the US Foreign Corrupt Practices Act, the UK Bribery Act and OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions.

[5] The summary statistics are available upon request.

holdings as corruption uncertainty increases. We hypothesize that firms are building cash reserves off their balance sheet to pay the officials if requested. This is true only for firms whose investment decision is affected by corruption uncertainty. Specifically, the negative relationship between corruption uncertainty and cash holdings is well-pronounced for firms with no foreign majority ownership, but not significant for majority-controlled foreign firms.

Our paper relates to the literature on the effects of uncertainty on corporate investment (e.g., Baum et al., 2006; Bloom, 2009; Acharya et al., 2013; Gao and Grinstein, 2014). We improve this strand of the literature by identifying a new idiosyncratic uncertainty factor, namely, corruption uncertainty that impacts a firm's investment decisions and cash holdings. We also introduce a detailed corruption uncertainty measure, which varies by country, industry, firm size, urban population size and over time. Using this specially designed measure of corruption uncertainty, we document a negative relationship between corruption uncertainty and corporate investment that complements the existing literature on the adverse effects of uncertainty on corporate investments (Dixit and Pindyck, 1994; Leahy and Whited, 1996; Bloom et al., 2007; Gulen and Ion, 2016; Kim and Kung, 2017).

Our paper also contributes to the literature on the harmful effects of corruption. Much of the literature on the effects of corruption is focused on industry and national level outcomes (Shleifer and Vishny, 1993; Mauro, 1995; Rose-Ackerman, 1999). The paper closest to ours is Malesky and Samphantharak (2008), who use a dataset of 500 Cambodian firms to investigate the effect of corruption-induced uncertainty on firm investment. We improve on this strand of the literature in several important ways. First, we have a much larger and more diverse sample of firms. The sample spans from 2001 to 2013 and contains firms operating in 13 different countries. Second, the firm financial data we use are not self-reported, but come from the Amadeus database. Third, we investigate how corruption uncertainty interferes not only with firm investment, but also with cash holdings. The result with regard to the relationship between corruption uncertainty and cash holdings is of particular interest. Higher uncertainty about corruption might involve greater need for unofficial payments to bureaucrats to conduct business. We therefore observe a decrease in cash holdings as the corruption uncertainty increases. These results demonstrate the importance of corruption uncertainty for corporate policies and, consequently, for economic growth as a whole.

This paper proceeds as follows. Section 2 develops the hypotheses. Section 3 presents the data and methodology. Section 4 contains the results. Section 5 presents additional robustness checks and section 6 concludes.

2. Hypothesis Development

Theoretical literature on the relation between uncertainty and corporate investment makes opposing predictions. One strand of the literature, building on the seminal work of Hartman (1972) and Abel (1983), argues that a risk-neutral competitive firm increases investments under greater uncertainty due to the increase in value of the marginal unit of capital. Another strand of the literature, conceived by Dixit and Pindyck (1994) examines firm investment decisions under uncertainty from the real option theory perspective. According to this theory, the threshold return that justifies an investment is higher if the investment cannot be recovered or can only be terminated at a cost, if conditions turn out to be less favorable than initially thought. Hence, higher uncertainty gives a stronger incentive for managers to postpone investments that can be delayed until more information is revealed, implying a negative relationship between investment and uncertainty.

The related empirical literature overwhelmingly supports the arguments proposed by Dixit and Pindyck (1994). Leahy and Whited (1996) find that uncertainty lowers firm investment. Bloom et al. (2007) show that uncertainty with (partial) irreversibility reduces corporate investments. Gulen and Ion (2016) find that corporate investments are lower with higher policy uncertainty in the US. Kim and Kung (2017) show that, as uncertainty increases, firms using less redeployable assets reduce investments more than firms using more redeployable assets.

We study the impact of uncertainty on firm investments from the corruption perspective.[6] Corruption has been demonstrated to have an adverse effect on investment and growth (Mauro, 1995), but the size of this negative impact seems to vary with the type of corruption regime (Shleifer and Vishny, 1993). For example, in environments where corruption is monopolized by a rent-maximizing bureaucrat, paying a bribe ensures the desirable outcome with no need to pay further bribes in the future. As there is no uncertainty about corruption, the bribe could be treated as an additional cost or tax. At the same time, in environments with numerous bureaucrats, bribing one does not guarantee that some other bureaucrat would not demand another bribe. Therefore, there is greater uncertainty over the total cost of the bribe and eventual results. Empirical literature which tests whether this corruption uncertainty affects investment is rather scarce. Wei (1997) examines the effect of corruption uncertainty on foreign direct investments using cross-national survey data and finds the relationship between them to be

[6] As for corruption, the institutional environment as well as the economic and structural policies lay the foundations to study the determinants of corruption and bribery. A good review of the literature can be found in Svensson (2005), Acemoglu, Johnson and Robinson (2005), La Porta, Lopez-de-Silanes, Shleifer and Vishny (1999) and Djankov, Glaeser, La Porta, Lopez-de-Silanes and Shleifer (2003).

negative. Moreover, Campos, Lien and Pradhan (1999) demonstrate that higher predictability (i.e., lower uncertainty about corruption) leads to higher investment as a percentage of GDP. Finally, utilizing a unique dataset of 500 Cambodian firms, Malesky and Samphantharak (2008) report that the increase in corruption uncertainty, induced by a change in governor, reduces firm investments in subsequent periods. The authors argue that the predictability of corruption is at least as important for firm investment decisions as the amount of bribes a firm must pay.

Building on the limited evidence available on the relationship between corruption uncertainty and investment, as well as on the solid empirical evidence on the relationship between uncertainty and corporate investment, we formulate the following hypothesis.

H1: *Corruption uncertainty has an adverse impact on corporate investments.*

While foreign firms can certainly be involved in corruption, we expect majority-controlled foreign firms to have, on average, much lower sensitivity than domestic firms to corruption-induced uncertainty for several reasons. First, majority-controlled firms tend to be careful when investing abroad. They typically do thorough research and even reach favorable agreements with local authorities before entering the market. These prior agreements could effectively reduce the uncertainty (including uncertainty about corruption) majority-controlled foreign firms will face in a given environment. Second, foreign firms are often subject to strict anti-bribery regulation in their home country (e.g., the US Foreign Corrupt Practices Act, the UK Bribery Act and OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions). Therefore, foreign firms, and particularly majority-controlled foreign firms, could be reluctant to engage in corruption in the host country and, consequently, will be less affected by corruption uncertainty. For example, Zeume (2017) shows that UK firms responded to the implementation of the UK Bribery Act 2010 by reducing the expansion of their subsidiary network in countries perceived to be corrupt. Their sales and M&A activity in such countries also declines. Third, multinational firms tend to follow more responsible business practices as they are more concerned about their reputation. They adopt and enforce voluntary codes of corporate conduct that contain anti-bribery provisions. Finally, lack of knowledge of the local environment may prevent foreign firms from getting involved in corruption (Calhoun, 2002; Cuervo-Cazurra, Maloney and Manrakhan, 2007; Bell, Moore and Filatotchev, 2012; Poelhekke, 2015).

Given that majority-controlled foreign firms seem to be less involved in corruption, we put forward the following hypothesis:

H2: *Corruption uncertainty has no impact on the corporate investment of majority-controlled foreign firms.*

Bates, Kahle and Stulz (2009) show that corporate cash holdings increased between 1980 and 2006 and that the precautionary theories best explain this. Firms tend to hold more cash to protect themselves against adverse shocks (Opler, Pinkowitz, Stulz and Williamson, 1999; Almeida, Campello and Weisbach, 2004; Han and Qiu, 2007). Several studies have examined cash holdings under uncertainty. Baum et al. (2006) and Gao and Grinstein (2014) find that an increase in aggregate level uncertainty is associated with higher cash holdings. Similarly, Acharya et al. (2013) report that firms facing aggregate risks prefer to hold more cash instead of opting for more expensive credit lines.

Previous studies thus predict that greater uncertainty is associated with higher cash holdings. However, under increased corruption uncertainty, it is reasonable to expect that companies would put cash aside from their balance sheet to meet bribery demands which may be requested. We therefore hypothesize the following:

H3: *Corruption Uncertainty has an adverse impact on corporate cash holdings.*

Given our hypothesis *H2* that foreign controlled firms would be less sensitive to corrupt environments, we would then expect that there is no need to adjust cash holdings. Thus, we formulate the alternative hypothesis as follows:

H4: *Corruption Uncertainty has no effect on corporate cash holdings of foreign-controlled firms.*

3. Data and Methodology

This section describes our corruption uncertainty measure construction, methodology, and sample construction.

3.1. Corruption Uncertainty Measure

Measuring the corruption uncertainty of an environment is challenging not only due to the illicit nature of corruption activities but also due to the aggregated nature of existing corruption

measures. For example, the Corruption Perception Index (CPI) provided by Transparency International measures the average level of corruption at the country level and hardly changes over time. We therefore turn to the Business Environment and Enterprise Performance Survey (BEEPS) jointly conducted by the European Bank for Reconstruction and Development (EBRD) and the World Bank. BEEPS is arguably the best dataset on corruption currently available (Svensson, 2003; Fisman and Svensson, 2007).[7]

BEEPS contains questions about the business environment that firms operate in. In particular, we extract the responses to the following question *"It is common for firms in my line of business to have to pay some irregular "additional payments or gifts" to get things done with regard to customs, taxes, licenses, regulations, services etc."* The responses are on a scale from 1 (Never) to 6 (Always), which we normalize to belong to the interval between 0 and 1. Following the logic of Bloom (2009), our corruption uncertainty measure is then constructed as the standard deviation of the answers. Specifically, we create a numerical variable [=(x-1)/6] and calculate the standard deviation of the answers in a specific local environment (or cluster). Clusters are jointly formed by survey wave, country, double-digit industry, firm size, and location size. Therefore, the *corruption uncertainty* is defined for each local environment by country and industry (2-digit ISIC rev 3.1) in the corresponding BEEPs wave (2000–2002, 2003–2005, 2006–2009, and 2010–2013), by firm size (micro, small, and medium-large firms) and urban location (capital, city with more than 1 million inhabitants, city with less than 1 million inhabitants).[8] Higher corruption uncertainty in the cluster indicates larger differences in the firms' perception of the corruption level in the given environment. These differences could spur from firms' experiences of dealing with officials.

As our corruption uncertainty measure could potentially capture other types of business environment and economic uncertainty, we further extract additional uncertainty variables from the survey. A *Judiciary uncertainty* measure is constructed as a standard deviation of normalized answers [=(x-1)/4] to the question *"Can you tell me how problematic [is the functioning of the judiciary] for the operation and growth of your business?"*, at the cluster level. This variable measures the predictability of the judicial system.

The corruption uncertainty measure may also partially capture the effect of financing constraints faced by firms. We therefore collect responses to the question *"Can you tell me how*

[7] More information about the BEEPS dataset is available in Appendix II.

[8] In comparison, the country-level indicators of corruption exhibit very little variation over time and could often be captured by country-, region- or industry-specific fixed effects, making it difficult to single out the effect of corruption.

problematic [is access to financing (e.g., collateral required) or financing not available from banks] for the operation and growth of your business?". Then, we normalize the responses to this question and calculate the standard deviation of these normalized responses at the cluster level. The resulting variable, *financing uncertainty*, measures the predictability of obtaining outside funds to grow the business.

3.2. Model

Our approach to studying the effect of corruption uncertainty on corporate investment follows the work of Asker, Farre-Mensa and Ljungqvist (2015) and Erel, Jang and Weisbach (2015) who examine the investment decisions of private companies. Specifically, we estimate the following model:

$$\begin{aligned} &Gross\ Investment_{it} \\ &\quad = \alpha_0 + \beta X_{it} + \gamma_1\ Corruption\ Uncertainty_{rt} + \gamma_2\ Judiciary\ Uncertainty_{rt} \\ &\quad +\gamma_3\ Financing\ Uncertainty_{rt} + \delta Macro_{ct} + \tau_t + f_i + \varepsilon_{it}, \end{aligned} \tag{1}$$

for all i = 1,…, N (firm index); t = 2001,…, 2013 (time index); r = 1,…, R (cluster index), c = 1,…, c = 1,…, C (country index). Here, vector X_{it} contains firm-specific control variables for firm i at time t such as firm size, profitability, leverage and sales growth.[9] *Macro* denotes a set of country-level variables, specifically, total private credit to GDP, stock market capitalization to GDP, and nominal GDP growth, to control for variation in external financing availability. The year fixed effects (τ_t) control for changing macroeconomic conditions.

To study the effect of corruption uncertainty on corporate investment, we augment the classical investment equation with uncertainty proxies. In particular, we control for $Corruption\ Uncertainty_{rt}$, $Judiciary\ Uncertainty_{rt}$ and $Financing\ Uncertainty_{rt}$ in cluster r at time t. The coefficient of interest γ_1 then captures the effect of corruption uncertainty on the investments of a firm. We also include firm fixed effects (f_i) to control for unobserved time-invariant firm heterogeneity, including the invariant mean corruption effect for each firm. Standard errors (ε_{it}) are robust to arbitrary heteroskedasticity.

