Does Corruption Grease or Sand the Wheel of Investment or Innovation? Different Effects in Advanced-Emerging Economies*

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ABSTRACT

This paper assesses the effects of perceived corruption on corporate activity using cross-country, firm-level data. Results suggest that perceived corruption relates positively to corporate investment and innovation. To test whether corruption plays disparate roles in investment and innovation across countries, we divide the sample into two groups based on a country's development status—whether a country's economy is emerging or in an advanced state. For countries in an advanced economic state, we show that corruption relates positively with corporate innovation but relates negatively, or is non-significant, with corporate investment. In emerging economies, greater corruption relates positively with investment, but we find no effect on corporate innovation. Findings suggest that corruption encourages firms to focus on what is needed in their societies.

Keywords: corruption, corporate investment, innovation, greasing wheel, sanding wheel, cross-country analysis

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INTRODUCTION

Corruption is common, with examples including bribery, unofficial payments, and campaign contributions from firms in exchange for direct political benefits and other criminal conflicts of interest by public officials. Individuals or groups exploiting their power or misusing their authority in business for private gain is not unusual. According to a 2006 executive opinion survey of more than 125 countries by the World Economic Forum, one-third of executives believe that companies use bribes to secure public procurement contracts. Svensson (2005) argues that corruption should be distinguished with the term rent-seeking since the latter is a socially costly activity but the former does not necessarily lead to a decrease in social welfare. Corruption can be the way things are done, and can easily become an unwritten rule of conducting business in some circumstances. Bardhan (1997) argues that corruption is ancient, and even firms that prefer not to be corrupt sometimes have little choice since their survival might be threatened if they are unwilling to accept or share bribes with co-workers or supervisors once corruption is sufficiently high. Firms might also have disparate incentives to maximize shareholder value, reflecting tensions between firms and governments (Bénabou and Tirole , 2010). Leff (1964) suggests that corruption improves efficiency when a government or other authorities are initially inefficient. For example, public officials can deter new firms from creating competition and let an incumbent firm enjoy economies of scale, which might be more efficient for society and growth of an economy. Conversely, they can also allow firms that lack skills to enter a stagnant or protected industry to create competition that forces firms to innovate to survive.

We assess the correlation between corruption and two firm activities—corporate investment and firm innovation. Corporate investment measures the quantity of corporate action, and innovation captures the quality of a firm's activity. Using cross-country, firm-year panel regression on the entire sample, we find that firms invest more when perceived corruption is greater. Similarly, when we use patent measures for innovation, results suggest a positive correlation between corruption and firm innovation. General analyses support a greasing-the-wheel hypothesis of corruption on firm activity, and results are robust to firm- and country-level control variables. We then examine the effects in advanced and emerging

economies. Bardhan (1997) argues that corruption is different across countries. We compare advanced and emerging economies for a few reasons. First, advanced and emerging markets have disparate goals; emerging markets focus on growth of firms and providing necessary goods to market, and advanced economies focus on safety, sustainability, and other issues that lead or create industries. Second, government efficiency and country-level business environments differ, which might cause corruption to play different roles. When a government is efficient, corruption harms efficiency in terms of resource allocation, but when government is inefficient, corruption helps resolve inefficiency. Finally, firms might differ in terms of types or technical skills, depending on a country's development stage. By separating the sample into two groups, we find opposite results for advanced and emerging countries. Perceived corruption relates positively to corporate innovation and negatively, or non-significantly, to capital expenditures for firms in advanced economies. However, for firms in emerging markets, greater perceived corruption relates to greater capital expenditures and lower corporate innovation. These findings suggest that corruption has different effects on investment, innovation, and firms across countries. Due to negative effects of corruption (e.g., deterring increases to capital expenditures), firms might engage in alternative activities, creating a positive effect, for example, on innovation. However, findings on these effects are contemporaneous, so we do not argue them causally. We also assess causality regarding corporate investment and corruption. More investment induces firms to engage in greater corruption, and we thus assess endogeneity (i.e., reverse causality) using income inequality, private/state-owned businesses, and government responsibility as an instrumental variable (IV) of corruption. IV estimates corroborate the pooled regression approach, suggesting that corruption correlates positively with corporate investment and patent counts.

We contribute to the literature by demonstrating disparate effects of corruption across country development using two types of corporate actions—corporate investment and innovation. Corruption has disparate effects on investment and innovation. In discussions between corruption being beneficial (i.e., greasing wheel hypothesis) or harmful (i.e., sanding wheel hypothesis) to a firm, we obtain two positive results of corruption on corporate activity. First, corruption appears to grease the wheels for investment

and innovation. Second, depending on economic development, we find a positive correlation between corruption and both investment (emerging economy) and innovation (advanced economy). Thus, results support the greasing wheel hypothesis. Most recent empirical studies (Liu, 2016; Smith, 2016; Dass, Nanda, and Xiao, 2017; Ellis, Smith, and White, 2017; Kim, 2017; Zeume, 2017; Parsons, Sualeman, and Titman, 2018;) focus on local (U.S. or U.K.) corruption and corporate behaviors. We argue that cross-country analyses are important to understanding both. Corruption is commonly based on administrative problems in an industry or related to the public sector. These environments vary dramatically across countries and might have disparate effects. This study informs entrepreneurs and managers when contemplating business location decisions given that evidence suggests that corruption facilitates business in some countries. Results also align with corruption as a correcting mechanism of society. Firms in advanced economies tend to lead industries in terms of product quality, but those in emerging economies enjoy the advantages of supplying products more cheaply. In this sense, the results have implications for policymakers. Rather than imposing unilateral regulations on firms, policymakers should consider different motives and punishments for firms in advanced and emerging countries. Findings suggest that corruption focuses firms on their strengths rather than seeking other corporate investments. We do not argue that this is the correct approach in the long-run for a firm or an entire economy. Findings corroborate Bénabou and Tirole's (2010) discussion of tensions between governments seeking to correct distributive failures and firms making decisions in shareholders' interests.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Extant findings from cross-country analyses of perceived corruption and investment are mixed. Some research suggests that corruption hinders firms' investments (Mauro, 1995), but empirical findings do not explicitly suggest how financial regulations and macroeconomic policies contribute to beneficial or detrimental effects. The sanding wheel hypothesis suggests that corruption is economically inefficient because it imposes an extortionary tax that leads to distorted investments and misallocated resources. Shleifer and Vishiny (1993) and Mauro (1995) argue that corruption raises operational costs, creates uncertainty, and deters investments. Murphy, Shelifer, and Vishiny (1993) suggest that firms are affected

negatively by rent-seeking behaviors regarding government services, including permits, licenses, inspections, and patents. Holmstrom (1989) argues that innovation investments commonly have a high upside coupled with high failure, meaning that innovators bear the risk of failure *ex ante* while public officials seek rents from successful innovators *ex post*. Stulz (2005) makes similar arguments that preventing rent-seeking by managers through strong governance is less appealing. Empirical research suggests that corruption worsens school enrollment and human capital accumulation (Reinikka and Svensson, 2005), reduces investments and economic growth (Murphy et al., 1993; Mauro, 1995; Wei, 1999; Svensson, 2003; Fisman and Svensson, 2007), and increases inefficient public spending (Tanzi and Davoodi, 1997). Recent empirical research uses conviction data of public corruption. Butler, Fauver, and Mortal (2009) argue that corruption and political connections have strong effects on municipal bond sales and underwriting. Smith (2016) finds that firms use more leverage and hold less cash when they experience greater local political corruption. Huang and Yuan (2017) and Ellis et al. (2017) suggest that corruption has a negative influence on firm innovation in the United States, and Zhang and Zhang (2017) find that perceptions of corruption affect earnings management.

The negative effect of corruption is tensioned in situations in which it creates opportunities for private gains of firms. The greasing wheel hypothesis suggests that corruption promotes efficiency by helping firms cut through bureaucratic ties (Leff, 1964; Leys, 1965). Firms operating in corrupt environments might find that corruption leads to more favorable operating conditions, such as relaxed regulatory requirements and oversight, such that the costs are offset by the benefits of corruption. Leff (1964) suggests that corruption is an extra-legal institution that enables private agents to gain political influence to pursue economic activity that they could not otherwise pursue; political corruption is efficient and increases firm value. This argument relies on the conjecture that firms that place greater value on government permits, licenses, and authorizations offer bribes necessary to procure them. Leff (1964) argues that a corrupt culture spurs economic investment and competition among firms by reducing risk of political uncertainty and bad economic policies, and promoting competitive bidding among firms for political favors, which in turn places a premium on a firm's ability to generate economic rents efficiently

as a source of extra-legal payments. This argument represents the efficient corruption hypothesis, known as greased wheels, in that corruption greases the wheels of commerce and in doing so raises firm value. Lui (1985) and Beck and Maher (1986) provide theoretical support for the greased wheel hypothesis. Lui (1985) proposes that government permits accrue to parties that place the highest value on such permits. Given high value attached to innovation and the long-run, risky nature of these activities (Holmstrom,1989), innovative firms are most willing to bribe to move ahead of other firms in a regulatory queue. Consistent with this, Ayyagari, Demigurc-Kunt, and Maksimovic (2014) observe that innovative firms pay more bribes than non-innovating firms. Johnson and Mitton (2003), Faccio (2006), Faccio and Pasley (2009), Bunkanwanicha and Wiwattanakantang (2009), Tahoun (2014), and Zeume (2017) corroborate that corruption is valuable to firms in some countries. We examine whether corruption has differential influences on emerging-market firms' investments. Using the greased wheel hypothesis, we predict that the effect of corruption is positive for firms in emerging markets:

H1a: Corruption has a detrimental influence on corporate investments in advanced economies.