To further study the impact of corruption uncertainty on cash holdings, we estimate the following model:

[9] The selection of the firm-level variables is based on a standard investment equation used in the context of private firms (see Asker et al., 2015 and Erel et al., 2015).

$$Cash\ Holdings_{it} = \alpha_0 + \beta X_{it} + \gamma_1\ Corruption\ Uncertainty_{rt} + \gamma_2\ Judiciary\ Uncertainty_{rt} + \gamma_3\ Financing\ Uncertainty_{rt} + \delta Macro_{ct} + \tau_t + f_i + \varepsilon_{it}, \quad (2)$$

where X_{it} contains firm-specific characteristics of firm *i* at time *t*, namely, firm size, profitability, leverage and sales growth. *Macro* is a vector of country-level variables (total private credit to GDP, stock market capitalization to GDP, and nominal GDP growth) that control for variation in external financing availability. All regressions include time fixed effects (τ_t). We also control for firm fixed effects f_i that capture unobserved time-invariant firm heterogeneity, including the invariant mean corruption effect for each firm. $Corruption\ Uncertainty_{rt}$, $Judiciary\ Uncertainty_{rt}$ and $Financing\ Uncertainty_{rt}$ proxy for uncertainty in cluster *r* at time *t*. Standard errors (ε_{it}) are robust to arbitrary heteroskedasticity.

Using models (1) and (2), the alternative hypotheses *H1* to *H4* formulated in Section 2 can be expressed in the following way:

H1: *Corruption Uncertainty has an adverse impact on corporate investments.*

$\gamma_1 < 0$ (the coefficient on corruption uncertainty is negative in Model 1).

H2: *Corruption Uncertainty has no impact on corporate investments of the foreign-controlled firms.*

$\gamma_1 = 0$ (the coefficient on corruption uncertainty is statistically not different from zero in Model 1 for foreign-controlled firms).

H3: *Corruption Uncertainty has an adverse impact on corporate cash holdings.*

$\gamma_1 < 0$ (the coefficient on corruption uncertainty is negative in Model 2).

H4: *Corruption Uncertainty has no effect on corporate cash holdings of the foreign-controlled firms.*

$\gamma_1 = 0$ (the coefficient on corruption uncertainty is statistically not different from 0 in Model 2 for foreign-controlled firms).

3.3. Addressing Sample Selection

In the practical estimation of the model (2) introduced in the previous section researchers are confronted with issues of sample selection bias. For example, once we expand vector X_{it} of the firm-level financial characteristics, we observe a significant drop in the number of observations. In particular, if X_{it} reflects only size effects (variables ln(*Total Assets*) and ln(*Total Assets*)^2) the resulting number of observations is equal to 148,286, while if we also include a standard set of variables used in an investment equation (e.g., profitability, sales growth, and leverage), the sample size drops to 101,641. In percentage terms, we should control for about 31 percent attrition to be sure that the results are not driven by the availability of data. To account for potential sample selection bias, we apply Heckman's (1976) two-step procedure, modified for use with panel data by Wooldridge (1995).[10] The procedure is a straightforward modification of the original Heckman (1979) approach. We simply estimate a series of year-specific probits, construct inverse Mills ratios, and append them into one variable (IMR), then use this IMR variable in the main model (2). Our selection equation is based on the following specification:

$$Non\text{-}missing_{it} = \delta_0 + \delta_1 \ln(FIAS) + \delta_2 \ln(TFAS) + \sum_j \eta_j \, [country = j] + \sum_k \theta_k \, [industry = k] + \sum_l \vartheta_l \, [emplgroup = l] + u_{it}. \quad (3)$$

We estimate equation (3) for each year, i.e., t = 2001,…, 2013. In the probit model (3) variable *FIAS* stands for the fixed assets, *TFAS* denotes tangible fixed assets; we also include the full set of country dummies, industry dummies and dummies for the size of the firm as measured by the number of employees (micro, small, medium and large) to control for non-missing values due to different structure of assets, industry and country reporting standards, and the effect of company size measured by its employment (BEEPS classification).

[10] For the sake of simplicity Wooldridge (1995) assumes normality in the selection equation, but allows these errors to display arbitrary serial correlation and unconditional heteroskedasticity. Let us note that the main assumption for identification (the conditional mean independence assumptions) are much weaker than a set of assumptions on the joint distribution of the time-constant unobservables and the idiosyncratic errors made by other authors, (see Wooldridge, 1995 for more details). In addition, in our case – given the large sample size, asymptotic normality arising as a result of the central limit theorem makes the original normality assumption redundant.

Finally, the specifications (1) and (2) are modified by adding the variable IMR, which corresponds to the inverse Mills ratio assembled from the year-by-year probit regressions. This results in the following specifications:

$$Gross\ Investment_{it} = \alpha_0 + \beta X_{it} + \gamma_1\ Corruption\ Uncertainty_{rt} + \gamma_2\ Judiciary\ Uncertainty_{rt} + \gamma_3\ Financing\ Uncertainty_{rt} + \delta Macro_{ct} + \chi_1 IMR_{it} + \tau_t + f_i + \varepsilon_{it} \quad (1')$$

and

$$Cash\ Holdings_{it} = \alpha_0 + \beta X_{it} + \gamma_1\ Corruption\ Uncertainty_{rt} + \gamma_2\ Judiciary\ Uncertainty_{rt} + \gamma_3\ Financing\ Uncertainty_{rt} + \delta Macro_{ct} + \chi_2 IMR_{it} + \tau_t + f_i + \varepsilon_{it}. \quad (2')$$

All interpretations of parameters remain the same, the significance of χ_1 and χ_2 is also a test of the sample selection bias in the original specification (1) and (2), respectively.

3.4. Data and Sample Construction

The data used in the empirical analysis come from different sources. The uncertainty measures, namely, *Corruption uncertainty*, *Judiciary uncertainty*, and *Financing uncertainty* are constructed from BEEPS as described in section 3.1.[11] These uncertainty measures are constructed for specific clusters (local environments), where clusters are jointly formed by survey wave, country, double-digit industry, firm size, and location size. Clusters are then populated by firms from the Amadeus database, maintained by Bureau van Dijk.[12] As a result, each cluster contains firms operating in the same country and industry (2-digit ISIC rev 3.1) in the corresponding time period (2000–2002, 2003–2005, 2006–2009, and 2010–2013), and which are also similar by size (micro, small, and medium-large firms) and located in the urban

[11] Detailed survey information is available at http://ebrd-beeps.com/about/

[12] Although the corruption measure provided by BEEPS is superior to country-level corruption measures, and is accompanied by a quantification of the obstacles faced by a firm, the firm financial and accounting information, which is also part of the survey, is not fully reliable. Surveyed firms are often reluctant to reveal their financial records. For example, about 40% of firms covered by BEEPS do not report their financial information. All studies that rely on firm financial data from BEEPS suffer from this selection bias. Therefore, merging BEEPS to the Amadeus database helps us to overcome this problem and obtain financial and ownership information for firms that is not self-reported.

area of comparable size (capital, city with more than 1 million inhabitants, city with less than 1 million inhabitants). This approach ensures that we have detailed information on corruption uncertainty as well as detailed financial and ownership information for each firm in our sample. Combining two independent data sources also reduces potential endogeneity problems arising from the same firms reporting their financials and their perception of the corruption level (e.g., the worst-performing firms might have an incentive not to report or misreport their financial information, but to complain the most about corruption (Jensen et al., 2010)).

Following prior literature working with the Amadeus database, we use unconsolidated financial statements to avoid double counting firms and subsidiaries or operations abroad and exclude firms that report only consolidated statements. We also exclude the financial intermediation sector and insurance industries (NACE codes 64–66), which have a different balance sheet and specific liability structure. Firm-level variables are defined as follows. *Gross Investment* is calculated as fixed assets (FIAS) minus lagged fixed assets plus depreciation (DEPRE) and then scaled by total assets. Firm size, denoted as *Ln(Total Assets),* is the natural logarithm total assets (TOAS) in million USD. *Cash Holdings* is calculated as cash and other marketable securities (CASH) divided by total assets (TOAS). *Profitability* is calculated as EBITDA scaled by total assets (TOAS). *Sales Growth* is sales (TURN) minus lagged sales scaled by lagged sales. *Leverage* is calculated as long-term debt (LTDB) + current liabilities (CULI), scaled by total assets (TOAS).

Country-level variables are extracted from the Global Financial Development Database (GFDD). In our analysis, we use *Private Credit*/*GDP* defined as private credit scaled by GDP, where private credit is the deposit by money banks and other financial institutions; *Market Cap*/*GDP* is the ratio of the value of listed shares on the national stock exchange divided by GDP; and *GDP Growth* is the annual percentage nominal growth rate of GDP denominated in the local currency.

Finally, *Economic uncertainty* is proxied by monthly stock market volatility for each country in the sample. The information on stock market indices is collected from a number of sources. Czech (PX) and Slovak (SAX) stock market indices were obtained from the respective stock market exchange websites. The stock market index information for Latvia (OMXR) and Estonia (OMXT) come from Nasdaq. The rest of the stock market indices; Slovenia (SBITOP), Bosnia and Herzegovina (BIFXX), Croatia (CROBEX), Bulgaria (SOFIX), Hungary (BUX), Poland (WIG), Romania (BET), Serbia (BELEXLIN), and Ukraine (UX), were obtained from Bloomberg.

The final sample contains 148,286 firm-year observations. The descriptive statistics are reported in Table 1. Panel A provides the summary statistics for each of the variables. The mean gross investments is about 7.3% and the median is 3.3%. About 5% of firms in the sample operate in environments with no corruption uncertainty. There are fewer observations on cash holdings (139,712), and even fewer on profitability, sales growth, and leverage (about 101,000 observations). The mean company has a positive profitability of 5.1% and leverage of about 56%. Panel B depicts the number of observations by industry. The largest number of observations comes from manufacturing, 74 597, and the second largest industry group are wholesale and retail with 33,467 observations. Panel C shows the number of observations by country and year. The sample covers 13 countries; Bosnia and Herzegovina (BA), Bulgaria (BG), Czech Republic (CZ), Estonia (EE), Croatia (HR), Hungary (HU), Latvia (LV), Poland (PL), Romania (RO), Serbia (RS), Slovenia (SI), Slovakia (SK), and Ukraine (UA). Romania has the highest number of observations, 44 782, while Latvia has the lowest, 114. The sample spans the period from 2001 to 2013 with the highest coverage in 2009.

(Insert Table 1 here)

4. Results

This section contains the results and explains them with respect to the stated hypotheses.

4.1. Uncertainty and Corporate Investments (Hypothesis 1 and 2)

Table 2, Panel A presents results estimated on the full sample. The estimated coefficient of corruption uncertainty is negative and statistically significant in all models (1- 8). The increase in uncertainty about the corruption level results in a decrease in corporate investment. The highest coefficient, 0.05, comes from the most parsimonious model (1) and the lowest from the full model (8). This finding confirms the alternative hypothesis H1 which states that corruption uncertainty has an adverse effect on corporate investments.

Models (1) to (4) control at the firm-level for the effect of the firm size only. Models (5) through (8) account for additional firm characteristics which pertain to the investment opportunity set. These characteristics are profitability, sales growth and leverage. Estimated coefficients are of the expected sign, i.e., higher profitability and sales growth are associated with higher investments, and higher leverage is associated with lower investment. We also control for macroeconomic factors in all models.

In addition to corruption uncertainty, we further control for judiciary uncertainty and financing uncertainty. In line with our expectations, judiciary uncertainty is negatively related to investment (see models (2), (4), (6) and (8)). The higher uncertainty concerning the functioning of the judiciary introduces uncertainty about the future that could hinder firm investment. Firms could also hold back their investments when they are facing financing constraints. Our corruption uncertainty measure could partially capture this effect. We therefore control for a financing uncertainty variable that proxies for the predictability in obtaining funds. Not surprisingly, the effect of the financing uncertainty is negative and highly statistically significant in models (3), (4), and (7). The higher uncertainty in securing financing is associated with lower firm investment. This variable loses its significance in the full model (8).

Overall, all our uncertainty measures are negatively related to firm level investment. High dispersion in the perception of corruption creates an environment in which the deployment of real capital is scaled down. Investment hesitation is also magnified when the effectiveness of the judicial system is increasingly difficult to predict and when the availability of funds is uncertain.

(Insert Table 2 here)

In Table 3, we investigate how the effect of corruption uncertainty is mediated by different owners. We differentiate between firms with and without foreign majority ownership, panels B and A respectively.

The results obtained from the subsample of firms without foreign majority ownership are comparable to the results obtained from the full sample. The effect of corruption uncertainty on firm investment is statistically significant in all models, with coefficients ranging from -0.053 in model (3) to -0.028 in models (5) and (6). Further, the estimated effects of judiciary uncertainty and financing uncertainty are similar to those reported in Table 2. The coefficients are negative and statistically significant, implying that higher uncertainty results in lower investments. All control variables have the expected signs and significance levels.

Panel B of Table 3 presents the results obtained on the subsample of majority-controlled foreign firms. Notably, the coefficient for corruption uncertainty is no longer significant in all models. These results confirm our alternative hypothesis *H2* that corruption uncertainty has no impact on corporate investments of majority-controlled foreign firms. Judiciary uncertainty and financing uncertainty are also no longer significant. Taken together, majority-controlled foreign firms are not affected by the local business environment uncertainties. To some extent this result

is expected as majority-controlled foreign firms attempt to calculate and settle the potential uncertainties with the local government agencies and officials before entering the market. Foreign firms also have an option to settle their contracts in their home-based judiciary system, and hence are much less sensitive to the local judiciary uncertainty. Moreover, they are less sensitive to financing uncertainty as they could always obtain financing from their parent companies abroad. Finally, majority-controlled foreign firms could self-select themselves into environments characterized by low corruption uncertainty. We find some support for this conjecture as the average corruption uncertainty is significantly lower for environments in which majority-controlled foreign firms are located.[13]

(Insert Table 3 here)

4.2. Uncertainty and Cash Holdings (Hypothesis 3 and 4)

Table 4 shows the impact of corruption uncertainty on cash holdings. As in the previous specifications, models (1) to (4) control only for the size effects at the firm level, and macroeconomic conditions. Models (5) to (8) also include such firm-level variables as profitability, sales growth and leverage. We find a negative significant relationship between corruption uncertainty and cash holdings. While the existing literature demonstrates that higher uncertainty is associated with higher cash holdings, the relationship we find is inverse. Under increased corruption uncertainty, companies are likely to put cash aside from their balance sheet to meet bribery demands if they are requested. The estimated coefficient ranges between -0.016 and -0.017 in models (1) to (8) and all coefficients are significant at least at the 5% levels. This confirms our alternative hypothesis *H3*.

The additional uncertainty measures — judiciary and financing uncertainty — are not related to cash holdings. The financing uncertainty is only important for the investment decision but there is no clear relationship observed with cash holdings. Similar logic applies to judiciary uncertainty, which does not seem to have any relation to cash holdings.

(Insert Table 4 here)

[13] This results are available upon request.

In Table 5, we analyze the impact of the corruption uncertainty on a firm's cash holdings depending on its ownership structure. Here we split the sample between firms with no foreign majority ownership (Panel A) and firms with foreign majority ownership (Panel B). We expect that a firm's cash holdings are only affected by corruption uncertainty if their investments are. Naturally, if firms decrease investments due to the presence of corruption uncertainty in their local business environment, cash holdings should increase. However, if cash is being used to pay officials, we would observe a decrease in cash holdings.

Panel A presents the results for firms with no foreign majority owner. The effect of the corruption uncertainty is negative and statistically significant in all models. The estimated coefficient of interest ranges between -0.015 in models (6) and (8) to -0.019 in models (2), (3) and (4). Corruption uncertainty has a negative impact on a company's cash holdings. High corruption uncertainty drains more cash from the company's balance sheet, contrary to the common belief that uncertainty should increase cash holdings. As in the full sample, we do not find that judiciary uncertainty and financing uncertainty affect cash holdings.

In panel B, we examine majority-controlled foreign firms. The corruption uncertainty variable is no longer significant. This result confirms our alternative hypothesis *H4*. Further, judiciary uncertainty and financing uncertainty are also not significant in all models. This is consistent with results reported in Table 4 and in Panel A of Table 5.

These results provide further support to the investment results. Firms affected by corruption uncertainty in their investment decisions also respond to this corruption uncertainty with lower cash holdings. These are mainly firms with no majority foreign ownership. Majority-controlled foreign firms are not sensitive to the uncertainty factors in Central and Eastern Europe.

(Insert Table 5 here)

4.3. Economic Uncertainty

One of the challenges in interpreting our main results is the possibility that the corruption uncertainty may also capture the effect of overall economic uncertainty in the country. Existing literature on the topic has primarily relied on measures of volatility as proxies for economic uncertainty. These are stock market volatility, exchange rate volatility, dispersion in firm-level earnings, industry-level earnings, total factor productivity, and the predictions of forecasters. The most popular measure of economic uncertainty among these proxies is stock market volatility, that has been demonstrated to have a strong counter-cyclical relationship with real

activity (Bloom, 2009). We therefore follow the literature and use the aggregate stock market volatility as a proxy for economic uncertainty.

Table 6 reports the results of investment regressions that control for economic uncertainty. The estimated coefficient for corruption uncertainty remains a significant predictor of corporate investment, while the sign and economic magnitude of the effect remain virtually unchanged. Note that economic uncertainty also has a negative and significant effect on corporate investments. This effect however is smaller than the effect of corruption uncertainty. Interestingly, economic uncertainty doesn't seem to have any effect on investment of majority-controlled foreign firms. We hypothesize that majority-controlled foreign firms are able to hedge macroeconomic risks much better than firms with no foreign majority ownership. This result is consistent with the argument that multinational corporations are able to shift resources across units and countries as economic conditions change (e.g., Kogut and Kulatilaka, 1994; Belenzon, Bennett and Patacconi, 2017).

(Insert Table 6 here)

We further investigate whether the relationship between corruption uncertainty and cash holdings change when economic uncertainty is controlled for. The results are summarized in Table 7. The coefficient of interest is negative and statistically significant, and the magnitude of the effect is similar to our main regressions. Further, the results by ownership type also hold. Firms with no majority foreign ownership tend to have less cash as the corruption uncertainty increases, while majority-controlled foreign firms are not sensitive to corruption uncertainty, judiciary uncertainty, financing uncertainty and overall economic uncertainty.

(Insert Table 7 here)

5. Robustness

In this section we examine the robustness of our main findings to alternative samples and controls.

Corruption level. Throughout the analysis, we have controlled for corruption uncertainty. However, it could be argued that corruption uncertainty partially captures the negative effect of the average level of corruption in a country. We therefore further test the robustness of our

results by controlling for the corruption level using the Corruption Perception Index (CPI) provided by Transparency International.

Table 8 presents our results. The coefficient estimates are similar to our main results. Specifically, in the all firms sample, the coefficient for corruption uncertainty has the same sign, significance and magnitude. It remains negative and significant in the subsample of firms with no majority foreign ownership and loses its significance in the subsample of majority-controlled foreign firms. Note that CPI is also significant and negatively related to corporate investment in the full sample and for the firms with no foreign majority ownership. Consistent with the rest of our analysis, the average level of corruption in a country, as proxied by CPI, is not significant in the subsample of majority-controlled foreign firms. Interestingly, the estimated coefficient for corruption uncertainty is slightly higher than the coefficient for CPI in all specifications and samples, suggesting that the uncertainty about the corruption level has a larger adverse effect on firm investment than the average corruption level.

(Insert Table 8 here)

Table 9 summarizes the results on the relationship between the corruption uncertainty and firm cash holdings, while controlling for the average corruption level in a country. In all three samples, the greater corruption uncertainty is associated with smaller cash holdings, though the coefficient is not significant in the subsample of majority-controlled foreign firms. The average level of corruption in a country doesn't seem to affect corporate cash holdings.

(Insert Table 9 here)

The effect of small firms. We investigate the robustness of our results by deleting the smallest firms that are likely to be the most sensitive to uncertainty. We drop the firms that have less than 22,000 USD in total assets (i.e., Ln(*Total Assets*)=10). These firms represent about 20% of the sample.

Panel A in Table 10 shows the impact of corruption uncertainty on investments for non-small firms. The coefficient for corruption uncertainty is still negative and statistically significant. The coefficient of interest is the lowest (-0.027 with the standard deviation of 0.012) in the full model (8). The results for judiciary uncertainty and financing uncertainty are in line with our main estimations – both are negatively related to firm investment, but the financing uncertainty coefficient loses its significance in the full model (8).

Panels B and C test the robustness of the main results in the subsamples of non-small firms without and with foreign control ownership, respectively. The results are consistent with our baseline models. We therefore can conclude that the results are not driven by the smallest firms, whose sensitivity to corruption uncertainty is the highest.

(Insert Table 10 here)

Finally, Table 11 reports robustness checks of the effect of corruption uncertainty on corporate cash holdings using the sample of non-small firms. Panel A employs the full sample of non-small firms. The effect of corruption uncertainty is present in all models and statistically significant at the 5% significance levels. Panels B and C differentiate between non-small firms without foreign control ownership and with foreign control ownership, respectively. The results are similar to the full sample of non-small firms and our baseline model – corruption uncertainty is negatively associated with corporate cash holdings in the subsample of firms without foreign majority control, but not significant in the subsample of majority-controlled foreign firms.

(Insert Table 11 here)

To sum up, firms operating in environments characterized by high uncertainty about the level of corruption, tend to scale back their investments and decrease cash holdings. These results are not driven by the smallest firms that tend to have higher sensitivity to uncertainty than larger firms.

6. Conclusions

In this study, we analyze the effect of corruption uncertainty on corporate investments and cash holdings. We utilize the Business Environment and Enterprise Performance Survey (BEEPS) to create an external measure of corruption uncertainty. The corruption uncertainty variable measures the variation in corruption perception in a local business environment. High dispersion in corruption perception indicates high uncertainty about the corruption level in an environment. In addition, we also control for judiciary uncertainty and financing uncertainty. We further combine the data on business environment obtained from BEEPS with the firm-level financial and ownership information available in the Amadeus database. Our final dataset

contains more than 140,000 firm level observations for 13 countries of Central and Eastern Europe for the period from 2001 to 2013.

Our results show that increasing corruption uncertainty has a negative impact on corporate investments. To ensure that our corruption uncertainty measure doesn't simply capture another type of uncertainty (e.g., economic uncertainty), we also control for judiciary uncertainty, financing uncertainty and general economic uncertainty. The result holds; higher corruption is still associated with the decrease in investment.

Our results are sensitive to ownership type. While firms without foreign majority control significantly decrease their investment when corruption uncertainty increases, majority-controlled foreign firms do not seem to be affected by uncertainty. We speculate that majority-controlled foreign firms have a freedom to self-select themselves into environments where uncertainty about the corruption level is low.

As the decrease in investment would normally be reflected in the increased cash holding, we further analyze the impact of corruption uncertainty on corporate cash holdings. Our results show that the increase in corruption uncertainty is associated with a decrease in cash holdings. This seems to be contrary to the popular belief that firms should increase cash holdings when operating under uncertainty (Opler et al., 1999; Almeida et al., 2004; Baum et al., 2006; Han and Qiu, 2007; Acharya et al., 2013; Gao and Grinstein, 2014). However, cash could be used for bribing officials. We hypothesize that companies move the cash off the balance sheet to be able to meet the demands of corrupt officials. This conjecture however is difficult to test due to the nature of the off-balance-sheet cash reserves. These results hold only for firms with no majority foreign ownership; when foreign firms are majority-controlled, firms are not sensitive to corruption uncertainty. This mirrors the results we report on the investment.

Our results have several implications. First, they suggest that uncertainty about the corruption level can be even more harmful for the firm-level investments than high corruption. Second, our results indicate that firms have different sensitivity to corruption-induced uncertainty; different firms are affected to different degrees. Notably, majority-controlled foreign firms seem to be not sensitive to uncertainty. Third, corruption uncertainty implications for firms' cash holdings open a fruitful avenue for further research. On the one hand, the decrease in cash holdings could be due to their expropriation by the majority shareholder. On the other hand, these off-balance sheet funds could be used to meet the demands of corrupt officials.

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Table 1

Summary Statistics

This table contains the summary statistics of the full sample. The financial data comes from the Amadeus database provided by the Bureau van Dijk. Firms operating in financial industries are excluded (NACE codes 64 – 66). Panel A reports the summary statistics of the explanatory variables. Panels B and C report the number of observations by industry, and by country and year, respectively. Corruption uncertainty, judiciary uncertainty and financing uncertainty are constructed from BEEPS. Variable definitions are provided in the Appendix I.

Panel A: Summary Statistics

	N	*Mean*	*Median*	*St Dev*	*p5*	*p25*	*p75*	*p95*
Gross Investment	148,286	0.073	0.033	0.173	-0.120	-0.002	0.128	0.407
Corruption Uncertainty	148,286	0.217	0.212	0.102	0.000	0.166	0.298	0.383
Judiciary Uncertainty	148,199	0.276	0.291	0.122	0.000	0.204	0.357	0.435
Financing Uncertainty	148,286	0.324	0.326	0.096	0.144	0.265	0.392	0.463
Private Credit/GDP	148,286	46.792	43.800	20.791	16.580	33.260	63.470	89.710
Market Cap/GDP	148,286	22.877	17.290	16.140	7.700	10.950	31.050	51.570
GDP Growth	148,286	2.614	3.699	5.796	-14.724	0.641	6.864	9.200
Ln(Total Assets)	148,286	-0.640	-0.651	2.312	-4.521	-2.183	.961	3.116
Ln(Total Assets)^2	148,286	5.787	2.680	8.111	0.025	0.611	7.542	22.410
Cash Holdings	139,712	0.098	0.033	0.154	0.001	0.007	0.118	0.440
Profitability	101,641	0.051	0.046	0.347	-0.279	-0.008	0.139	0.434
Sales Growth	101,641	0.605	0.086	3.970	-0.557	-0.145	0.389	2.027
Leverage	101,641	0.559	0.474	0.634	0.039	0.218	0.757	1.202

Panel B: Observations by Industry

Industry	*N*
Mining	77
Manufacturing	74,597
Construction	16,399
Wholesale and retail trade	33,467
Hotels and restaurants	17,868
Transport, storage and communications	1,794
Real estate, renting and business activities	3,376
Other service activities	708
Total	148,286

Panel C: Observations by Country and Year

Country	*N*	*Year*	*N*
BA	2,787	2001	1,933
BG	3,440	2002	2,301
CZ	9,145	2003	3,282
EE	3,873	2004	7,317
HR	5,533	2005	11,063
HU	395	2006	15,771
LV	114	2007	17,676
PL	14,148	2008	19,942
RO	44,782	2009	21,188
RS	6,546	2010	19,849
SI	7,839	2011	14,500
SK	1,516	2012	12,336
UA	48,168	2013	1,128
Total	148,286	*Total*	148,286

Table 2

Impact of Corruption Uncertainty on Corporate Investments

This shows the impact of corruption uncertainty on corporate investments. The regression model contains firm and time fixed effects with robust standard errors. The financial data comes from the Amadeus database provided by the Bureau van Dijk. We exclude firms in the financial industries sector (NACE codes 64 – 66). Corruption uncertainty, judiciary uncertainty and financing uncertainty are constructed from BEEPS. Variable definitions are provided in the Appendix I. The *Inverse Mills Ratio* controls self-selection issues when controlling for all firm characteristics (Heckman, 1979; Wooldridge 1995). [c], [b], and [a] indicate statistical significance at the 10%, 5%, and 1% levels respectively.