H1b: Corruption has a beneficial influence on corporate investments in emerging markets.

Although corporate investment represents a measure of corporate activity, it captures only the magnitude of a firm's action. Corruption might affect a firm's decisions across multiple dimensions. Since innovation relates to the quality of a firm's activity, testing similar hypotheses between corruption and innovation is required. Firms in advanced economies operate in saturated markets and have greater incentives to innovate to be competitive. Firms in emerging markets differ since they become profitable by increasing their size by concentrating on local resources. Thus:

H2a: Corruption has a beneficial influence on corporate innovation in advanced economies.

H2b: Corruption has a detrimental influence on corporate innovation in emerging markets.

DATA

Sample

We merged several databases to construct a sample. To proxy for the degree of corruption per country-year, we use a perceptions of corruption measure from the World Happiness Report, published by the

United Nations Sustainable Development Solutions Network (UNSDSN). The measure is calculated by averaging two items from the Gallup World Poll (GWP)—"Is corruption widespread throughout the government or not?" and "Is corruption widespread within business or not?"[1] When this corruption measure is close to 1, the country is highly corrupt, and if close to zero, the country is less likely to be corrupt. Annual data were available for the period 2005 to 2016. Figure 1 shows perceptions of corruption data from 2010. Darker shades imply greater corruption and brighter shades less corruption. Perceptions of corruption ranged from 0.06 to 0.98 across countries during 2010. Corruption was low in Canada, Australia, and Northern Europe, but higher in South America, South Asia, and Southern Europe.

*** Figure 1 goes about here ***

Firm-level data were sourced from the Thomson Reuters Worldscope database for the period that matched the World Happiness Report. Worldscope provides broad coverage of international firm-level data for more than 80 countries, including advanced and emerging countries. We calculated Tobin's Q, sales growth, operating cash flows, net sales, and net foreign sales (%) among other firm-specific variables used as controls during analyses. We use patents from the European Patent Office World Patent Statistical Database (EPO PATSTAT) to measure a firm's innovation output. The database contains detailed information on patent applications, family links, and citations, which allowed us to construct an international, firm-level dataset and track innovation activities of a firm over a period that was sufficiently long to evaluate policy effects. Data from EPO PATSTAT were matched with a financial database using name-matching, and we identified matches by following a procedure from Dorn, Hanson, Pisano, and Shu (2017).

Descriptive statistics

Descriptive statistics appear in Table 1, with Panel A showing sample composition by country. The sample contained 66 countries that offered both firm-level data from COMPUSTAT and EPO PATSTAT and country-level corruption data.[2] We calculated the number of firms in a country (No. of Firms), number of firm-year observations (No. of Firm-year), and means for the dependent variables. Summary statistics of variables used during analyses appear in Panel B. Numbers of observations were different due to

multiple data sources. The cross-country average for perceptions of corruption was 0.66, which varied across the sample, ranging from 0.04 to 0.98. The average of Capex (Capital expenditure scaled by lagged total assets) was 0.05 and ranged from 0.00 to 0.84. The mean of ln(Patent) was 1.12, with a standard deviation of 1.63. Correlations appear in Panel C. We describe the variables and how they were measured in the Appendix.

*** Table 1 goes about here ***

EMPIRICAL RESULTS

Baseline results

We analyze a firm's actions across two activities—corporate investment and firm innovation. Corporate investment measures the quantity of corporate actions, and innovation captures the quality of a firm's activity. We begin by testing the relationship between corruption and firm-level investment. In line with extant literature, we calculate panel regression using:

$$Capital\ expenditures_{i,j,t} = \alpha + \beta * Corruption_{j,t} + \gamma * X_{i,j,t-1} + \epsilon \qquad (1)$$

where $Capital\ expenditures$ is the capital expenditure for firm *i*, country *j*, in year *t*, scaled by a firm's previous total assets. $Corruption_{j,t}$ is the degree of perceptions of corruption in year *t* for a firm's home country *j*. $X_{i,j,t}$ are firm-level control variables, including Tobin's Q, cash flow, sales-growth, etc. The variable of interest is corruption. If coefficient β is positive, the greasing wheel hypothesis is supported, and a negative coefficient supports the sanding wheel hypothesis. Table 2 shows baseline results from analyses that examined sample-wide effects of perceptions of corruption on corporate investments. Firm- and country-level controls are included. We also include country and year fixed effects so coefficients are not driven by country- or year specific results. Industry fixed effects are included in column (5) through (7). Standard errors are robust to heterogeneity and clustered by country and year, following Peterson (2009).

*** Table 2 goes about here ***

Baseline regression results suggest that firms in corrupt countries invest more heavily. In column (1), the coefficient of corruption is positive (*coefficient=0.03; standard errors=0.01*), supporting the greasing wheel hypothesis. Results in columns (2) through (7) are statistically robust and economically meaningful to various controls included in the regression. Tobin's Q, measured by market value of total assets over book value of total assets, correlated positively with capital expenditures, corroborating the classical measure that proxies incentives for investment. We find that regression coefficients for GDP growth are positive, shown in columns (4) and (7). We conduct analyses similar to equation (1) using the innovation variable measures:

$$Innov_{i,j,t+1} = \alpha + \beta * Corruption_{j,t} + \gamma * X_{i,j,t} + \epsilon \qquad (2)$$

For dependent variable $Innov$, which measures innovation, we use three measures. First and following extant literature (Balsmeier, Fleming, and Manso, 2017; Luong, Moshirian, Nguyen, Tian, Zhang, 2017), we use the logged number of patents (*Ln(PATENT)*) to capture the quantity of innovation of firm *i*. We use two quality measures, *Ln(FAMPAT)* and *Ln(CITEPAT)*, as simple patents count *Ln(PATENT),* but this variable might not capture innovation. *Ln(FAMPAT)* was obtained using the number of jurisdictions in which patent protections were sought for the same innovation. *Ln(CITEPAT)* was the logged total number of forward citations received by patent applications for each firm during subsequent years. For all patent measures in equation (2), we use *t+1* because patents take time to be listed (i.e., granted) and cited, as Shao, Kwok and Zhang (2013) do.

Table 3 reports results from analyses that examine the effects of corruption on innovation. As in Table 2, we include country, year, and industry fixed effects. Standard errors clustered within country and year. Throughout all specifications, we find a positive relationship between corruption and innovation, meaning that firms in corrupt countries are more innovative. All results were both statistically robust and economically meaningful to various controls included in the regression. We control lagged firm characteristics, including firm size, leverage, Tobin's Q, cash flow, sales growth, R&D, foreign sales, and HHI. In columns (4) through (6), we additionally control for GDP growth. In columns (1) and (4), the dependent variable is *Ln(PATENT)*, in columns (2) and (5), the dependent variable is *Ln(FAMPAT)*, and

in columns (3) and (6), the dependent variable is *Ln(CITEPAT)*. Coefficients for corruption in Table 3 support the greasing wheel hypothesis. In column (1), the coefficient of corruption is positive (*coefficient=0.76; standard errors=0.18*). Results in columns (2) through (5) are both statistically robust and economically meaningful to various controls included during regression. Consistent with findings in Table 2, results in Table 3 support the greasing wheel hypothesis.

*** Table 3 goes about here ***

Advanced versus Emerging economies

We examine the effects of corruption in advanced and emerging economies separately. The sample contained 32 advanced countries, including Australia, Canada, Germany, Japan, Singapore, the United Kingdom, and the United States, and 34 emerging markets, including Argentina, Brazil, India, Mexico, the Philippines, Thailand, and Turkey. Figure 2 shows that economic growth generates sufficient forces to reduce corruption, as Baldhan (1997) argues.

*** Figure 2 goes about here ***

The figure shows perceptions of corruption in advanced and emerging markets. The x-axis represents log GDP per capita, and the y-axis perceptions of corruption. Blue dots indicate advanced countries and red dots indicate emerging countries. The figure shows that corruption in emerging markets (red dots) is higher than in advanced countries (blue dots). Some advanced countries, especially Lithuania, Bulgaria, Portugal, Croatia, Italy, Czech Republic, Slovakia, Hungary, and Greece, show high perceptions of corruption.

*** Table 4 goes about here ***

Table 4 reports the effects of perceptions of corruption on corporate investments and innovation in emerging and advanced countries. Columns (1), (3), (5), and (7) show results for emerging markets, and columns (2), (4), (6), and (8) for advanced countries. We again include country, year, and industry fixed effects. Standard errors were robust to heterogeneity, and they clustered by country and year. Columns (1) and (2) show results for the effects of corruption on firm-level investment (H1). Column (1) shows results for emerging markets and column (2) shows those for advanced countries. In column (1), the coefficient

for corruption is 0.07, with a standard error of 0.02, meaning corruption relates positively to firm-level investment. In column (2), the coefficient for corruption is non-significant. Results shown in columns (1) and (2) suggest that corruption plays a role that depends on a country's development. Findings corroborate that corruption greases corporate investment in emerging markets, but not in advanced countries, according with findings from Smith (2016), Dass et al. (2017), and Zeume (2017). When interacted with industry-level, external finance dependencies, results in columns (3) and (4) support the argument that in emerging markets, firms that depend on external finance respond more to corruption when making corporate investment decisions.