	Dependent Variable = Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.050[a]	-0.041[a]	-0.047[a]	-0.040[a]	-0.041[a]	-0.026[b]	-0.040[a]	-0.025[b]
	(0.010)	(0.010)	(0.010)	(0.010)	(0.012)	(0.012)	(0.012)	(0.012)
Judiciary Uncertainty		-0.057[a]		-0.050[a]		-0.100[a]		-0.098[a]
		(0.008)		(0.008)		(0.011)		(0.011)
Financing Uncertainty			-0.053[a]	-0.040[a]			-0.033[b]	-0.015
			(0.010)	(0.010)			(0.013)	(0.013)
Ln(Total Assets)	0.060[a]	0.060[a]	0.060[a]	0.060[a]	0.061[a]	0.061[a]	0.061[a]	0.061[a]
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Ln(Total Assets)^2	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability					0.011[a]	0.011[a]	0.011[a]	0.011[a]
					(0.004)	(0.004)	(0.004)	(0.004)
Sales Growth					0.002[a]	0.002[a]	0.002[a]	0.002[a]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.007[b]	-0.007[b]	-0.007[b]	-0.007[b]
					(0.003)	(0.003)	(0.003)	(0.003)
Private Credit/GDP	0.001[a]	0.001[a]	0.001[a]	0.001[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.001[a]	-0.001[a]	-0.001[a]	-0.001[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.003[a]	0.003[a]	0.003[a]	0.003[a]	-0.001[a]	-0.001[a]	-0.001[a]	-0.001[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					0.044[a]	0.045[a]	0.044[a]	0.045[a]
					(0.005)	(0.005)	(0.005)	(0.005)
Constant	0.224[a]	0.237[a]	0.245[a]	0.251[a]	0.259[a]	0.281[a]	0.271[a]	0.286[a]
	(0.007)	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.011)	(0.011)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.154	0.155	0.155	0.155	0.162	0.164	0.162	0.164
R-squared between	0.007	0.007	0.007	0.007	0.019	0.017	0.019	0.017
R-squared overall	0.028	0.028	0.028	0.028	0.032	0.031	0.032	0.031
N	148,286	148,199	148,286	148,199	101,641	101,606	101,641	101,606

Table 3

Impact of Corruption Uncertainty on Corporate Investments for Different Ownership Levels

This shows the impact of corruption uncertainty on corporate investments by ownership categories. The regression model contains firm and time fixed effects with robust standard errors. Panel A uses a subsample of firms with no foreign majority ownership, Panel B – firms with a foreign majority owner. The financial data comes from the Amadeus database provided by the Bureau van Dijk. Corruption uncertainty, judiciary uncertainty and financing uncertainty are constructed from BEEPS. Variable definitions are provided in the Appendix I. The *Inverse Mills Ratio* controls self-selection issues when controlling for all firm characteristics (Heckman, 1979; Wooldridge 1995). [c], [b], and [a] indicate statistical significance at the 10%, 5%, and 1% levels respectively.

Panel A: Firms with No Foreign Majority Ownership

	Dependent Variable = Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.056[a]	-0.046[a]	-0.053[a]	-0.044[a]	-0.046[a]	-0.028[b]	-0.045[a]	-0.028[b]
	(0.011)	(0.011)	(0.011)	(0.011)	(0.013)	(0.013)	(0.013)	(0.013)
Judiciary Uncertainty		-0.061[a]		-0.056[a]		-0.103[a]		-0.102[a]
		(0.010)		(0.010)		(0.012)		(0.012)
Financing Uncertainty			-0.049[a]	-0.036[a]			-0.027[c]	-0.010
			(0.012)	(0.012)			(0.015)	(0.015)
Ln(Total Assets)	0.061[a]	0.061[a]	0.061[a]	0.061[a]	0.064[a]	0.064[a]	0.064[a]	0.064[a]
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Ln(Total Assets)^2	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.004[a]	0.004[a]	0.004[a]	0.004[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Profitability					0.012[a]	0.012[a]	0.012[a]	0.012[a]
					(0.004)	(0.004)	(0.004)	(0.004)
Sales Growth					0.002[a]	0.002[a]	0.002[a]	0.002[a]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.007[b]	-0.007[b]	-0.007[b]	-0.007[b]
					(0.004)	(0.004)	(0.004)	(0.004)
Private Credit/GDP	0.001[a]	0.001[a]	0.001[a]	0.001[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.001[a]	-0.001[a]	-0.001[a]	-0.001[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.003[a]	0.003[a]	0.003[a]	0.003[a]	-0.001[a]	-0.002[a]	-0.001[a]	-0.002[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					-0.038[a]	-0.039[a]	-0.037[a]	-0.039[a]
					(0.006)	(0.006)	(0.006)	(0.006)
Constant	0.235[a]	0.248[a]	0.253[a]	0.260[a]	0.264[a]	0.286[a]	0.274[a]	0.290[a]
	(0.008)	(0.008)	(0.009)	(0.009)	(0.010)	(0.010)	(0.011)	(0.012)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.154	0.155	0.154	0.155	0.169	0.171	0.169	0.171
R-squared between	0.008	0.008	0.008	0.008	0.021	0.019	0.020	0.019
R-squared overall	0.029	0.029	0.029	0.029	0.035	0.034	0.035	0.034
N	129,982	129,911	129,982	129,911	91,806	91,778	91,806	91,778

Panel B: Firms with Foreign Majority Ownership

	Dependent Variable = Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.043	-0.040	-0.043	-0.042	-0.022	-0.023	-0.021	-0.021
	(0.041)	(0.041)	(0.041)	(0.041)	(0.051)	(0.052)	(0.051)	(0.052)
Judiciary Uncertainty		-0.022		-0.005		0.008		-0.005
		(0.033)		(0.034)		(0.064)		(0.066)
Financing Uncertainty			-0.052	-0.050			0.050	0.051
			(0.036)	(0.038)			(0.066)	(0.068)
Ln(Total Assets)	0.075[a]	0.075[a]	0.075[a]	0.075[a]	0.081[a]	0.081[a]	0.081[a]	0.081[a]
	(0.009)	(0.009)	(0.009)	(0.009)	(0.015)	(0.015)	(0.015)	(0.015)
Ln(Total Assets)^2	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Profitability					-0.009	-0.009	-0.008	-0.008
					(0.026)	(0.026)	(0.026)	(0.026)
Sales Growth					0.001	0.001	0.001	0.001
					(0.002)	(0.002)	(0.002)	(0.002)
Leverage					-0.035	-0.035	-0.035	-0.035
					(0.024)	(0.024)	(0.024)	(0.024)
Private Credit/GDP	-0.001	-0.001	-0.001	-0.001	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Market Cap/GDP	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.000	0.000	-0.000	-0.000	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Inverse Mills Ratio					0.047[c]	0.047[c]	0.047[c]	0.047[c]
					(0.027)	(0.027)	(0.027)	(0.027)
Constant	0.302[a]	0.307[a]	0.320[a]	0.320[a]	0.272[a]	0.270[a]	0.255[a]	0.256[a]
	(0.064)	(0.065)	(0.066)	(0.066)	(0.091)	(0.091)	(0.093)	(0.092)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.179	0.179	0.180	0.179	0.112	0.112	0.113	0.113
R-squared between	0.013	0.013	0.013	0.013	0.000	0.000	0.000	0.000
R-squared overall	0.022	0.022	0.022	0.022	0.001	0.001	0.001	0.001
N	18,304	18,288	18,304	18,288	9,835	9,828	9,835	9,828

TABLE 4

Impact of Corruption Uncertainty on Corporate Cash Holdings

This shows the impact of corruption uncertainty on corporate cash holdings. The regression model contains firm and time fixed effects with robust standard errors. The financial data comes from the Amadeus database provided by the Bureau van Dijk. We exclude firms in the financial industries sector (NACE codes 64 – 66). Corruption uncertainty, judiciary uncertainty and financing uncertainty are constructed from BEEPS. Variable definitions are provided in the Appendix I. The *Inverse Mills Ratio* controls self-selection issues when controlling for all firm characteristics (Heckman, 1979; Wooldridge 1995). [c], [b], and [a] indicate statistical significance at the 10%, 5%, and 1% levels respectively.

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.016[a]	-0.017[a]	-0.016[a]	-0.017[a]	-0.015[b]	-0.016[b]	-0.015[b]	-0.016[b]
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Judiciary Uncertainty		0.004		0.003		0.004		0.004
		(0.005)		(0.005)		(0.006)		(0.006)
Financing Uncertainty			0.002	0.001			0.004	0.002
			(0.006)	(0.006)			(0.007)	(0.007)
Ln(Total Assets)	-0.007[a]	-0.007[a]	-0.007[a]	-0.007[a]	-0.006[a]	-0.006[a]	-0.006[a]	-0.006[a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln(Total Assets)^2	-0.000[c]	-0.000[c]	-0.000[c]	-0.000[c]	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability					0.035[a]	0.035[a]	0.035[a]	0.035[a]
					(0.003)	(0.003)	(0.003)	(0.003)
Sales Growth					0.000[a]	0.000[a]	0.000[a]	0.000[a]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.001	-0.001	-0.001	-0.001
					(0.002)	(0.002)	(0.002)	(0.002)
Private Credit/GDP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.000	-0.000	-0.000	-0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.000[a]	0.000[a]	0.000[a]	0.000[a]	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					0.000	0.000	0.000	0.000
					(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.093[a]	0.092[a]	0.092[a]	0.091[a]	0.084[a]	0.083[a]	0.083[a]	0.082[a]
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.004	0.004	0.004	0.004	0.019	0.019	0.019	0.019
R-squared between	0.062	0.061	0.062	0.061	0.097	0.095	0.096	0.095
R-squared overall	0.049	0.048	0.049	0.048	0.093	0.092	0.093	0.092
N	139,712	139,626	139,712	139,626	94,963	94,928	94,963	94,928

TABLE 5

Impact of Corruption Uncertainty on Corporate Cash Holdings for Different Ownership Levels

This shows the impact of corruption uncertainty on corporate cash holdings. The regression model contains firm and time fixed effects with robust standard errors. Panel A reports the result for firms with no foreign majority ownership and Panel B reports the results for majority-controlled foreign firms. The financial data comes from the Amadeus database provided by the Bureau van Dijk. We exclude firms in the financial industries sector (NACE codes 64 – 66). Corruption uncertainty, judiciary uncertainty and financing uncertainty are constructed from BEEPS. Variable definitions are provided in Appendix I. The *Inverse Mills Ratio* controls self-selection issues when controlling for all firm characteristics (Heckman, 1979; Wooldridge 1995). [c], [b], and [a] indicate statistical significance at the 10%, 5%, and 1% levels respectively.

Panel A: Firms with No Foreign Majority Ownership

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.018[a]	-0.019[a]	-0.019[a]	-0.019[a]	-0.016[b]	-0.015[b]	-0.016[b]	-0.015[b]
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.007)
Judiciary Uncertainty		0.002		0.001		-0.001		-0.002
		(0.005)		(0.005)		(0.006)		(0.006)
Financing Uncertainty			0.004	0.004			0.005	0.005
			(0.007)	(0.007)			(0.007)	(0.007)
Ln(Total Assets)	-0.007[a]	-0.007[a]	-0.007[a]	-0.007[a]	-0.007[a]	-0.007[a]	-0.006[a]	-0.007[a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln(Total Assets)^2	-0.001[b]	-0.001[b]	-0.001[b]	-0.001[b]	0.000	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability					0.033[a]	0.033[a]	0.033[a]	0.033[a]
					(0.003)	(0.003)	(0.003)	(0.003)
Sales Growth					0.000[b]	0.000[b]	0.000[b]	0.000[b]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.001	-0.001	-0.001	-0.001
					(0.002)	(0.002)	(0.002)	(0.002)
Private Credit/GDP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.000	-0.000	-0.000[c]	-0.000[c]	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.000[b]	0.000[b]	0.000[b]	0.000[b]	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					-0.000	-0.000	-0.000	-0.000
					(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.093[a]	0.093[a]	0.092[a]	0.092[a]	0.084[a]	0.084[a]	0.082[a]	0.082[a]
	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.003	0.003	0.003	0.003	0.020	0.020	0.020	0.020
R-squared between	0.051	0.051	0.051	0.051	0.095	0.095	0.095	0.095
R-squared overall	0.044	0.043	0.044	0.043	0.093	0.094	0.093	0.093
N	121,869	121,799	121,869	121,799	85,401	85,373	85,401	85,373

Panel B: Firms with Foreign Majority Ownership

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.004	-0.002	-0.004	-0.003	-0.004	-0.003	-0.005	-0.004
	(0.026)	(0.026)	(0.026)	(0.026)	(0.035)	(0.035)	(0.035)	(0.036)
Judiciary Uncertainty		-0.021		-0.015		-0.013		-0.008
		(0.022)		(0.023)		(0.043)		(0.044)
Financing Uncertainty			-0.022	-0.016			-0.022	-0.020
			(0.024)	(0.025)			(0.043)	(0.044)
Ln(Total Assets)	-0.018[a]	-0.018[a]	-0.018[a]	-0.018[a]	-0.002	-0.002	-0.002	-0.002
	(0.006)	(0.006)	(0.006)	(0.006)	(0.012)	(0.012)	(0.012)	(0.012)
Ln(Total Assets)^2	0.001	0.001	0.001	0.001	-0.002	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Profitability					0.040	0.040	0.040	0.040
					(0.031)	(0.031)	(0.031)	(0.031)
Sales Growth					0.003[a]	0.003[a]	0.003[a]	0.003[a]
					(0.001)	(0.001)	(0.001)	(0.001)
Leverage					-0.041[c]	-0.041[c]	-0.041[c]	-0.041[c]
					(0.022)	(0.022)	(0.022)	(0.022)
Private Credit/GDP	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Market Cap/GDP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Inverse Mills Ratio					-0.003	-0.002	-0.002	-0.002
					(0.014)	(0.014)	(0.014)	(0.014)
Constant	0.079[b]	0.084[b]	0.087[b]	0.088[b]	0.117[b]	0.120[b]	0.125[b]	0.126[b]
	(0.036)	(0.036)	(0.037)	(0.037)	(0.046)	(0.049)	(0.050)	(0.051)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.011	0.011	0.011	0.011	0.034	0.034	0.034	0.034
R-squared between	0.071	0.074	0.072	0.074	0.023	0.023	0.023	0.023
R-squared overall	0.061	0.064	0.063	0.065	0.039	0.038	0.038	0.038
N	17,843	17,827	17,843	17,827	9,562	9,555	9,562	9,555

Table 6

Impact of Corruption and Economic Uncertainty on Corporate Investments

The table presents the results on the impact of corruption uncertainty on corporate investments, while controlling for economic uncertainty. The regression model contains firm and time fixed effects with robust standard errors. Panel A shows the results for all firms. Panel B shows the result for firms with no foreign majority ownership and Panel C shows the results for firms with foreign majority ownership. The financial data comes from the Amadeus database provided by the Bureau van Dijk. We exclude firms in the financial industries sector (NACE codes 64 – 66). Corruption uncertainty, judiciary uncertainty and financing uncertainty are constructed from BEEPS. Economic uncertainty is calculated as the standard deviation of the returns of the main stock market index for each country. Variable definitions are provided in Appendix I. The Inverse Mills Ratio controls self-selection issues when controlling for all firm characteristics (Heckman, 1979; Wooldridge 1995). c, b, and a indicate statistical significance at the 10%, 5%, and 1% levels respectively.

Panel A: All Firms

	Dependent Variable = Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.058[a]	-0.053[a]	-0.052[a]	-0.049[a]	-0.033[b]	-0.025[c]	-0.031[b]	-0.024[c]
	(0.011)	(0.011)	(0.011)	(0.011)	(0.014)	(0.014)	(0.014)	(0.014)
Judiciary Uncertainty		-0.038[a]		-0.022[b]		-0.079[a]		-0.074[a]
		(0.009)		(0.010)		(0.014)		(0.014)
Financing Uncertainty			-0.077[a]	-0.070[a]			-0.045[a]	-0.027[c]
			(0.011)	(0.012)			(0.016)	(0.016)
Ln(Total Assets)	0.059[a]	0.059[a]	0.059[a]	0.059[a]	0.059[a]	0.059[a]	0.059[a]	0.059[a]
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Ln(Total Assets)^2	0.003[a]	0.003[a]	0.003[a]	0.004[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Profitability					0.015[a]	0.015[a]	0.015[a]	0.015[a]
					(0.005)	(0.005)	(0.005)	(0.005)
Sales Growth					0.003[a]	0.003[a]	0.003[a]	0.003[a]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.000	-0.000	-0.000	-0.000
					(0.004)	(0.004)	(0.004)	(0.004)
Economic Uncertainty	-0.023[a]	-0.022[a]	-0.023[a]	-0.022[a]	-0.014[a]	-0.013[a]	-0.014[a]	-0.013[a]
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Private Credit/GDP	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.005[a]	0.005[a]	0.004[a]	0.004[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					-0.067[a]	-0.067[a]	-0.066[a]	-0.066[a]
					(0.006)	(0.006)	(0.006)	(0.006)
Constant	0.189[a]	0.198[a]	0.217[a]	0.219[a]	0.113[a]	0.132[a]	0.129[a]	0.141[a]
	(0.013)	(0.013)	(0.014)	(0.014)	(0.017)	(0.017)	(0.017)	(0.017)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.142	0.143	0.143	0.143	0.149	0.150	0.149	0.150
R-squared between	0.017	0.016	0.017	0.016	0.017	0.015	0.017	0.015
R-squared overall	0.030	0.030	0.030	0.030	0.028	0.027	0.028	0.027
N	122,452	122,365	122,452	122,365	79,355	79,320	79,355	79,320

Panel B: Firms with No Foreign Majority Ownership

	Dependent Variable = Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.071[a]	-0.066[a]	-0.062[a]	-0.059[a]	-0.042[a]	-0.031[c]	-0.037[b]	-0.028[c]
	(0.013)	(0.013)	(0.013)	(0.013)	(0.016)	(0.016)	(0.016)	(0.016)
Judiciary Uncertainty		-0.041[a]		-0.026[b]		-0.087[a]		-0.082[a]
		(0.011)		(0.011)		(0.016)		(0.016)
Financing Uncertainty			-0.084[a]	-0.076[a]			-0.050[a]	-0.031[c]
			(0.014)	(0.014)			(0.018)	(0.019)
Ln(Total Assets)	0.061[a]	0.061[a]	0.061[a]	0.061[a]	0.063[a]	0.063[a]	0.063[a]	0.063[a]
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
Ln(Total Assets)^2	0.004[a]	0.004[a]	0.004[a]	0.004[a]	0.005[a]	0.005[a]	0.005[a]	0.005[a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Profitability					0.018[a]	0.018[a]	0.018[a]	0.018[a]
					(0.005)	(0.005)	(0.005)	(0.005)
Sales Growth					0.002[a]	0.002[a]	0.002[a]	0.002[a]
					(0.001)	(0.001)	(0.001)	(0.001)
Leverage					0.001	0.001	0.001	0.001
					(0.004)	(0.004)	(0.004)	(0.004)
Economic Uncertainty	-0.021[a]	-0.020[a]	-0.021[a]	-0.021[a]	-0.014[a]	-0.013[a]	-0.015[a]	-0.013[a]
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Private Credit/GDP	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.005[a]	0.005[a]	0.005[a]	0.005[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					-0.066[a]	-0.066[a]	-0.065[a]	-0.065[a]
					(0.007)	(0.007)	(0.007)	(0.007)
Constant	0.177[a]	0.186[a]	0.206[a]	0.209[a]	0.103[a]	0.124[a]	0.121[a]	0.134[a]
	(0.015)	(0.015)	(0.015)	(0.015)	(0.018)	(0.019)	(0.019)	(0.019)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.138	0.138	0.139	0.139	0.156	0.158	0.157	0.158
R-squared between	0.016	0.016	0.016	0.016	0.018	0.017	0.018	0.017
R-squared overall	0.030	0.030	0.030	0.030	0.032	0.031	0.032	0.031
N	104,210	104,139	104,210	104,139	69,569	69,541	69,569	69,541

Panel C: Firms with Foreign Majority Ownership

	Dependent Variable = Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.041	-0.039	-0.041	-0.041	-0.021	-0.022	-0.020	-0.020
	(0.041)	(0.041)	(0.041)	(0.041)	(0.051)	(0.051)	(0.051)	(0.051)
Judiciary Uncertainty		-0.020		-0.002		0.013		-0.000
		(0.033)		(0.034)		(0.064)		(0.066)
Financing Uncertainty			-0.052	-0.051			0.048	0.048
			(0.036)	(0.038)			(0.064)	(0.066)
Ln(Total Assets)	0.076[a]	0.076[a]	0.076[a]	0.076[a]	0.082[a]	0.081[a]	0.082[a]	0.082[a]
	(0.009)	(0.009)	(0.009)	(0.009)	(0.015)	(0.015)	(0.015)	(0.015)
Ln(Total Assets)^2	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Profitability					-0.011	-0.011	-0.011	-0.011
					(0.029)	(0.029)	(0.029)	(0.029)
Sales Growth					0.001	0.001	0.001	0.001
					(0.002)	(0.002)	(0.002)	(0.002)
Leverage					-0.045	-0.045	-0.045	-0.045
					(0.030)	(0.030)	(0.030)	(0.030)
Economic Uncertainty	-0.005	-0.005	-0.005	-0.005	0.012	0.012	0.012	0.012
	(0.010)	(0.010)	(0.010)	(0.010)	(0.014)	(0.014)	(0.014)	(0.014)
Private Credit/GDP	-0.002[c]	-0.002[c]	-0.002[c]	-0.002[c]	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Market Cap/GDP	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	-0.000	-0.000	-0.000	-0.000	-0.002	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Inverse Mills Ratio					-0.047[c]	-0.047[c]	-0.047[c]	-0.047[c]
					(0.028)	(0.028)	(0.028)	(0.028)
Constant	0.328[a]	0.332[a]	0.346[a]	0.346[a]	0.291[a]	0.288[a]	0.275[a]	0.275[a]
	(0.065)	(0.065)	(0.066)	(0.066)	(0.093)	(0.093)	(0.093)	(0.093)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.181	0.181	0.182	0.181	0.114	0.114	0.115	0.115
R-squared between	0.014	0.013	0.014	0.014	0.001	0.001	0.001	0.001
R-squared overall	0.023	0.023	0.023	0.023	0.002	0.002	0.002	0.002
N	18,242	18,226	18,242	18,226	9,786	9,779	9,786	9,779

TABLE 7

Impact of Corruption Uncertainty and Economic Uncertainty on Corporate Cash Holdings

The table presents the results on the impact of corruption uncertainty on corporate cash holdings, while controlling for economic uncertainty. The regression model contains firm and time fixed effects with robust standard errors. Panel A shows the results for all firms. Panel B shows the result for firms with no foreign majority ownership and Panel C shows the results for firms with foreign majority ownership. The financial data comes from the Amadeus database provided by the Bureau van Dijk. We exclude firms in the financial industries sector (NACE codes 64 – 66). Corruption uncertainty, judiciary uncertainty and financing uncertainty are constructed from BEEPS. Economic uncertainty is calculated as the standard deviation of the returns of the main stock market index for each country. Variable definitions are provided in Appendix I. The Inverse Mills Ratio controls self-selection issues when controlling for all firm characteristics (Heckman, 1979; Wooldridge 1995). c, b, and a indicate statistical significance at the 10%, 5%, and 1% levels respectively.

Panel A: All Firms

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.014[b]	-0.014[b]	-0.014[b]	-0.014[b]	-0.014[c]	-0.014[c]	-0.014[c]	-0.014[c]
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
Judiciary Uncertainty		0.003		0.003		0.004		0.004
		(0.006)		(0.006)		(0.008)		(0.008)
Financing Uncertainty			0.001	0.000			0.003	0.002
			(0.007)	(0.007)			(0.009)	(0.009)
Ln(Total Assets)	-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]	-0.006[a]	-0.006[a]	-0.006[a]	-0.006[a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Ln(Total Assets)^2	-0.000	-0.000	-0.000	-0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability					0.039[a]	0.039[a]	0.039[a]	0.039[a]
					(0.004)	(0.004)	(0.004)	(0.004)
Sales Growth					0.001[b]	0.001[b]	0.001[b]	0.001[b]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.001	-0.001	-0.001	-0.001
					(0.004)	(0.004)	(0.004)	(0.004)
Economic Uncertainty	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Private Credit/GDP	-0.000[b]	-0.000[b]	-0.000[b]	-0.000[b]	-0.000[c]	-0.000[c]	-0.000[c]	-0.000[c]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.000[c]	0.000[c]	0.000[c]	0.000[c]	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					0.002	0.002	0.002	0.002
					(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.109[a]	0.108[a]	0.108[a]	0.108[a]	0.105[a]	0.104[a]	0.103[a]	0.103[a]
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.009)	(0.009)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.004	0.004	0.004	0.004	0.019	0.019	0.019	0.019
R-squared between	0.062	0.061	0.062	0.061	0.085	0.084	0.085	0.084
R-squared overall	0.045	0.044	0.045	0.044	0.087	0.086	0.087	0.086
N	116,481	116,395	116,481	116,395	74,818	74,783	74,818	74,783