Results related to H2 appear in Panel B, columns (1) through (6). In column (1), the coefficient for corruption is -0.19, with standard error 0.44, and non-significant. In column (2), the coefficient for corruption is 0.74, with standard error 0.18, suggesting that corruption relates positively to innovation in advanced countries. The effects of corruption on corporate innovation are consistent if alternative, qualitative measures of corporate innovation are used. Findings suggest that corruption greases innovation in advanced economies, but no support for effects of corruption on innovation in emerging markets were found. Findings in Table 4 suggest that corruption encourages firms to focus on what is needed in their society. Few explanations suggest why advanced and emerging markets have disparate goals to achieve. For example, emerging countries are interested in growth of a firm and providing necessary goods in a market, but advanced countries focus on safety, sustainability, and advanced issues that create industries. Consistent with Svenson (2005) and Zingales (2017), current findings evidence that corruption should be distinguished from rent-seeking since the latter is costly socially and corruption does not necessarily lead to decreases to social welfare that depend on market conditions.

ROBUSTNESS ISSUES

Reverse causality

Mutual causality between corruption and investment (or innovation) is unlikely, but it is reasonable to conceptualize causal relationships between corruption values and both corporate investment and innovation decisions. To mitigate this concern, we use an instrumental variable approach. We use three

instruments—income inequality, private versus state business ownership, and government responsibility. The instrument meets the relevance condition in that it captures positive influences on corruption after controlling for time. Table 5 shows the results of two-stage OLS regression on corruption and firm-level investment. Column (2) shows results using income inequality, column (3) private versus state business ownership, and column (4) government responsibility. Country, industry, and year fixed effects were included during all regressions, and results do not reject the effect of corruption on investment (Panel A) or innovation (Panel B) found during previous analyses.

*** Table 5 goes about here ***

Alternative corruption index

Quantifying corruption is inherently difficult. Panel datasets are rare in cross-country corruption indices, and several indices are not directly comparable across years or countries. One concern of surveyed indices is that responses from third parties, such as international business people, risk analysts, and other outside experts, vary due to biases and disparate definitions among those polled. To mitigate this concern, we use an alternative measure, the corruption perception index (CPI), distributed by the Transparency International, which releases the CPI annually. The index is one of the most popular measures of corruption at the country level.

*** Table 6 goes about here ***

Table 6 shows results using the CPI. As in Table 4, columns (1) and (2) of Panel A show results for the effects of corruption on firm-level investment; column (1) shows emerging markets and column (2) advanced countries. In column (2), the coefficient for corruption is -0.006, with standard error of 0.003, meaning corruption relates negatively to firm-level investment. Findings suggest that corruption is sanding corporate investments in advanced countries, consistent with findings from Smith (2016), Dass et al. (2017) and Zeume (2017). Columns (1) through (6) in Panel B show results for the effects of corruption on innovation. In column (2), the coefficient for corruption is 0.09, with standard error 0.03, meaning that corruption relates positively to innovation in advanced countries. In column (4), the coefficient for corruption is 0.06, with standard error 0.04. Similarly, in column (6), the coefficient for corruption is 0.34,

with standard error 0.07. These results corroborate that corruption relates positively to innovation in advanced countries. Findings in Table 6 again suggest that corruption encourages firms to focus on what is needed in their society.

Further analyses

Our previous results suggest that corruption affects corporate investments and innovations through correlations with economic development, and we extend these analyses. Table 7 shows results for firm and year fixed effects (Panel A), excluding U.S. firms (Panel B). We find that judicial efficiency mitigates the effect of corruption, especially on corporate innovation (Table 7, Panel C).[3] This result corroborates Dass, Nanda, Xiao's (2016) finding that legal jurisdictions matter to firm value and informational transparency despite similar local conditions. We find that current results are robust to all specifications during extended analyses.

*** Table 7 goes about here ***

CONCLUSION

We examine the relationship between corruption and innovation worldwide, and evidence corroborates the notion that corruption facilitates business in some countries. Using cross-country, firm-level data, we find that firms in corrupt countries invest more, supporting the greasing wheel hypothesis. We test whether corruption has differential influences regarding investment in firms located in emerging and advanced economies. Corruption appears to have a beneficial effect on corporate investment in emerging markets and a positive effect on corporate innovation for firms in advanced markets. Findings suggest that although corruption plays a positive role in corporate business, its role changes across dimensions of business environments.

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Appendix

Table A1. Variable Definitions

Variable	Definition	Main Source
Perception of Corruption	Perceptions of corruption are the average of binary answers to two GWP questions: "Is corruption widespread throughout the government or not?" and "Is corruption widespread within businesses or not?" Where data for government corruption are missing, the perception of business corruption is used as the overall corruption-perception measure.	World Happiness Report 2017
Corruption 2	The corruption perceptions index, which ranks 180 countries and territories by their perceived levels of public sector corruption according to experts and business people, uses a scale of 0 to 100, where 0 is highly corrupt and 100 is very clean. To make it consistent with our primary measure of corruption, we rescale this measure to 0 to 10, where a higher value indicates higher levels of perceived corruption.	Transparency International
Capex	Capital expenditure scaled by lagged total assets	WorldScope Database
No. of Patents	The yearly total number of patent applications of a firm $\mathrm{PAT_{i,t}} = \sum_{j \in J(t)} p_{i,j,t}$ where $PAT_{i,t}$ is the total number of patents filed by firm *i* in year *t*. *J(t)* is the set of all patent applications the firm filed with distinct family ID in year *t*.	PATSTAT 2016 Autumn
Family Size	The yearly total size of patent families of a firm $\mathrm{FAM_{i,t}} = \sum_{j \in J(t)} f_{i,j,t}$ where $FAM_{i,t}$ is the total number of patent families filed by firm *i* in year *t*. *J(t)* is the set of all patent applications the firm filed with distinct family ID in year *t*. $f_{j,t}$ is the family size for each distinct patent family ID including all patent applications filed in different patent office or different time periods that are sharing the same family ID.	PATSTAT 2016 Autumn
No. of Citations	The total number of patent citations of a firm received in the subsequent years after the first publication date of its applications filed in year t.	PATSTAT 2016 Autumn
ln(PATENT)	Natural Logarithm of 1 plus the total number of patents filed each firm in each year.	PATSTAT 2016 Autumn
ln(FAMPAT)	Natural Logarithm of 1 plus the total amount of patent family size filed by each firm in each year.	PATSTAT 2016 Autumn
ln(CITEPAT)	Natural Logarithm of 1 plus the total number of citations made to each firm's patents in each year.	PATSTAT 2016 Autumn

TobinQ	Sum of market value and book value of debt (long-term debt and debt in current liabilities) divided by total assets	WorldScope Database
OCF/TA_t-1	Cash flows from operations in year t scaled by lagged total assets.	WorldScope Database
SalesGrowth	Sales growth, defined as sales growth from t − 1 to t.	WorldScope Database
ForeignSales	Foreign net sales as a percentage of net sales in total	WorldScope Database
Ln(Assets)	The natural logarithm of total assets	WorldScope Database
Leverage	Book leverage, calculated as total debt divided by beginning year total assets	WorldScope Database
RD/TA_t-1	Research and Development expenditure scaled by beginning year of total assets.	WorldScope Database
ln(AGE)	The natural logarithm of the number of years a firm has been listed in the WorldScope Database.	WorldScope Database
HHI	Herfindahl index of 4-digit SIC industry to which the firm belongs, measured at the fiscal year end.	WorldScope Database
HHI^2	The squared value of HHI.	WorldScope Database
Innovation Intensity	Industry-level measure of innovation intensity, measured as the industry median ratio of R&D expenditures to total sales following Li (2011), using all U.S. public firms from 1980 to 1989.	Compustat North America
External Finance Dependence	Industry-level measure of External finance dependence, measured as the industry median ratio of capital expenditures not financed by cash flow from operations to total capital expenditures following Rajan & Zingales (1998), using all U.S. public firms from 1980 to 1989.	Compustat North America
Life_Ladder	Life-ladder is measured by answers to the Cantril ladder question: "Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?"	World Happiness Report 2017
GDP_Growth	Annual change in GDP (%)	World Bank Development Indicators Database

Figures

Figure 1. World Map of Perceptions of Corruption

A world map of corruption is presented below. Perceptions of Corruption data in 2010 used for this figure. Darker (brighter) indicates more (less) corruptions. Countries in no color are not included due to unavailability of data.

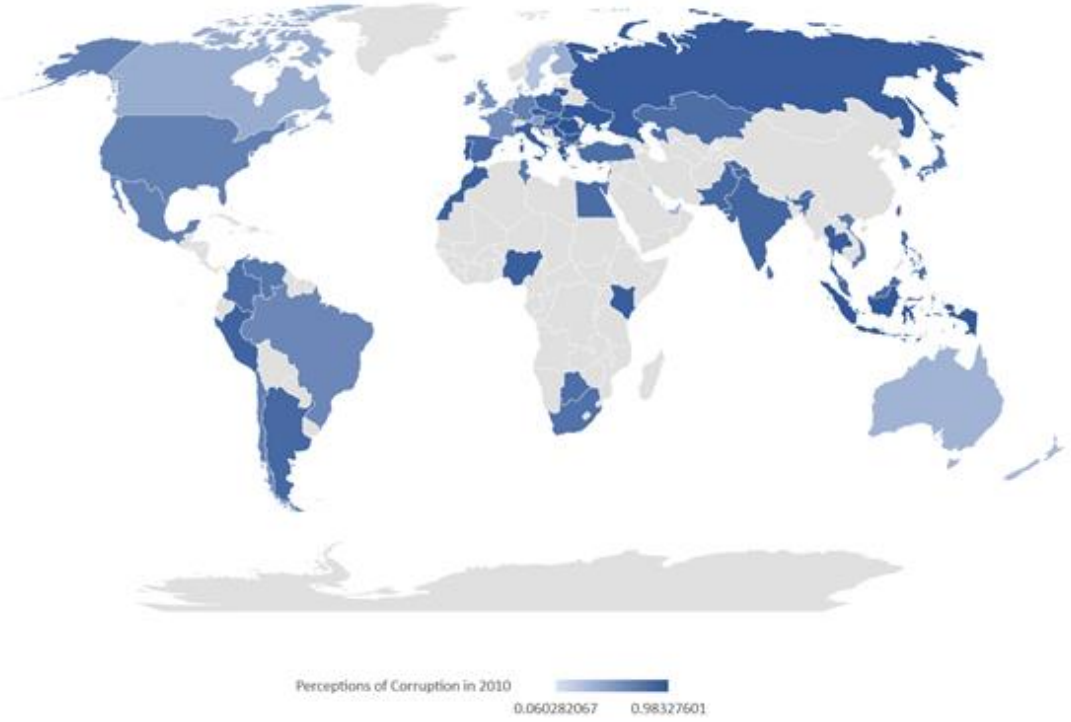
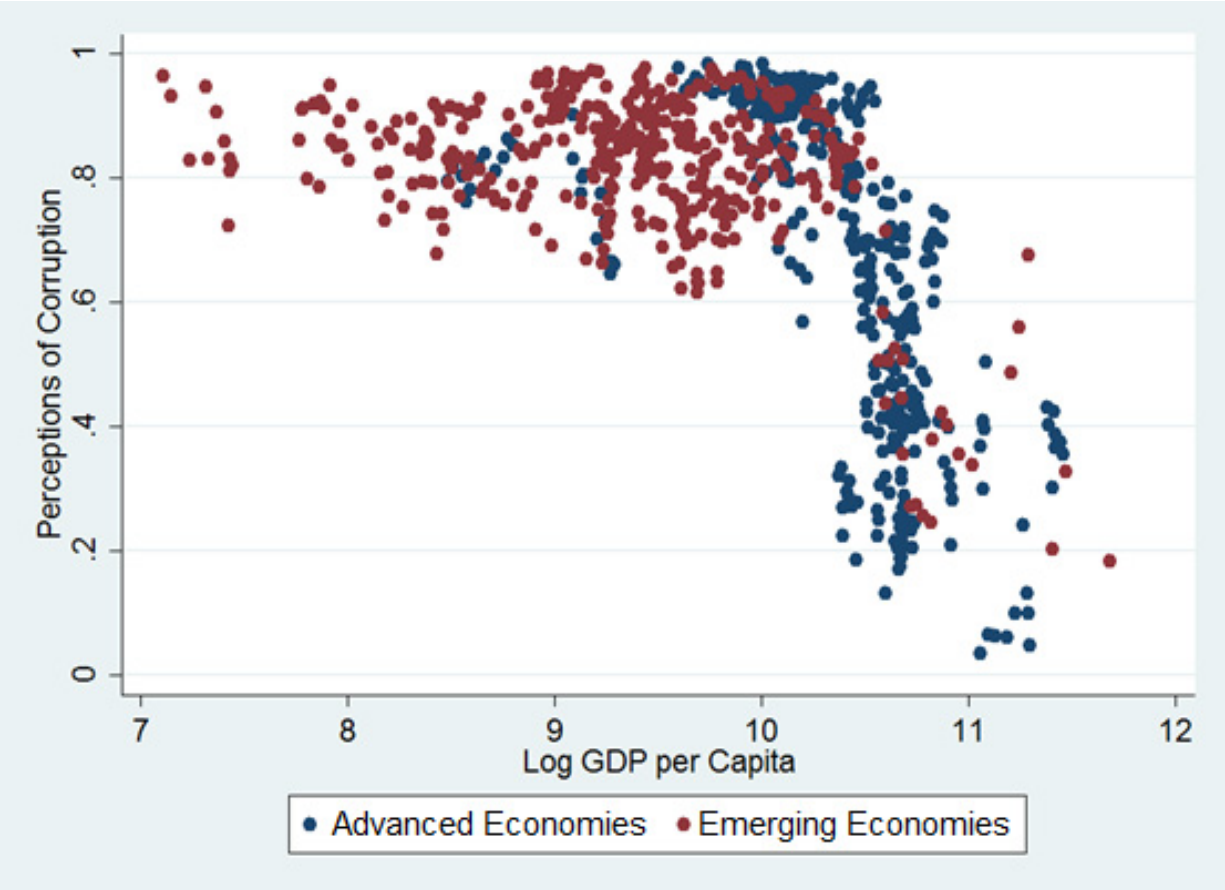


Figure 2. Perceptions of Corruption in Advanced vs. Emerging Economies

This figure presents the perceptions of corruption in advanced and emerging economies. Blue dots indicate advanced economies. Red dots indicate emerging economies. X-axis is log GDP per capita and Y-axis is perceptions of corruption.



Tables

Table 1. Descriptive Statistics

This table shows the descriptive statistics of our main sample. Panel A presents the number of publicly listed firms and the mean value on capital expenditure (Capex), number of patents (patent family size) applied for, and number of patent citations by country. *No. of Firms* is the total number of unique firms in the country. *No. of Firm-years* is the total number of firm-year observations in the country. Panel B shows the summary statistics of all variables we have used in our main tests. Panel C shows the Pearson's correlation among these variables. All the variables are defined in Appendix.

Panel A. Sample Country Breakdown

Country	No. of Firms	No. of Firm-year	Perceptions of Corruption	Capex	No. of Patents	No. of Family Size	No. of Citations
Panel A.1 Advanced Economies							
Australia	1,623	6,935	0.408	0.084	2.437	11.354	7.694
Austria	93	543	0.606	0.059	10.093	41.749	15.073
Belgium	137	806	0.619	0.047	14.546	80.150	73.340
Canada	1,307	6,633	0.424	0.086	6.136	26.559	29.178
Croatia	12	68	0.934	0.041	0.357	0.393	0.071
Czech Republic	17	61	0.918	0.058	1.259	1.778	0.111
Denmark	160	952	0.208	0.040	24.856	161.708	133.621
Estonia	11	68	0.706	0.066	0.118	0.118	1.235
Finland	148	875	0.276	0.047	47.176	173.880	216.215
France	777	4,809	0.653	0.045	28.157	126.334	80.785
Germany	756	4,389	0.633	0.046	44.327	210.674	153.099
Greece	245	1,046	0.911	0.040	0.958	4.211	1.355
Hungary	32	155	0.916	0.074	8.425	80.350	17.950
Iceland	18	41	0.707	0.057	22.000	103.214	99.500
Ireland	76	415	0.509	0.041	3.425	10.905	6.486
Italy	336	2,076	0.922	0.034	5.602	24.959	26.132
Japan	3,795	20,190	0.716	0.038	83.496	190.260	161.690
Lithuania	21	75	0.957	0.079	0.091	0.091	0.000
Luxembourg	46	217	0.381	0.053	16.022	46.674	19.461
Netherlands	207	1,146	0.443	0.045	29.693	115.563	84.422
New Zealand	119	576	0.278	0.061	4.241	20.550	12.269
Norway	209	645	0.397	0.083	4.270	41.696	13.483
Poland	376	1,588	0.898	0.050	1.155	5.619	4.490
Portugal	54	318	0.937	0.035	0.351	0.636	0.078
Singapore	730	3,742	0.094	0.049	4.679	9.605	9.254
Slovakia	11	33	0.917	0.040	0.000	0.000	0.000
Slovenia	38	154	0.855	0.035	3.171	7.971	7.529
Spain	195	1,229	0.816	0.040	3.510	24.682	7.292
Sweden	402	1,975	0.272	0.037	7.559	30.268	13.666
Switzerland	257	1,036	0.311	0.035	55.397	442.076	224.742
United Kingdom	2,331	11,803	0.493	0.044	6.057	36.571	20.090
United States	9,402	53,922	0.686	0.051	35.683	150.339	174.147
Panel A.2 Emerging Markets							
Argentina	57	230	0.844	0.085	0.225	0.718	0.268
Bahrain	32	107	0.553	0.014	0.000	0.000	0.000
Brazil	349	1,878	0.709	0.053	2.660	5.593	2.476
Chile	156	574	0.749	0.049	0.660	1.392	0.041

Colombia	35	102	0.848	0.041	0.760	1.080	0.000
Egypt	119	667	0.827	0.048	24.300	215.817	73.467
Hong Kong	1,306	5,983	0.326	0.039	13.512	20.743	12.070
India	2,530	16,039	0.846	0.075	8.059	48.200	28.453
Indonesia	511	2,980	0.946	0.060	1.040	5.121	2.728
Israel	269	1,633	0.865	0.039	11.843	74.111	61.646
Jordan	31	79	0.696	0.048	0.500	2.250	0.750
Kazakhstan	7	25	0.792	0.060			
Kenya	26	161	0.875	0.074	1.600	2.055	0.582
Kuwait	128	315	0.512	0.038	4.316	30.158	21.684
Lebanon	5	36	0.909	0.003			
Malaysia	1,018	5,495	0.825	0.042	0.883	3.120	1.244
Mexico	130	617	0.713	0.058	5.568	27.006	5.426
Morocco	40	118	0.825	0.042	0.077	0.154	0.000
Nigeria	46	173	0.905	0.065	0.059	0.059	0.000
Pakistan	153	1,005	0.808	0.061	25.223	141.228	107.265
Peru	54	206	0.879	0.075	10.608	11.745	1.529
Philippines	199	847	0.800	0.056	0.637	2.199	0.826
Romania	13	44	0.961	0.048	0.563	1.500	0.188
Russia	264	1,299	0.927	0.086	0.568	1.561	0.696
Saudi Arabia	49	93	0.486	0.096	3.000	29.625	22.500
South Africa	309	1,428	0.836	0.066	3.133	14.027	11.240
South Korea	1,391	4,983	0.814	0.050	42.586	89.989	36.935
Sri Lanka	71	355	0.808	0.068	0.329	0.753	0.259
Thailand	603	3,039	0.914	0.056	1.875	2.751	1.470
Tunisia	12	36	0.820	0.055			
Turkey	283	2,018	0.773	0.060	7.561	19.954	9.006
Ukraine	25	52	0.932	0.032	0.000	0.000	0.000
United Arab Emirates	38	73	0.299	0.057	0.375	0.750	0.375
Vietnam	28	52	0.785	0.091	0.000	0.000	0.000
Advanced	23,941	128,521	0.623	0.051	38.625	127.795	121.083
Emerging	10,287	52,742	0.806	0.059	14.863	46.144	24.473
Total / Average	34,228	181,263	0.714	0.053	33.734	110.991	101.203