Panel B: Firms with No Foreign Majority Ownership

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.016[b]	-0.016[b]	-0.017[b]	-0.016[b]	-0.014[c]	-0.013	-0.015[c]	-0.014[c]
	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)
Judiciary Uncertainty		-0.000		-0.001		-0.006		-0.007
		(0.006)		(0.006)		(0.007)		(0.007)
Financing Uncertainty			0.006	0.006			0.008	0.009
			(0.008)	(0.008)			(0.008)	(0.008)
Ln(Total Assets)	-0.007[a]	-0.007[a]	-0.007[a]	-0.007[a]	-0.006[a]	-0.006[a]	-0.006[a]	-0.006[a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Ln(Total Assets)^2	-0.001[c]	-0.001[c]	-0.001[c]	-0.001[c]	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability					0.036[a]	0.036[a]	0.036[a]	0.036[a]
					(0.004)	(0.004)	(0.004)	(0.004)
Sales Growth					0.000	0.000	0.000	0.000
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.002	-0.002	-0.002	-0.002
					(0.003)	(0.003)	(0.003)	(0.003)
Economic Uncertainty	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Private Credit/GDP	-0.000[b]	-0.000[b]	-0.000[b]	-0.000[b]	-0.000[b]	-0.000[b]	-0.000[b]	-0.000[b]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.000[c]	-0.000[c]	-0.000[c]	-0.000[c]	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.000	0.000	0.000	0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					0.003	0.003	0.003	0.003
					(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.112[a]	0.112[a]	0.110[a]	0.111[a]	0.108[a]	0.110[a]	0.105[a]	0.107[a]
	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.004	0.004	0.004	0.004	0.021	0.021	0.021	0.021
R-squared between	0.044	0.044	0.044	0.044	0.083	0.083	0.082	0.083
R-squared overall	0.037	0.036	0.036	0.036	0.085	0.085	0.085	0.085
N	98,690	98,620	98,690	98,620	65,299	65,271	65,299	65,271

Panel C: Firms with Foreign Majority Ownership

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.003	-0.001	-0.004	-0.002	-0.003	-0.002	-0.003	-0.003
	(0.026)	(0.026)	(0.026)	(0.026)	(0.036)	(0.036)	(0.036)	(0.036)
Judiciary Uncertainty		-0.021		-0.015		-0.011		-0.006
		(0.022)		(0.023)		(0.043)		(0.044)
Financing Uncertainty			-0.022	-0.016			-0.020	-0.019
			(0.024)	(0.025)			(0.043)	(0.044)
Ln(Total Assets)	-0.018[a]	-0.018[a]	-0.018[a]	-0.018[a]	-0.003	-0.003	-0.003	-0.003
	(0.006)	(0.006)	(0.006)	(0.006)	(0.013)	(0.013)	(0.013)	(0.013)
Ln(Total Assets)^2	0.001	0.001	0.001	0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Profitability					0.041	0.041	0.041	0.041
					(0.034)	(0.034)	(0.034)	(0.034)
Sales Growth					0.003[a]	0.003[a]	0.003[a]	0.003[a]
					(0.001)	(0.001)	(0.001)	(0.001)
Leverage					-0.042[c]	-0.043[c]	-0.043[c]	-0.043[c]
					(0.023)	(0.023)	(0.023)	(0.023)
Economic Uncertainty	0.001	0.001	0.001	0.001	-0.006	-0.006	-0.006	-0.006
	(0.007)	(0.007)	(0.006)	(0.007)	(0.009)	(0.009)	(0.009)	(0.009)
Private Credit/GDP	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Market Cap/GDP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Inverse Mills Ratio					-0.002	-0.001	-0.002	-0.001
					(0.014)	(0.014)	(0.014)	(0.014)
Constant	0.080[b]	0.084[b]	0.087[b]	0.089[b]	0.126[a]	0.128[b]	0.132[b]	0.133[b]
	(0.037)	(0.037)	(0.038)	(0.038)	(0.049)	(0.051)	(0.053)	(0.054)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.011	0.011	0.011	0.011	0.036	0.036	0.036	0.036
R-squared between	0.069	0.071	0.070	0.072	0.029	0.029	0.029	0.029
R-squared overall	0.059	0.062	0.061	0.063	0.046	0.046	0.046	0.046
N	17,791	17,775	17,791	17,775	9,519	9,512	9,519	9,512

TABLE 8

Impact of Corruption Uncertainty and CPI on Corporate Investments

The table presents the results on the impact of corruption uncertainty on corporate investments, while controlling for the country corruption level (proxied by CPI). The regression model contains firm and time fixed effects with robust standard errors. Panel A shows the results for all firms. Panel B shows the result for firms with no foreign majority ownership and Panel C shows the results for firms with foreign majority ownership. The financial data comes from the Amadeus database provided by the Bureau van Dijk. We exclude firms in the financial industries sector (NACE codes 64 – 66). Corruption uncertainty, judiciary uncertainty and financing uncertainty are constructed from BEEPS. Variable definitions are provided in Appendix I. The Inverse Mills Ratio controls self-selection issues when controlling for all firm characteristics (Heckman, 1979; Wooldridge 1995). c, b, and a indicate statistical significance at the 10%, 5%, and 1% levels respectively.

Panel A: All Firms

	Dependent Variable = Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.050[a]	-0.041[a]	-0.047[a]	-0.040[a]	-0.039[a]	-0.024[b]	-0.038[a]	-0.024[b]
	(0.010)	(0.010)	(0.010)	(0.010)	(0.012)	(0.012)	(0.012)	(0.012)
Judiciary Uncertainty		-0.056[a]		-0.049[a]		-0.099[a]		-0.097[a]
		(0.008)		(0.008)		(0.011)		(0.011)
Financing Uncertainty			-0.053[a]	-0.041[a]			-0.031[b]	-0.013
			(0.010)	(0.010)			(0.013)	(0.013)
Ln(Total Assets)	0.059[a]	0.059[a]	0.059[a]	0.059[a]	0.061[a]	0.060[a]	0.061[a]	0.060[a]
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Ln(Total Assets)^2	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability					0.011[a]	0.011[a]	0.011[a]	0.011[a]
					(0.004)	(0.004)	(0.004)	(0.004)
Sales Growth					0.002[a]	0.002[a]	0.002[a]	0.002[a]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.007[b]	-0.007[b]	-0.007[b]	-0.007[b]
					(0.003)	(0.003)	(0.003)	(0.003)
CPI	-0.007[a]	-0.007[a]	-0.007[a]	-0.007[a]	-0.018[a]	-0.018[a]	-0.018[a]	-0.018[a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Private Credit/GDP	0.001[a]	0.001[a]	0.001[a]	0.001[a]	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.001[a]	-0.001[a]	-0.001[a]	-0.001[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.003[a]	0.003[a]	0.003[a]	0.003[a]	-0.001[a]	-0.002[a]	-0.001[a]	-0.002[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					-0.049[a]	-0.050[a]	-0.049[a]	-0.050[a]
					(0.005)	(0.005)	(0.005)	(0.005)
Constant	0.200[a]	0.213[a]	0.221[a]	0.227[a]	0.200[a]	0.221[a]	0.211[a]	0.226[a]
	(0.009)	(0.009)	(0.010)	(0.010)	(0.011)	(0.011)	(0.012)	(0.012)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.154	0.155	0.155	0.155	0.164	0.166	0.164	0.166
R-squared between	0.007	0.007	0.007	0.007	0.018	0.017	0.018	0.017
R-squared overall	0.028	0.028	0.028	0.028	0.032	0.031	0.032	0.031
N	148,286	148,199	148,286	148,199	101,641	101,606	101,641	101,606

Panel B: Firms with No Foreign Majority Ownership

	Dependent Variable = Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.056[a]	-0.046[a]	-0.053[a]	-0.044[a]	-0.044[a]	-0.027[b]	-0.043[a]	-0.026[b]
	(0.011)	(0.011)	(0.011)	(0.011)	(0.013)	(0.013)	(0.013)	(0.013)
Judiciary Uncertainty		-0.060[a]		-0.055[a]		-0.100[a]		-0.100[a]
		(0.010)		(0.010)		(0.012)		(0.012)
Financing Uncertainty			-0.048[a]	-0.035[a]			-0.023	-0.007
			(0.012)	(0.012)			(0.015)	(0.015)
Ln(Total Assets)	0.061[a]	0.061[a]	0.061[a]	0.061[a]	0.063[a]	0.063[a]	0.063[a]	0.063[a]
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Ln(Total Assets)^2	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.004[a]	0.004[a]	0.004[a]	0.004[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Profitability					0.012[a]	0.012[a]	0.012[a]	0.012[a]
					(0.004)	(0.004)	(0.004)	(0.004)
Sales Growth					0.002[a]	0.002[a]	0.002[a]	0.002[a]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.008[b]	-0.008[b]	-0.008[b]	-0.008[b]
					(0.004)	(0.004)	(0.004)	(0.004)
CPI	-0.010[a]	-0.010[a]	-0.010[a]	-0.009[a]	-0.019[a]	-0.019[a]	-0.019[a]	-0.019[a]
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Private Credit/GDP	0.001[a]	0.001[a]	0.001[a]	0.001[a]	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.001[a]	-0.001[a]	-0.001[a]	-0.001[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.003[a]	0.003[a]	0.003[a]	0.003[a]	-0.001[a]	-0.002[a]	-0.001[a]	-0.002[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					-0.042[a]	-0.044[a]	-0.042[a]	-0.043[a]
					(0.006)	(0.006)	(0.006)	(0.006)
Constant	0.201[a]	0.214[a]	0.219[a]	0.227[a]	0.201[a]	0.224[a]	0.210[a]	0.226[a]
	(0.009)	(0.010)	(0.011)	(0.011)	(0.011)	(0.012)	(0.013)	(0.013)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.155	0.155	0.155	0.155	0.172	0.173	0.172	0.173
R-squared between	0.008	0.008	0.008	0.008	0.020	0.019	0.020	0.019
R-squared overall	0.029	0.029	0.029	0.029	0.036	0.035	0.036	0.035
N	129,982	129,911	129,982	129,911	91,806	91,778	91,806	91,778

Panel C: Firms with Foreign Majority Ownership

	Dependent Variable = Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.043	-0.040	-0.043	-0.042	-0.023	-0.024	-0.022	-0.022
	(0.041)	(0.041)	(0.041)	(0.041)	(0.051)	(0.051)	(0.051)	(0.051)
Judiciary Uncertainty		-0.019		-0.002		0.015		0.002
		(0.033)		(0.035)		(0.065)		(0.067)
Financing Uncertainty			-0.051	-0.050			0.052	0.051
			(0.036)	(0.038)			(0.066)	(0.068)
Ln(Total Assets)	0.075[a]	0.075[a]	0.075[a]	0.075[a]	0.080[a]	0.080[a]	0.080[a]	0.080[a]
	(0.009)	(0.009)	(0.009)	(0.009)	(0.015)	(0.015)	(0.015)	(0.015)
Ln(Total Assets)^2	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Profitability					-0.009	-0.009	-0.009	-0.009
					(0.026)	(0.026)	(0.026)	(0.026)
Sales Growth					0.001	0.001	0.001	0.001
					(0.002)	(0.002)	(0.002)	(0.002)
Leverage					-0.034	-0.034	-0.034	-0.034
					(0.024)	(0.024)	(0.024)	(0.024)
CPI	0.016	0.015	0.015	0.015	0.014	0.014	0.014	0.014
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Private Credit/GDP	-0.001	-0.001	-0.001	-0.001	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Market Cap/GDP	0.000	0.000	0.000	0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.001	0.001	0.000	0.000	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Inverse Mills Ratio					-0.048[c]	-0.048[c]	-0.048[c]	-0.048[c]
					(0.028)	(0.028)	(0.028)	(0.028)
Constant	0.347[a]	0.351[a]	0.364[a]	0.364[a]	0.309[a]	0.306[a]	0.292[a]	0.292[a]
	(0.068)	(0.068)	(0.070)	(0.070)	(0.094)	(0.093)	(0.095)	(0.095)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.180	0.179	0.180	0.180	0.113	0.113	0.114	0.114
R-squared between	0.013	0.013	0.013	0.013	0.000	0.000	0.000	0.000
R-squared overall	0.023	0.023	0.023	0.023	0.001	0.001	0.001	0.001
N	18,304	18,288	18,304	18,288	9,835	9,828	9,835	9,828

TABLE 9.

Impact of Corruption Uncertainty and CPI on Corporate Cash Holdings

The table presents the results on the impact of corruption uncertainty on corporate cash holdings, while controlling for the country corruption level (proxied by CPI). The regression model contains firm and time fixed effects with robust standard errors. Panel A shows the results for all firms. Panel B shows the result for firms with no foreign majority ownership and Panel C shows the results for firms with foreign majority ownership. The financial data comes from the Amadeus database provided by the Bureau van Dijk. We exclude firms in the financial industries sector (NACE codes 64 – 66). Corruption uncertainty, judiciary uncertainty and financing uncertainty are constructed from BEEPS. Variable definitions are provided in Appendix I. The Inverse Mills Ratio controls self-selection issues when controlling for all firm characteristics (Heckman, 1979; Wooldridge 1995). c, b, and a indicate statistical significance at the 10%, 5%, and 1% levels respectively.