Panel B. Summary Statistics

Variable	N	Mean	P50	SD	Min	Max
Capex	181,263	0.053	0.027	0.087	0.000	0.844
No. of Patents	75,529	33.737	1.000	224.170	0.000	9393
Family Size	75,529	111.001	1.000	755.187	0.000	34686
No. of Citations	75,529	101.212	0.000	957.413	0.000	69607
ln(PATENT)	75,529	1.188	0.693	1.627	0.000	9.148
ln(FAMPAT)	75,529	1.549	0.693	2.058	0.000	10.454
ln(CITEPAT)	75,529	1.084	0.000	1.925	0.000	11.151
Perceptions of Corruption	181,263	0.659	0.697	0.190	0.035	0.983
TobinQ	180,262	1.928	1.142	4.123	0.285	61.812
OCF/TA_t-1	181,218	0.025	0.064	0.394	-5.743	0.584
SalesGrowth	181,144	0.145	0.033	0.875	-1.000	9.480
ForeignSales	167,642	0.258	0.054	0.331	0.000	1.000
ln(Assets)	181,129	12.815	12.785	2.402	3.401	18.159
Leverage	180,706	0.261	0.193	0.357	0.000	3.400
RD/TA_t-1	181,263	0.008	0.000	0.029	0.000	0.236
ln(Age)	181,263	2.286	2.303	0.394	1.099	2.833
HHI	179,870	0.420	0.335	0.305	0.010	1.000
HHI^2	179,870	0.270	0.113	0.331	0.000	1.000
GDP_Growth	181,263	2.377	2.224	2.881	-14.814	26.276
Income Inequality	164,386	2.490	2.491	0.336	1.884	3.720
Private vs. State Ownership of Business	157,559	2.261	2.233	0.390	1.647	3.633
Government Responsibility	164,386	2.643	2.679	0.290	1.652	3.521

Panel C. Pearson's Correlation

		Capex	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)	ln(PATENT)	-0.031	1.000																
(2)	ln(FAMPAT)	-0.031	0.975	1.000															
(3)	ln(CITEPAT)	-0.013	0.836	0.866	1.000														
(4)	Perceptions of Corruption	0.009	0.080	0.069	0.058	1.000													
(5)	TobinQ	0.020	-0.007	0.007	0.017	-0.023	1.000												
(6)	OCF/TA_t-1	0.005	0.047	0.036	0.033	0.027	-0.497	1.000											
(7)	SalesGrowth	0.161	-0.003	0.007	0.023	-0.037	0.051	-0.061	1.000										
(8)	ForeignSales	-0.008	0.186	0.189	0.146	-0.290	-0.028	0.067	-0.017	1.000									
(9)	ln(Assets)	-0.001	0.344	0.322	0.255	0.023	-0.289	0.316	-0.062	0.158	1.000								
(10)	Leverage	0.046	-0.056	-0.056	-0.051	0.051	0.396	-0.415	0.003	-0.062	-0.120	1.000							
(11)	RD/TA_t-1	-0.036	0.124	0.129	0.101	-0.110	0.057	-0.053	0.029	0.192	-0.089	-0.063	1.000						
(12)	ln(Age)	-0.134	0.002	-0.024	-0.171	-0.073	-0.075	0.073	-0.103	0.114	0.235	-0.070	0.010	1.000					
(13)	HHI	-0.008	-0.049	-0.050	-0.061	-0.024	-0.024	0.062	-0.033	0.148	-0.031	-0.010	0.006	0.021	1.000				
(14)	HHI^2	-0.002	-0.051	-0.050	-0.060	-0.031	-0.023	0.058	-0.029	0.135	-0.025	-0.011	-0.001	0.017	0.969	1.000			
(15)	GDP_Growth	0.077	-0.121	-0.125	-0.131	0.130	-0.015	0.044	0.047	-0.075	-0.131	-0.004	-0.065	-0.134	0.057	0.047	1.000		
(16)	Income Inequality	0.103	-0.181	-0.169	-0.170	0.262	-0.017	0.041	0.016	-0.098	-0.065	0.019	-0.074	-0.126	0.114	0.107	0.371	1.000	
(17)	Private vs. State Ownership of Business	0.108	-0.216	-0.204	-0.176	0.313	-0.025	0.051	0.021	-0.117	-0.116	0.020	-0.111	-0.176	0.157	0.147	0.504	0.911	1.000
(18)	Government Responsibility	0.088	-0.065	-0.042	0.011	0.291	0.054	-0.028	0.030	-0.193	-0.047	0.058	-0.174	-0.154	-0.046	-0.042	0.205	0.702	0.706

Table 2. Perceptions of Corruption on Corporate Investment

This table reports the baseline test that examines sample-wide effect of perceptions of corruption on corporate investments. Firm level and country level controls are progressively introduced into the baseline model to control for firm- and country- specific characteristics. Country and year fixed effects are included in the regressions from Column (1) to (3) and Industry fixed effects are also included in column (4) and (5). All the firm-level control variables are lagged by one year following Shao, Kwok and Zhang (2013). All variables are defined in Appendix. Standard errors are robust to heterogeneity and clustered by country and year. Robust p-values in parentheses: †, *, **, and *** denote significance levels of 10%, 5%, 1%, and 0.1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Capex	Capex	Capex	Capex	Capex	Capex	Capex
Perceptions of	0.0303**	0.0303**	0.0307**	0.0326**	0.0244*	0.0243*	0.0261*
Corruption	(0.008)	(0.006)	(0.005)	(0.002)	(0.026)	(0.027)	(0.014)
$(TobinQ)_{t-1}$		0.0022***	0.0020***	0.0020***	0.0020***	0.0020***	0.0020***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$(OCF/TA)_{t-1}$		0.0157***	0.0179***	0.0179***	0.0119***	0.0119***	0.0119***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$(SalesGrowth)_{t-1}$		0.0059***	0.0060***	0.0060***	0.0044***	0.0044***	0.0044***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$(ForeignSales)_{t-1}$			0.0042**	0.0042**		-0.0028*	-0.0029**
			(0.002)	(0.002)		(0.011)	(0.010)
$(Ln(Assets))_{t-1}$			-0.0004*	-0.0004*		0.0001	0.0000
			(0.017)	(0.013)		(0.778)	(0.832)
$(Leverage)_{t-1}$			0.0088***	0.0089***		-0.0003	-0.0003
			(0.000)	(0.000)		(0.785)	(0.823)
GDP_Growth				0.0011*			0.0010*
				(0.016)			(0.021)
Observations	181,263	181,263	181,263	181,263	181,263	181,263	181,263
Adjusted R-squared	0.033	0.048	0.049	0.049	0.165	0.165	0.165
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects					Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 3. Perceptions of Corruption on Corporate Innovation

This table reports the baseline test that examines sample-wide effect of perceptions of corruption on corporate innovation. Panel A reports the baseline regression without adding any control variables. In Panel B, Firm level and country level controls are progressively introduced into the baseline model to control for firm- and country- specific characteristics. Industry fixed effects, country and year fixed effects are included in the regressions. All variables are defined in Appendix. Standard errors are robust to heterogeneity and clustered by country and year. Robust p-values in parentheses: †, *, **, and *** denote significance levels of 10%, 5%, 1%, and 0.1%, respectively.

VARIABLES	(1) lnPATENT $_{t+1}$	(2) lnFAMPA T_{t+1}	(3) lnCITEPA T_{t+1}	(4) lnPATENT $_{t+1}$	(5) lnFAMPA T_{t+1}	(6) lnCITEPA T_{t+1}
Perceptions of	0.7613***	0.7794***	0.9529†	0.7433***	0.7489***	0.8851†
Corruption	(0.000)	(0.000)	(0.083)	(0.000)	(0.000)	(0.100)
TobinQ	0.0335***	0.0425***	0.0317***	0.0336***	0.0426***	0.0319***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cash Flow/Assets	-0.1752***	-0.2151***	-0.1457***	-0.1746***	-0.2142***	-0.1436***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SalesGrowth	0.0098	0.0189†	0.0089	0.0098	0.0189†	0.0089
	(0.125)	(0.060)	(0.407)	(0.125)	(0.060)	(0.406)
R&D/Assets	0.4429***	0.5799***	0.4134***	0.4430***	0.5801***	0.4140***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ForeignSales	0.3178***	0.3778***	0.2871***	0.3180***	0.3781***	0.2876***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Assets)	-0.2227***	-0.3234***	-0.2845***	-0.2231***	-0.3241***	-0.2860***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Age)	4.2094***	5.5036***	4.0479***	4.2073***	5.5001***	4.0400***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	-0.1171***	-0.1333***	-0.1044***	-0.1185***	-0.1357***	-0.1097***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
HHI	-0.2731	-0.5130†	-0.6042†	-0.2734	-0.5135†	-0.6052†
	(0.274)	(0.095)	(0.063)	(0.273)	(0.095)	(0.062)
HHI^2	0.3378†	0.5461*	0.5457*	0.3383†	0.5470*	0.5478*
	(0.078)	(0.020)	(0.026)	(0.078)	(0.020)	(0.025)
Capex	-0.0891	-0.2370†	-0.2767†	-0.0864	-0.2323†	-0.2663†
	(0.392)	(0.090)	(0.061)	(0.407)	(0.097)	(0.071)
GDP_Growth				-0.0113*	-0.0192**	-0.0426**
				(0.037)	(0.006)	(0.002)
Observations	70,356	70,356	70,356	70,356	70,356	70,356
Adjusted R-squared	0.367	0.360	0.355	0.367	0.360	0.356
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes	Yes	Yes

Table 4. Perception of Corruption on Corporate Investment and Innovation: Subsample Results

This table reports the effect of perceptions of corruption on corporate investments & innovation in Emerging and Advanced economies. *Emerging* is a dummy variable equals to 1 if a firm belongs to an Emerging market, and zero otherwise. All the firm-level control variables for the corporate investment regression are lagged by one year following Shao, Kwok and Zhang (2013). All variables are defined in Appendix. Standard errors are robust to heterogeneity and clustered by country and year. Robust p-values in parentheses: †, *, **, and *** denote significance levels of 10%, 5%, 1%, and 0.1%, respectively.

Panel A. Corporate Investment

VARIABLES	(1) Emerging Capex	(2) Advanced Capex	(3) Emerging Capex	(4) Advanced Capex
Perceptions of Corruption	0.0712***	0.0109	0.0706***	0.0113
	(0.000)	(0.222)	(0.000)	(0.209)
Perceptions of Corruption * External Finance Dependence			0.0022**	-0.0008
			(0.005)	(0.282)
$(TobinQ)_{t-1}$	0.0025***	0.0018***	0.0025***	0.0018***
	(0.000)	(0.000)	(0.000)	(0.000)
$(OCF/TA)_{t-1}$	0.0835***	0.0076***	0.0835***	0.0076***
	(0.000)	(0.000)	(0.000)	(0.000)
$(SalesGrowth)_{t-1}$	0.0027***	0.0044***	0.0027***	0.0044***
	(0.001)	(0.000)	(0.001)	(0.000)
$(ForeignSales)_{t-1}$	0.0011	-0.0038**	0.0011	-0.0038**
	(0.499)	(0.004)	(0.497)	(0.004)
$(Ln(Assets))_{t-1}$	0.0009*	-0.0000	0.0009*	-0.0000
	(0.025)	(0.913)	(0.025)	(0.920)
$(Leverage)_{t-1}$	0.0080**	-0.0015	0.0080**	-0.0015
	(0.005)	(0.280)	(0.005)	(0.282)
GDP_Growth	0.0007	0.0009*	0.0007	0.0009*
	(0.193)	(0.019)	(0.194)	(0.019)
Observations	52,742	128,521	52,730	128,446
Adjusted R-squared	0.132	0.197	0.132	0.197
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes

Panel B. Corporate Innovation

VARIABLES	(1) Emerging $lnPATENT_{t+1}$	(2) Advanced $lnPATENT_{t+1}$	(3) Emerging $lnFAMPAT_{t+1}$	(4) Advanced $lnFAMPAT_{t+1}$	(5) Emerging $lnCITEPAT_{t+1}$	(6) Advanced $lnCITEPAT_{t+1}$
Perceptions of Corruption	-0.1911	0.7396***	0.4091	0.6092**	0.1457	0.9093†
	(0.665)	(0.000)	(0.405)	(0.004)	(0.812)	(0.088)
TobinQ	0.0430***	0.0316***	0.0540***	0.0399***	0.0353***	0.0308***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Cash Flow/Assets	0.4103***	-0.2088***	0.4983***	-0.2501***	0.3239***	-0.1641***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
SalesGrowth	0.0014	0.0088	0.0056	0.0175	-0.0038	0.0091
	(0.919)	(0.199)	(0.744)	(0.107)	(0.813)	(0.443)
R&D/Assets	0.3166***	0.4308***	0.4106***	0.5657***	0.3228***	0.4005***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ForeignSales	0.2347***	0.3337***	0.2780***	0.3971***	0.1783***	0.3072***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Assets)	-0.1055*	-0.2063***	-0.1849***	-0.2999***	-0.1854***	-0.2699***
	(0.012)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Ln(Age)	5.7603***	3.9164***	7.0821***	5.1420***	3.7356***	3.8869***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	-0.0705*	-0.0885***	-0.0534	-0.1104***	0.0021	-0.1315***
	(0.017)	(0.000)	(0.145)	(0.000)	(0.950)	(0.000)
HHI	-0.1245	-0.4309	-0.3194	-0.7357*	-0.2743	-0.8233*
	(0.419)	(0.124)	(0.111)	(0.035)	(0.174)	(0.029)
HHI^2	0.1619	0.4836*	0.3457*	0.7342**	0.2248	0.7463**
	(0.187)	(0.026)	(0.028)	(0.006)	(0.156)	(0.009)
Capex	-0.1346	-0.0390	-0.1721	-0.1956	-0.0195	-0.2065
	(0.241)	(0.771)	(0.265)	(0.260)	(0.886)	(0.276)
GDP_Growth	-0.0101*	-0.0114	-0.0113†	-0.0175†	-0.0035	-0.0374*
	(0.044)	(0.152)	(0.054)	(0.084)	(0.687)	(0.039)
Observations	14,879	55,477	14,879	55,477	14,879	55,477
Adjusted R-squared	0.231	0.386	0.223	0.377	0.212	0.370
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes	Yes	Yes

Panel C. Corporate innovation – interaction with Industry-level Innovation Intensity

VARIABLES	(1) Emerging lnPATENT$_{t+1}$	(2) Advanced lnPATENT$_{t+1}$	(3) Emerging lnFAMPA$_{t+1}$	(4) Advanced lnFAMPA$_{t+1}$	(5) Emerging lnCITEPA$_{t+1}$	(6) Advanced lnCITEPA$_{t+1}$
Perceptions of Corruption	-0.2306	0.4668*	0.3431	0.2992	0.0808	0.6168
	(0.597)	(0.013)	(0.480)	(0.162)	(0.893)	(0.237)
Perceptions of Corruption *Innovation Intensity	1.6238	7.8173***	2.5829†	8.9655***	2.3592	8.3569***
	(0.165)	(0.000)	(0.089)	(0.000)	(0.140)	(0.000)
TobinQ	0.0431***	0.0314***	0.0542***	0.0398***	0.0354***	0.0307***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cash Flow/Assets	0.4098***	-0.2092***	0.4976***	-0.2505***	0.3229***	-0.1648***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
SalesGrowth	0.0013	0.0089	0.0055	0.0177	-0.0038	0.0092
	(0.924)	(0.196)	(0.745)	(0.104)	(0.812)	(0.441)
R&D/Assets	0.3160***	0.4367***	0.4096***	0.5729***	0.3217***	0.4061***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ForeignSales	0.2347***	0.3328***	0.2779***	0.3960***	0.1782***	0.3065***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Assets)	-0.1058*	-0.2084***	-0.1853***	-0.3028***	-0.1858***	-0.2722***
	(0.012)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Ln(Age)	5.7549***	4.0520***	7.0728***	5.2956***	3.7264***	4.0304***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	-0.0711*	-0.0857***	-0.0543	-0.1075***	0.0018	-0.1287***
	(0.016)	(0.000)	(0.140)	(0.000)	(0.957)	(0.000)
HHI	-0.1261	-0.3978	-0.3215	-0.6964*	-0.2753	-0.7858*
	(0.414)	(0.149)	(0.109)	(0.043)	(0.173)	(0.035)
HHI^2	0.1639	0.4547*	0.3484*	0.6995**	0.2265	0.7125*
	(0.183)	(0.034)	(0.027)	(0.009)	(0.155)	(0.011)
Capex	-0.1329	-0.0476	-0.1694	-0.2060	-0.0169	-0.2158
	(0.245)	(0.718)	(0.269)	(0.231)	(0.901)	(0.252)
GDP_Growth	-0.0102*	-0.0112	-0.0115*	-0.0172†	-0.0038	-0.0373*
	(0.042)	(0.160)	(0.048)	(0.089)	(0.666)	(0.041)
Observations	14,864	55,300	14,864	55,300	14,864	55,300
Adjusted R-squared	0.231	0.386	0.223	0.378	0.213	0.371
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes	Yes	Yes

Table 5. Corruption on Corporate Investment: IV approach

This table reports the baseline test that examines sample-wide effect of perceptions of corruption on corporate investments with instrument variables approach. We use three measures of political polarization index that are related to perceptions of corruption as IV: Income inequality in column (2), private vs. state ownership of business in (3), Government responsibility in column (4). Firm level and country level controls are introduced into the baseline model to control for firm- and country- specific characteristics. Country, industry and year fixed effects are included in the regressions. All the firm-level control variables for the corporate investment regression are lagged by one year following Shao, Kwok and Zhang (2013). All variables are defined in Appendix. Standard errors are robust to heterogeneity and clustered by country and year. Robust p-values in parentheses: †, *, **, and *** denote significance levels of 10%, 5%, 1%, and 0.1%, respectively.