Panel A: All Firms

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.016[a]	-0.017[a]	-0.016[a]	-0.017[a]	-0.015[b]	-0.016[b]	-0.015[b]	-0.016[b]
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Judiciary Uncertainty		0.004		0.003		0.004		0.004
		(0.005)		(0.005)		(0.006)		(0.006)
Financing Uncertainty			0.002	0.001			0.004	0.002
			(0.006)	(0.006)			(0.007)	(0.007)
Ln(Total Assets)	-0.007[a]	-0.007[a]	-0.007[a]	-0.007[a]	-0.006[a]	-0.006[a]	-0.006[a]	-0.006[a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln(Total Assets)^2	-0.000[c]	-0.000[c]	-0.000[c]	-0.000[c]	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability					0.035[a]	0.035[a]	0.035[a]	0.035[a]
					(0.003)	(0.003)	(0.003)	(0.003)
Sales Growth					0.000[a]	0.000[a]	0.000[a]	0.000[a]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.001	-0.001	-0.001	-0.001
					(0.002)	(0.002)	(0.002)	(0.002)
CPI	0.000	0.000	0.000	0.000	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Private Credit/GDP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.000	-0.000	-0.000	-0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.000[a]	0.000[a]	0.000[a]	0.000[a]	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					0.000	0.000	0.000	0.000
					(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.094[a]	0.093[a]	0.093[a]	0.093[a]	0.084[a]	0.083[a]	0.082[a]	0.082[a]
	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.006)	(0.006)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.004	0.004	0.004	0.004	0.019	0.019	0.019	0.019
R-squared between	0.061	0.060	0.061	0.060	0.097	0.096	0.097	0.096
R-squared overall	0.048	0.047	0.048	0.047	0.094	0.093	0.094	0.093
N	139,712	139,626	139,712	139,626	94,963	94,928	94,963	94,928

Panel B: Firms with No Foreign Majority Ownership

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.018[a]	-0.019[a]	-0.019[a]	-0.019[a]	-0.016[b]	-0.015[b]	-0.016[b]	-0.015[b]
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.007)
Judiciary Uncertainty		0.002		0.001		-0.002		-0.002
		(0.005)		(0.005)		(0.006)		(0.006)
Financing Uncertainty			0.004	0.004			0.005	0.005
			(0.007)	(0.007)			(0.007)	(0.007)
Ln(Total Assets)	-0.007[a]	-0.007[a]	-0.007[a]	-0.007[a]	-0.006[a]	-0.006[a]	-0.006[a]	-0.006[a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln(Total Assets)^2	-0.001[b]	-0.001[b]	-0.001[b]	-0.001[b]	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability					0.033[a]	0.033[a]	0.033[a]	0.033[a]
					(0.003)	(0.003)	(0.003)	(0.003)
Sales Growth					0.000[c]	0.000[c]	0.000[c]	0.000[b]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.001	-0.001	-0.001	-0.001
					(0.002)	(0.002)	(0.002)	(0.002)
CPI	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Private Credit/GDP	0.000	0.000	0.000	0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.000b	0.000b	0.000b	0.000b	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					0.000	0.000	-0.000	-0.000
					(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.097[a]	0.096[a]	0.095[a]	0.095[a]	0.086[a]	0.086[a]	0.084[a]	0.085[a]
	(0.005)	(0.005)	(0.006)	(0.006)	(0.005)	(0.005)	(0.006)	(0.006)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.003	0.003	0.003	0.003	0.020	0.020	0.020	0.020
R-squared between	0.048	0.047	0.047	0.047	0.093	0.093	0.092	0.093
R-squared overall	0.041	0.041	0.041	0.040	0.091	0.091	0.091	0.091
N	121,869	121,799	121,869	121,799	85,401	85,373	85,401	85,373

Panel C: Firms with Foreign Majority Ownership

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.004	-0.002	-0.004	-0.003	-0.005	-0.003	-0.005	-0.004
	(0.026)	(0.026)	(0.026)	(0.026)	(0.035)	(0.035)	(0.035)	(0.036)
Judiciary Uncertainty		-0.021		-0.015		-0.011		-0.006
		(0.022)		(0.023)		(0.043)		(0.044)
Financing Uncertainty			-0.023	-0.016			-0.022	-0.020
			(0.024)	(0.025)			(0.043)	(0.044)
Ln(Total Assets)	-0.018[a]	-0.018[a]	-0.018[a]	-0.018[a]	-0.002	-0.002	-0.002	-0.002
	(0.006)	(0.006)	(0.006)	(0.006)	(0.012)	(0.012)	(0.012)	(0.012)
Ln(Total Assets)^2	0.001	0.001	0.001	0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Profitability					0.040	0.040	0.040	0.040
					(0.031)	(0.031)	(0.031)	(0.031)
Sales Growth					0.003[a]	0.003[a]	0.003[a]	0.003[a]
					(0.001)	(0.001)	(0.001)	(0.001)
Leverage					-0.041[c]	-0.041[c]	-0.041[c]	-0.041[c]
					(0.022)	(0.022)	(0.022)	(0.022)
CPI	-0.002	-0.003	-0.003	-0.003	0.003	0.003	0.003	0.003
	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)
Private Credit/GDP	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Market Cap/GDP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Inverse Mills Ratio					-0.003	-0.003	-0.003	-0.003
					(0.014)	(0.014)	(0.014)	(0.014)
Constant	0.072[c]	0.076[c]	0.080[c]	0.080[c]	0.125[b]	0.127[b]	0.132[b]	0.132[b]
	(0.042)	(0.042)	(0.043)	(0.043)	(0.049)	(0.051)	(0.053)	(0.054)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.011	0.011	0.011	0.011	0.034	0.034	0.034	0.034
R-squared between	0.074	0.077	0.076	0.078	0.024	0.024	0.024	0.024
R-squared overall	0.064	0.067	0.066	0.068	0.040	0.040	0.040	0.040
N	17,843	17,827	17,843	17,827	9,562	9,555	9,562	9,555

TABLE 10

Impact of Corruption Uncertainty on Corporate Investments for Non-Small Firms

This shows the impact of corruption uncertainty on corporate investments for non-small firms. The regression model contains firm and time fixed effects with robust standard errors. Panel A shows the result for all non-small firms. Panel B shows the results for firms without foreign control ownership. Panel C shows the results for firms with foreign control ownership. We define non-small firms as firms with at least 22,000 USD in Total Assets; *Ln(Total Assets)* =10 . The financial data comes from the Amadeus database provided by the Bureau van Dijk. We exclude firms in the financial industries sector (NACE codes 64 – 66). Corruption uncertainty, judiciary uncertainty and financing uncertainty are constructed from BEEPS. Variable definitions are provided in Appendix I. The *Inverse Mills Ratio* controls self-selection issues when controlling for all firm characteristics (Heckman, 1979; Wooldridge 1995). [c], [b], and [a] indicate statistical significance at the 10%, 5%, and 1% levels respectively.

Panel A: All Firms

	Dependent Variable =Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.052[a]	-0.044[a]	-0.049[a]	-0.043[a]	-0.041[a]	-0.027[b]	-0.040[a]	-0.027[b]
	(0.010)	(0.010)	(0.010)	(0.010)	(0.012)	(0.012)	(0.012)	(0.012)
Judiciary Uncertainty		-0.061[a]		-0.053[a]		-0.105[a]		-0.104[a]
		(0.009)		(0.009)		(0.012)		(0.012)
Financing Uncertainty			-0.057[a]	-0.043[a]			-0.031[b]	-0.010
			(0.011)	(0.011)			(0.014)	(0.014)
Ln(Total Assets)	0.060[a]	0.060[a]	0.060[a]	0.060[a]	0.063[a]	0.063[a]	0.063[a]	0.063[a]
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Ln(Total Assets)^2	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]	0.003[a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Profitability					0.018[a]	0.018[a]	0.018[a]	0.018[a]
					(0.005)	(0.005)	(0.005)	(0.005)
Sales Growth					0.002[a]	0.002[a]	0.002[a]	0.002[a]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.012[a]	-0.011[a]	-0.012[a]	-0.011[a]
					(0.004)	(0.004)	(0.004)	(0.004)
Private Credit/GDP	0.001[a]	0.001[a]	0.001[a]	0.001[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.001[a]	-0.001[a]	-0.001[a]	-0.001[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.003[a]	0.003[a]	0.003[a]	0.003[a]	-0.001[a]	-0.001[a]	-0.001[a]	-0.001[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					-0.047[a]	-0.048[a]	-0.046[a]	-0.048[a]
					(0.005)	(0.005)	(0.005)	(0.005)
Constant	0.212[a]	0.225[a]	0.233[a]	0.239[a]	0.246[a]	0.268[a]	0.257[a]	0.271[a]
	(0.007)	(0.008)	(0.009)	(0.009)	(0.009)	(0.010)	(0.011)	(0.011)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.157	0.158	0.157	0.158	0.164	0.166	0.165	0.166
R-squared between	0.004	0.004	0.004	0.004	0.012	0.010	0.011	0.010
R-squared overall	0.026	0.026	0.026	0.026	0.028	0.027	0.028	0.027
N	135,153	135,066	135,153	135,066	91,774	91,739	91,774	91,739

Panel B: Firms with No Foreign Majority Ownership

	Dependent Variable =Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.058[a]	-0.048[a]	-0.054[a]	-0.046[a]	-0.046[a]	-0.029[b]	-0.045[a]	-0.028[b]
	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)	(0.014)	(0.013)	(0.014)
Judiciary Uncertainty		-0.067[a]		-0.061[a]		-0.112[a]		-0.111[a]
		(0.010)		(0.010)		(0.013)		(0.013)
Financing Uncertainty			-0.053[a]	-0.039[a]			-0.026[c]	-0.006
			(0.012)	(0.012)			(0.015)	(0.015)
Ln(Total Assets)	0.062[a]	0.062[a]	0.062[a]	0.062[a]	0.065[a]	0.065[a]	0.065[a]	0.065[a]
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
Ln(Total Assets)^2	0.004[a]	0.004[a]	0.004[a]	0.004[a]	0.004[a]	0.004[a]	0.004[a]	0.00[4a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Profitability					0.021[a]	0.021[a]	0.021[a]	0.021[a]
					(0.006)	(0.006)	(0.006)	(0.006)
Sales Growth					0.002[a]	0.002[a]	0.002[a]	0.002[a]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.012[b]	-0.012[b]	-0.012[b]	-0.012[b]
					(0.005)	(0.005)	(0.005)	(0.005)
Private Credit/GDP	0.001[a]	0.001[a]	0.001[a]	0.001[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.001[a]	-0.001[a]	-0.001[a]	-0.001[a]	-0.000[a]	-0.000[a]	-0.000[a]	-0.000[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.003[a]	0.003[a]	0.003[a]	0.003[a]	-0.001[a]	-0.001[a]	-0.001[a]	-0.001[a]
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					-0.038[a]	-0.040[a]	-0.038[a]	-0.040[a]
					(0.006)	(0.006)	(0.006)	(0.006)
Constant	0.219[a]	0.233[a]	0.239[a]	0.246[a]	0.247[a]	0.271[a]	0.257[a]	0.273[a]
	(0.008)	(0.008)	(0.009)	(0.009)	(0.010)	(0.010)	(0.012)	(0.012)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.156	0.157	0.157	0.157	0.172	0.174	0.172	0.174
R-squared between	0.005	0.005	0.005	0.005	0.014	0.012	0.013	0.012
R-squared overall	0.027	0.026	0.027	0.026	0.031	0.031	0.031	0.031
N	117,474	117,403	117,474	117,403	82,228	82,200	82,228	82,200

Panel C: Firms with Foreign Majority Ownership

	Dependent Variable =Gross Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.047	-0.044	-0.047	-0.046	-0.021	-0.022	-0.021	-0.020
	(0.041)	(0.041)	(0.041)	(0.041)	(0.050)	(0.051)	(0.051)	(0.051)
Judiciary Uncertainty		-0.029		-0.012		0.005		-0.010
		(0.033)		(0.035)		(0.063)		(0.065)
Financing Uncertainty			-0.056	-0.051			0.054	0.057
			(0.037)	(0.039)			(0.065)	(0.067)
Ln(Total Assets)	0.073[a]	0.073[a]	0.073[a]	0.073[a]	0.077[a]	0.077[a]	0.077[a]	0.077[a]
	(0.009)	(0.009)	(0.009)	(0.009)	(0.016)	(0.016)	(0.016)	(0.016)
Ln(Total Assets)^2	-0.000	-0.000	-0.000	-0.000	0.000	0.000	-0.000	-0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Profitability					-0.026	-0.026	-0.025	-0.025
					(0.030)	(0.030)	(0.030)	(0.030)
Sales Growth					0.002	0.002	0.002	0.002
					(0.002)	(0.002)	(0.002)	(0.002)
Leverage					-0.048	-0.048	-0.047	-0.047
					(0.030)	(0.030)	(0.030)	(0.030)
Private Credit/GDP	-0.001[c]	-0.001	-0.001[c]	-0.001[c]	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Market Cap/GDP	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.000	0.000	0.000	0.000	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Inverse Mills Ratio					-0.051[b]	-0.051[b]	-0.051[b]	-0.050[b]
					(0.025)	(0.025)	(0.025)	(0.025)
Constant	0.303[a]	0.310[a]	0.323[a]	0.324[a]	0.272[a]	0.271[a]	0.254[a]	0.256[a]
	(0.064)	(0.064)	(0.065)	(0.065)	(0.091)	(0.091)	(0.092)	(0.092)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.179	0.178	0.179	0.179	0.114	0.114	0.114	0.114
R-squared between	0.012	0.012	0.012	0.012	0.000	0.000	0.000	0.000
R-squared overall	0.022	0.022	0.022	0.022	0.001	0.001	0.001	0.001
N	17,679	17,663	17,679	17,663	9,546	9,539	9,546	9,539

TABLE 11

Impact of Corruption Uncertainty on Corporate Cash Holdings for Non-Small Firms

This shows the impact of corruption uncertainty on corporate cash holdings for non-small firms. The regression model contains firm and time fixed effects with robust standard errors. Panel A shows the result for all non-small firms. Panel B shows the results for firms without foreign control ownership. Panel C shows the results for firms with foreign control ownership. We define non-small firms as firms with at least 22,000 USD in Total Assets; *Ln(Total Assets)* =10 . The financial data comes from the Amadeus database provided by the Bureau van Dijk. We exclude firms in the financial industries sector (NACE codes 64 – 66). Corruption uncertainty, judiciary uncertainty and financing uncertainty are constructed from BEEPS. Variable definitions are provided in Appendix I. The *Inverse Mills Ratio* controls self-selection issues when controlling for all firm characteristics (Heckman, 1979; Wooldridge 1995). [c], [b], and [a] indicate statistical significance at the 10%, 5%, and 1% levels respectively.