Panel A. Corporate investment

VARIABLES	(1) OLS	(2) IV+Income_ineq	(3) IV+PRST	(4) IV+Gov
Perceptions of Corruption	0.0261*	0.3731**	0.3273*	0.3537*
	(0.014)	(0.004)	(0.011)	(0.025)
$(TobinQ)_{t-1}$	0.0020***	0.0020***	0.0020***	0.0020***
	(0.000)	(0.000)	(0.000)	(0.000)
$(OCF/TA)_{t-1}$	0.0119***	0.0116***	0.0113***	0.0116***
	(0.000)	(0.000)	(0.000)	(0.000)
$(SalesGrowth)_{t-1}$	0.0044***	0.0046***	0.0047***	0.0047***
	(0.000)	(0.000)	(0.000)	(0.000)
$(ForeignSales)_{t-1}$	-0.0029**	-0.0017	-0.0015	-0.0017
	(0.010)	(0.269)	(0.337)	(0.233)
$(Ln(Assets))_{t-1}$	0.0000	-0.0004	-0.0003	-0.0004
	(0.832)	(0.196)	(0.385)	(0.238)
$(Leverage)_{t-1}$	-0.0003	-0.0007	-0.0010	-0.0007
	(0.823)	(0.602)	(0.469)	(0.598)
GDP_Growth	0.0010*	0.0011	0.0011	0.0011
	(0.021)	(0.191)	(0.134)	(0.174)
Observations	181,263	164,386	157,559	164,386
Adjusted R-squared	0.165	-0.026	-0.016	-0.022
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes
1st stage F-stat		22.26	19.82	12.57
Partial R^2		0.0817	0.0846	0.0555

Panel B. Corporate Innovation: $lnPATENT_{t+1}$

VARIABLES	(1) OLS	(2) IV+Income_ineq	(3) IV+PRST	(4) IV+Gov
Perceptions of Corruption	0.7433***	0.5040	0.9143†	1.5994*
	(0.000)	(0.334)	(0.073)	(0.034)
TobinQ	-0.0864	-0.1501	-0.1523	-0.1515
	(0.407)	(0.140)	(0.134)	(0.144)
Cash Flow/Assets	0.0336***	0.0364***	0.0362***	0.0361***
	(0.000)	(0.000)	(0.000)	(0.000)
SalesGrowth	-0.1746***	-0.1630***	-0.1589***	-0.1627***
	(0.000)	(0.000)	(0.000)	(0.000)
ForeignSales	0.0001	0.0001†	0.0001†	0.0001
	(0.125)	(0.092)	(0.068)	(0.127)
Ln(Assets)	0.4430***	0.4912***	0.4948***	0.4972***
	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	0.3180***	0.3278***	0.3268***	0.3253***
	(0.000)	(0.000)	(0.000)	(0.000)
R&D/Assets	-0.2231***	-0.2158***	-0.2057***	-0.2150***
	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Age)	4.2073***	4.8190***	4.9610***	4.7515***
	(0.000)	(0.000)	(0.000)	(0.000)
HHI	-0.1185***	-0.1285***	-0.1137***	-0.1167***
	(0.000)	(0.000)	(0.000)	(0.000)
HHI^2	-0.2734	-0.2888	-0.3345	-0.2793
	(0.273)	(0.269)	(0.212)	(0.286)
Capex	0.3383†	0.3708†	0.4110*	0.3637†
	(0.078)	(0.066)	(0.048)	(0.072)
GDP_Growth	-0.0113*	-0.0176**	-0.0166**	-0.0168**
	(0.037)	(0.002)	(0.002)	(0.002)
Observations	70,356	63,776	61,224	63,776
Adjusted R-squared	0.367	0.205	0.204	0.205
Country fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes
1st stage F-stat		11.96	12.57	8.290
Partial R^2		0.0618	0.0770	0.0443

Table 6. Alternative measure of perceptions of corruption

This table reports the effect of perceptions of corruption on corporate investments & innovation in Emerging and Advanced countries. *Corruption 2* is taken from Transparency International and is rescaled to 0 to 10, a higher value indicates higher perceptions of corruption. *Emerging* is a dummy variable equals to 1 if a firm belongs to an Emerging country, and zero otherwise. All the firm-level control variables for the corporate investment regression are lagged by one year following Shao, Kwok and Zhang (2013). All variables are defined in Appendix. Standard errors are robust to heterogeneity and clustered by country and year. Robust p-values in parentheses: †, *, **, and *** denote significance levels of 10%, 5%, 1%, and 0.1%, respectively.

Panel A. Corporate Investment

VARIABLES	(1) Capex	(2) Capex	(3) Capex	(4) Capex
Corruption 2	0.0076*	-0.0062*	0.0075*	-0.0061*
	(0.014)	(0.025)	(0.015)	(0.027)
Corruption 2 * External Finance Dependence			0.0003†	-0.0003**
			(0.059)	(0.005)
$(TobinQ)_{t-1}$	0.0025***	0.0018***	0.0025***	0.0018***
	(0.000)	(0.000)	(0.000)	(0.000)
$(OCF/TA)_{t-1}$	0.0839***	0.0076***	0.0839***	0.0076***
	(0.000)	(0.000)	(0.000)	(0.000)
$(SalesGrowth)_{t-1}$	0.0027***	0.0044***	0.0027***	0.0044***
	(0.000)	(0.000)	(0.000)	(0.000)
$(ForeignSales)_{t-1}$	0.0010	-0.0038**	0.0010	-0.0038**
	(0.575)	(0.003)	(0.563)	(0.003)
$(Ln(Assets))_{t-1}$	0.0009*	-0.0000	0.0009*	-0.0000
	(0.034)	(0.890)	(0.036)	(0.896)
$(Leverage)_{t-1}$	0.0080**	-0.0015	0.0081**	-0.0015
	(0.005)	(0.281)	(0.005)	(0.285)
GDP_Growth	0.0005	0.0006	0.0005	0.0006
	(0.320)	(0.160)	(0.321)	(0.159)
Observations	52,808	128,536	52,796	128,461
Adjusted R-squared	0.131	0.197	0.131	0.197
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes

Panel B. Corporate Innovation

VARIABLES	(1) Emerging $lnPATENT_{t+1}$	(2) Advanced $lnPATENT_{t+1}$	(3) Emerging $lnFAMPAT_{t+1}$	(4) Advanced $lnFAMPAT_{t+1}$	(5) Emerging $lnCITEPAT_{t+1}$	(6) Advanced $lnCITEPAT_{t+1}$
Corruption 2	0.0464	0.0898**	0.0889	0.0602	0.1353*	0.3354***
	(0.292)	(0.007)	(0.119)	(0.103)	(0.034)	(0.000)
TobinQ	0.0330**	0.0320***	0.0442***	0.0416***	0.0320***	0.0385***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cash Flow/Assets	0.3763***	-0.2239***	0.4649***	-0.2781***	0.2964***	-0.2183***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
SalesGrowth	-0.0185	0.0080	-0.0199	0.0175†	-0.0194	0.0109
	(0.245)	(0.195)	(0.274)	(0.069)	(0.137)	(0.298)
ForeignSales	0.2510***	0.4335***	0.3219***	0.5763***	0.2402***	0.4511***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Assets)	0.2773***	0.3434***	0.3215***	0.4155***	0.2295***	0.3695***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	-0.2193***	-0.2056***	-0.3212***	-0.3055***	-0.2975***	-0.3185***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R&D/Assets	7.2696***	3.9957***	8.6104***	5.3233***	4.8073***	4.6006***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Age)	-0.1143***	-0.1071***	-0.1030**	-0.1266***	0.0111	-0.1930***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.709)	(0.000)
HHI	0.0103	-0.2600	-0.1305	-0.5395†	0.1662	-0.6437*
	(0.944)	(0.259)	(0.466)	(0.055)	(0.396)	(0.036)
HHI^2	0.0196	0.3379†	0.1543	0.5702**	-0.1274	0.5765*
	(0.874)	(0.055)	(0.299)	(0.008)	(0.430)	(0.011)
Capex	-0.0549	0.0403	-0.1155	-0.1058	-0.0067	-0.1407
	(0.598)	(0.703)	(0.366)	(0.434)	(0.949)	(0.327)
GDP_Growth	-0.0275***	-0.0089	-0.0368***	-0.0132†	0.0028	-0.0267†
	(0.000)	(0.185)	(0.000)	(0.092)	(0.789)	(0.068)
Observations	27,228	80,802	27,228	80,802	27,228	80,802
Adjusted R-squared	0.263	0.387	0.234	0.374	0.223	0.381
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes	Yes	Yes

Panel C. Corporate Innovation – Interaction with Industry-level Innovation Intensity

VARIABLES	(1) Emerging lnPATENT $_{t+1}$	(2) Advanced lnPATENT $_{t+1}$	(3) Emerging lnFAMPAT $_{t+1}$	(4) Advanced lnFAMPAT $_{t+1}$	(5) Emerging lnCITEPAT $_{t+1}$	(6) Advanced lnCITEPAT $_{t+1}$
Corruption 2	0.0228	0.0585†	0.0595	0.0281	0.1151†	0.3047***
	(0.614)	(0.079)	(0.305)	(0.451)	(0.066)	(0.000)
Corruption 2 * Innovation Intensity	0.7781***	0.9646***	0.9802***	0.9818***	0.6784**	0.9507**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.001)
TobinQ	0.0326**	0.0320***	0.0437***	0.0415***	0.0317***	0.0384***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cash Flow/Assets	0.3742***	-0.2239***	0.4629***	-0.2781***	0.2950***	-0.2187***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
SalesGrowth	-0.0187	0.0078	-0.0202	0.0174†	-0.0197	0.0108
	(0.238)	(0.204)	(0.267)	(0.070)	(0.130)	(0.307)
ForeignSales	0.2467***	0.4368***	0.3165***	0.5803***	0.2364***	0.4545***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Assets)	0.2769***	0.3429***	0.3210***	0.4149***	0.2291***	0.3692***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	-0.2212***	-0.2081***	-0.3236***	-0.3087***	-0.3000***	-0.3215***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R&D/Assets	7.3913***	4.0834***	8.7641***	5.4110***	4.9151***	4.6870***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Age)	-0.1136***	-0.1042***	-0.1020**	-0.1238***	0.0121	-0.1904***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.682)	(0.000)
HHI	0.0264	-0.2444	-0.1115	-0.5225†	0.1760	-0.6263*
	(0.860)	(0.285)	(0.539)	(0.061)	(0.370)	(0.040)
HHI^2	0.0070	0.3262†	0.1396	0.5567**	-0.1345	0.5619*
	(0.955)	(0.061)	(0.355)	(0.009)	(0.406)	(0.013)
Capex	-0.0483	0.0400	-0.1060	-0.1060	0.0014	-0.1408
	(0.635)	(0.705)	(0.396)	(0.434)	(0.989)	(0.328)
GDP_Growth	-0.0277***	-0.0084	-0.0371***	-0.0125	0.0026	-0.0261†
	(0.000)	(0.214)	(0.000)	(0.108)	(0.804)	(0.074)
Observations	27,192	80,546	27,192	80,546	27,192	80,546
Adjusted R-squared	0.263	0.387	0.235	0.374	0.223	0.381
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes	Yes	Yes

Table 7. Robustness check

This table reports the effect of perceptions of corruption on corporate investments & innovation. Panel A includes firm and year fixed effects. Panel B presents results without U.S. samples. Panel C reports the interaction term with judicial efficiency. Firm-level control variables for the corporate investment regression are lagged by one year following Shao, Kwok and Zhang (2013). All variables are defined in Appendix. Standard errors are robust to heterogeneity and clustered by country and year. Robust p-values in parentheses: †, *, **, and *** denote significance levels of 10%, 5%, 1%, and 0.1%, respectively

Panel A With firm and year fixed effects

	(1)	(2)	(3)	(4)
VARIABLES	Capex	$lnPATENT_{t+1}$	$lnFAMPAT_{t+1}$	$lnCITEPAT_{t+1}$
Perceptions of Corruption	0.0241*	0.4253**	0.4430*	0.9050†
	(0.033)	(0.010)	(0.042)	(0.092)
$(TobinQ)_{t-1}$	0.0021***			
	(0.000)			
$(OCF/TA)_{t-1}$	0.0029			
	(0.131)			
$(SalesGrowth)_{t-1}$	0.0027***			
	(0.000)			
$(ForeignSales)_{t-1}$	-0.0005			
	(0.780)			
$(Ln(Assets))_{t-1}$	-0.0282***			
	(0.000)			
$(Leverage)_{t-1}$	-0.0295***			
	(0.000)			
TobinQ		0.0029*	0.0029	-0.0012
		(0.031)	(0.181)	(0.597)
Cash Flow/Assets		0.0148	0.0262	0.0262
		(0.382)	(0.376)	(0.366)
SalesGrowth		-0.0082*	-0.0088	-0.0067
		(0.038)	(0.163)	(0.322)
ForeignSales		-0.0520	-0.0895†	-0.2438**
		(0.167)	(0.088)	(0.010)
Ln(Assets)		0.0932***	0.0816***	-0.0160
		(0.000)	(0.000)	(0.592)
Leverage		-0.0468*	-0.0921**	-0.1437**
		(0.033)	(0.001)	(0.001)
R&D/Assets		0.8184*	1.1855*	1.3122†
		(0.023)	(0.014)	(0.097)
Ln(Age)		0.2260**	0.3409**	1.1183***
		(0.008)	(0.003)	(0.000)
HHI		-0.0457	-0.0080	-0.0258
		(0.693)	(0.964)	(0.899)
HHI^2		0.0395	0.0117	0.0008
		(0.676)	(0.936)	(0.996)
Capex		-0.0901†	-0.1025	-0.1724*
		(0.062)	(0.133)	(0.046)
GDP_Growth	0.0006	-0.0063†	-0.0133*	-0.0300*
	(0.177)	(0.087)	(0.013)	(0.013)

Observations	176,555	69,339	69,339	69,339
Adjusted R-squared	0.464	0.841	0.798	0.697
Year fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes

Panel B. Excluding USA

VARIABLES	(1) Capex	(2) $lnPATENT_{t+1}$	(3) $lnFAMPAT_{t+1}$	(4) $lnCITEPAT_{t+1}$
Perceptions of Corruption	0.0092*	0.9087***	1.1602***	2.4848***
	(0.031)	(0.000)	(0.000)	(0.000)
$(TobinQ)_{t-1}$	0.0032***			
	(0.000)			
$(OCF/TA)_{t-1}$	0.0323***			
	(0.000)			
$(SalesGrowth)_{t-1}$	0.0053***			
	(0.000)			
$(ForeignSales)_{t-1}$	-0.0034*			
	(0.046)			
$(Ln(Assets))_{t-1}$	-0.0012**			
	(0.005)			
$(Leverage)_{t-1}$	0.0035			
	(0.211)			
TobinQ		0.0319***	0.0397***	0.0280***
		(0.000)	(0.000)	(0.000)
Cash Flow/Assets		-0.0889*	-0.0829†	-0.0438
		(0.013)	(0.072)	(0.245)
SalesGrowth		-0.0090	-0.0108	-0.0116
		(0.157)	(0.217)	(0.185)
ForeignSales		0.3093***	0.4156***	0.2657***
		(0.000)	(0.000)	(0.000)
Ln(Assets)		0.3178***	0.3746***	0.2652***
		(0.000)	(0.000)	(0.000)
Leverage		-0.2379***	-0.3328***	-0.2082***
		(0.000)	(0.000)	(0.000)
R&D/Assets		5.1323***	6.8018***	5.2347***
		(0.000)	(0.000)	(0.000)
Ln(Age)		-0.1405***	-0.1613***	-0.1124**
		(0.000)	(0.000)	(0.002)
HHI		0.7431***	0.7522***	0.5659**
		(0.000)	(0.000)	(0.003)
HHI^2		-0.4434***	-0.4157***	-0.3400*
		(0.000)	(0.001)	(0.013)
Capex		0.2565*	0.2720*	0.2071
		(0.021)	(0.047)	(0.109)
GDP_Growth	0.0019***	-0.0080	-0.0118†	-0.0148
	(0.000)	(0.148)	(0.069)	(0.184)
Observations	127,340	50,767	50,767	50,767
Adjusted R-squared	0.137	0.378	0.370	0.355
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes

Panel C. Interaction with Judicial Efficiency

VARIABLES	(1) Capex	(2) $lnPATENT_{t+1}$	(3) $lnFAMPAT_{t+1}$	(4) $lnCITEPAT_{t+1}$
Perceptions of Corruption	0.1128†	-3.8150***	-3.2535**	-8.2018***
	(0.057)	(0.001)	(0.006)	(0.000)
Perceptions of Corruption * Judicial Efficiency	-0.0094	0.4847***	0.4262**	0.9660***
	(0.130)	(0.000)	(0.001)	(0.000)
$(TobinQ)_{t-1}$	0.0020***			
	(0.000)			
$(OCF/TA)_{t-1}$	0.0115***			
	(0.000)			
$(SalesGrowth)_{t-1}$	0.0044***			
	(0.000)			
$(ForeignSales)_{t-1}$	-0.0030**			
	(0.008)			
$(Ln(Assets))_{t-1}$	0.0001			
	(0.706)			
$(Leverage)_{t-1}$	-0.0002			
	(0.871)			
TobinQ		0.0337***	0.0428***	0.0319***
		(0.000)	(0.000)	(0.000)
Cash Flow/Assets		-0.1747***	-0.2143***	-0.1437***
		(0.000)	(0.000)	(0.000)
SalesGrowth		0.0106†	0.0202*	0.0095
		(0.098)	(0.045)	(0.379)
ForeignSales		0.4513***	0.5913***	0.4241***
		(0.000)	(0.000)	(0.000)
Ln(Assets)		0.3197***	0.3804***	0.2888***
		(0.000)	(0.000)	(0.000)
Leverage		-0.2220***	-0.3230***	-0.2867***
		(0.000)	(0.000)	(0.000)
R&D/Assets		4.1646***	5.4466***	3.9799***
		(0.000)	(0.000)	(0.000)
Ln(Age)		-0.1229***	-0.1415***	-0.1165***
		(0.000)	(0.000)	(0.000)
HHI		-0.2844	-0.5225†	-0.6197†
		(0.254)	(0.090)	(0.056)
HHI^2		0.3512†	0.5588*	0.5656*
		(0.067)	(0.018)	(0.021)
Capex		-0.0985	-0.2514†	-0.2773†
		(0.345)	(0.073)	(0.062)
GDP_Growth	0.0010*	-0.0143**	-0.0217**	-0.0486***
	(0.031)	(0.009)	(0.002)	(0.001)
Observations	176,553	69,323	69,323	69,323
Adjusted R-squared	0.165	0.367	0.361	0.358
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Cluster by Country and Year	Yes	Yes	Yes	Yes

[1] If data for government corruption were missing, business corruption data were used to represent perceptions of corruption for the country.
[2] We exclude countries with fewer than 20 firm-year observations.
[3] We use a static judicial measure from Laeven and Majnoni (2005).