Panel A: All Firms

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.011[b]	-0.011[b]	-0.011[b]	-0.011[b]	-0.012[b]	-0.013[b]	-0.012[b]	-0.013[b]
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Judiciary Uncertainty		0.005		0.006		0.008		0.008
		(0.005)		(0.005)		(0.006)		(0.006)
Financing Uncertainty			-0.002	-0.004			0.001	-0.001
			(0.006)	(0.006)			(0.007)	(0.007)
Ln(Total Assets)	-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln(Total Assets)^2	0.001[b]	0.001[b]	0.001[b]	0.001[b]	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability					0.043[a]	0.043[a]	0.043[a]	0.043[a]
					(0.003)	(0.003)	(0.003)	(0.003)
Sales Growth					0.000[a]	0.000[a]	0.000[a]	0.000[a]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]
					(0.002)	(0.002)	(0.002)	(0.002)
Private Credit/GDP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.000	-0.000	-0.000	-0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.000a	0.000a	0.000a	0.000a	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					-0.000	-0.000	-0.000	-0.000
					(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.083[a]	0.082[a]	0.084[a]	0.084[a]	0.079[a]	0.077[a]	0.078[a]	0.077[a]
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.005	0.005	0.005	0.005	0.020	0.020	0.020	0.020
R-squared between	0.058	0.057	0.059	0.057	0.126	0.123	0.125	0.123
R-squared overall	0.046	0.045	0.046	0.045	0.105	0.103	0.105	0.103
N	128,024	127,938	128,024	127,938	86,220	86,185	86,220	86,185

Panel B: Firms with No Foreign Majority Ownership

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	-0.013[b]	-0.014[b]	-0.013[b]	-0.014[b]	-0.011[c]	-0.011[c]	-0.012[c]	-0.011[c]
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Judiciary Uncertainty		0.003		0.003		0.002		0.002
		(0.005)		(0.005)		(0.005)		(0.005)
Financing Uncertainty			0.001	0.000			0.003	0.002
			(0.006)	(0.006)			(0.006)	(0.006)
Ln(Total Assets)	-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]	-0.008[a]
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Ln(Total Assets)^2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Profitability					0.040[a]	0.040[a]	0.040[a]	0.040[a]
					(0.003)	(0.003)	(0.003)	(0.003)
Sales Growth					0.000[c]	0.000[c]	0.000[c]	0.000[c]
					(0.000)	(0.000)	(0.000)	(0.000)
Leverage					-0.006[a]	-0.006[a]	-0.006[a]	-0.006[a]
					(0.002)	(0.002)	(0.002)	(0.002)
Private Credit/GDP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Market Cap/GDP	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.000b	0.000b	0.000b	0.000b	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inverse Mills Ratio					-0.001	-0.001	-0.001	-0.001
					(0.003)	(0.003)	(0.003)	(0.003)
Constant	0.083[a]	0.082[a]	0.082[a]	0.082[a]	0.076[a]	0.075[a]	0.075[a]	0.075[a]
	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.005	0.005	0.005	0.005	0.021	0.021	0.021	0.021
R-squared between	0.055	0.054	0.055	0.054	0.119	0.118	0.118	0.118
R-squared overall	0.045	0.045	0.045	0.045	0.102	0.102	0.102	0.102
N	110,785	110,715	110,785	110,715	76,936	76,908	76,936	76,908

Panel C: Firms with Foreign Majority Ownership

	Dependent Variable =Cash Holdings							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Corruption Uncertainty	0.004	0.007	0.004	0.006	0.001	0.002	0.001	0.001
	(0.026)	(0.026)	(0.026)	(0.026)	(0.035)	(0.035)	(0.035)	(0.036)
Judiciary Uncertainty		-0.027		-0.018		-0.012		-0.005
		(0.021)		(0.022)		(0.041)		(0.043)
Financing Uncertainty			-0.034	-0.027			-0.026	-0.024
			(0.023)	(0.025)			(0.042)	(0.043)
Ln(Total Assets)	-0.017[a]	-0.017[a]	-0.017[a]	-0.017[a]	-0.002	-0.002	-0.002	-0.002
	(0.006)	(0.006)	(0.006)	(0.006)	(0.012)	(0.012)	(0.012)	(0.012)
Ln(Total Assets)^2	0.001	0.001	0.001	0.001	-0.002	-0.002	-0.002	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Profitability					0.042	0.042	0.042	0.042
					(0.034)	(0.034)	(0.034)	(0.034)
Sales Growth					0.003[a]	0.003[a]	0.003[a]	0.003[a]
					(0.001)	(0.001)	(0.001)	(0.001)
Leverage					-0.027	-0.028	-0.028	-0.028
					(0.018)	(0.018)	(0.018)	(0.018)
Private Credit/GDP	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Market Cap/GDP	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP Growth	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Inverse Mills Ratio					-0.011	-0.011	-0.011	-0.011
					(0.014)	(0.014)	(0.014)	(0.014)
Constant	0.074[b]	0.080[b]	0.086[b]	0.087[b]	0.099[b]	0.101[b]	0.108[b]	0.108[b]
	(0.035)	(0.035)	(0.036)	(0.036)	(0.043)	(0.045)	(0.047)	(0.048)
Firm and Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared within	0.011	0.011	0.011	0.012	0.032	0.032	0.032	0.032
R-squared between	0.069	0.072	0.071	0.073	0.067	0.068	0.067	0.067
R-squared overall	0.058	0.061	0.061	0.062	0.079	0.079	0.078	0.078
N	17,239	17,223	17,239	17,223	9,284	9,277	9,284	9,277

Appendix

This table contains descriptions and sources of variables used in our analyses.

Variable	Definition
Gross Investment	= (Fixed assets (FIAS)$_t$ – lagged fixed assets (FIAS)$_{t-1}$ + depreciation (DEPRE)$_t$) / Total Assets (TOAS)$_t$. Source: Amadeus
Cash Holdings	= Cash and other marketable securities (CASH)/Total Assets (TOAS). Source: Amadeus
Corruption Uncertainty	= standard deviation of the normalized answers [=(x-1)/6] to the question *"It is common for firms in my line of business to have to pay some irregular "additional payments or gifts" to get things done with regard to customs, taxes, licenses, regulations, services etc."* at the cluster level. Clusters are jointly formed by country and industry (2-digit ISIC rev 3.1) in the corresponding BEEPs wave (2000–2002, 2003–2005, 2006–2009, and 2010–2013), by firm size (micro, small, and medium-large firms) and urban location (capital, city with more than 1 million inhabitants, city with less than 1 million inhabitants). Source: BEEPS
Judicial Uncertainty	= standard deviation of the normalized answers [=(x-1)/4] to the question *"Can you tell me how problematic [is the functioning of the judiciary] for the operation and growth of your business?"* at the cluster level. Source: BEEPS
Financing Uncertainty	= standard deviation of the normalized answers [=(x-1)/4] to the question *"Can you tell me how problematic [is access to financing (e.g., collateral required) or financing not available from banks] for the operation and growth of your business?"* at the cluster level. Source: BEEPS
Economic uncertainty	= monthly stock market volatility. Sources: Czech (PX) - https://www.pse.cz/; Slovak (SAX) - http://www.bsse.sk/; Latvia (OMXR) and Estonia (OMXT) – Nasdaq; Slovenia (SBITOP), Bosnia and Herzegovina (BIFXX), Croatia (CROBEX), Bulgaria (SOFIX), Hungary (BUX), Poland (WIG), Romania (BET), Serbia (BELEXLIN), and Ukraine (UX) – Bloomberg.
Corruption Perception Index (CPI)	It is a composite index drawing on corruption-related data from expert and business surveys carried out by a variety of independent institutions. The CPI is calculated using data from 17 different surveys or assessments produced by 13 organizations (this may change from year to year). All sources measure the overall extent of corruption (frequency and/or size of bribes) in the public and political sectors, and all sources provide a ranking

	of countries, i.e. include an assessment of multiple countries. This means methodological comparability across countries for any one input source. It ranges from 0 to 10 with 0 indicating the highest corruption. In our estimations we use the inverted index, so that the higher index indicates a higher corruption level. Source: Transparency International.
Ln(Total Assets)	= the natural logarithm of total assets (TOAS) in million USD. Source: Amadeus
Profitability	= EBITDA(EBTA)/ Total Assets (TOAS). Source: Amadeus
Sales Growth	= (Sales (TURN)$_t$ – Lagged Sales (TURN)$_{t-1}$)/Lagged Sales (TURN)$_{t-1}$. Source: Amadeus
Leverage	= (Long-term debt (LTDB) + Current liabilities (CULI))/Total Assets (TOAS). Source: Amadeus
Private Credit/GDP	= Private Credit/GDP, where private credit is the deposit by money banks and other financial institutions. Source: Global Financial Development Database, World Bank.
Market Cap/GDP	Total value of all listed shares on the national stock exchange as a percentage of GDP. Source: Global Financial Development Database, World Bank.
GDP Growth	The annual percentage nominal growth rate of GDP denominated in the local currency. Source: Global Financial Development Database, World Bank.

Appendix II

BEEPS is a firm-level survey of a representative sample of an economy's private sector. Prior to 2008, the survey universe consisted of industry and most service sectors (ISIC Rev 3.1 codes 10-14, 15-37, 45, 50-52, 55, 60-64, 70-74, 92.1-92.4 and 93). Firms that operated in sectors subject to government price regulations and prudential supervision, such as banking, electric power, rail transport, and water and waste water were excluded. Only formal (registered) companies at least 3 years old, and with 2 or more employees were eligible for interview. There were no restrictions on ownership. Since 2008, the survey scope consists of the majority of manufacturing sectors (excluding extraction), retail and a residual stratum that includes most services sectors (wholesale, hotels, restaurants, transport, storage, communications, IT) and construction (ISIC Rev 3.1 codes 15-37, 45, 50-52, 55, 60-64, and 72). Only formal (registered) companies with 5 or more employees are eligible for interview; there are no restrictions on their age. In some larger economies such as Russia and Ukraine, the survey design allows stratification by some of the sectors with the largest contribution to employment and value added. Firms with 100% government/state ownership are no longer eligible to participate in BEEPS.

The sampling methodology for BEEPS is stratified random sampling. The sample structure for BEEPS was designed to be as representative (self-weighted) as possible to the population of firms within the industry and service sectors, subject to the various minimum quotas for the total sample. This approach ensured that there was sufficient weight in the tails of the distribution of firms by the various relevant controlled parameters (sector, size, location and ownership). Geographic regions within a country are selected based on which cities/regions collectively contain the majority of economic activity. More detailed information concerning each round of BEEPS, if known, can be found in the Reports on sampling and implementation, available in the Data section at http://ebrd-beeps.com/.

While BEEPS is a very rich dataset with a lot of information on corruption that is superior to country-level corruption measures (Svensson, 2005), firms' financial and accounting information, which is also part of the survey, is not fully reliable. Surveyed firms are often reluctant to reveal their financial records. For example, about 40% of firms covered by BEEPS do not report their financial information. Moreover, the BEEPS dataset does not have a panel structure, and therefore endogeneity issues could not be properly addressed. Given these difficulties, we identify bribery characteristics of the environment exogenously for a specific "cluster" in which each firm operates. Clusters are jointly formed by survey wave (time), country, double-digit industry, firm size, and location size.

Abstrakt

Pomocí rozsáhlého vzorku soukromých firem v období 2001 až 2013 studujeme dopad nejistoty korupce na podnikové investice a držbu hotovosti. Zjistili jsme, že vyšší míra nejistoty ohledně úrovně korupce je spojena s nižšími korporátními investicemi a nižšími finančními prostředky v hotovosti firem. Tyto výsledky jsou citlivé na vlastní strukturu firmy. Firmy bez zahraničního majoritního vlastníka se zdají být výrazně citlivější vůči korupcí vyvolané nejistotě než většinově kontrolované zahraniční firmy. V korupční nejistotě domácí firmy výrazně snižují své investice a držby hotovosti. Domníváme se, že přesouvají své hotovostní podrozvahové položky, aby vytvořily hotovostní rezervy, protože nejistota, kdy, koho a kolik se má alokovat na úplatcích se zvyšuje.

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