# Firms in Corrupt Environments and the Value of Corporate Governance*

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**Abstract**

We present evidence on the relation between local corruption and firm value in the United States. We find that firm value (*Tobin's Q*) is significantly lower in more corrupt areas, after controlling for endogeneity. However, firms that sell goods and services to the government (i.e., "government-dependent firms") are less negatively affected by local corruption. Further, firms in more corrupt environments are informationally less transparent. Importantly, we find that stronger corporate governance (either internal to the firm or due to an exogenous regulatory change in governance standards) benefits firm value but largely in more corrupt areas. Overall, we find that corruption matters for firm value even in the U.S.; however, stronger corporate governance mechanisms can overcome some of the ill-effects of corruption.

**Keywords:** Corruption, Corporate Governance
**JEL Codes:** *D73, G34*

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*We thank the seminar participants at Georgia Institute of Technology. All remaining errors are our own.

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**Abstract**

We present evidence on the relation between local corruption and firm value in the United States. We find that firm value (*Tobin's Q*) is significantly lower in more corrupt areas, after controlling for endogeneity. However, firms that sell goods and services to the government (i.e., "government-dependent firms") are less negatively affected by local corruption. Further, firms in more corrupt environments are informationally less transparent. Importantly, we find that stronger corporate governance (either internal to the firm or due to an exogenous regulatory change in governance standards) benefits firm value but largely in more corrupt areas. Overall, we find that corruption matters for firm value even in the U.S.; however, stronger corporate governance mechanisms can overcome some of the ill-effects of corruption.



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# 1 Introduction

The study of corruption and its potential impact on economic activity has garnered substantial attention in the economics and finance literatures (see, e.g., Rose-Ackerman, 1975; Bardhan, 1997; and Svensson, 2005). Corruption is usually regarded as a drag on the economy because it tends to distort economic decisions and leads to a misallocation of resources (Shleifer and Vishny, 1993). The 'macro' question of whether corruption has an adverse effect on a country's economic growth has been subject to empirical investigation. These studies rely on cross-country surveys to gather evidence on corruption, with a focus on developing countries. However, the evidence linking survey-based measures of corruption and a country's economic growth is not conclusive. For instance, while Mauro (1995) finds that corruption adversely affects aggregate investment and economic growth, the relationship is not robust (Svensson, 2005). At the micro level, the evidence on detrimental effects of corruption is clearer; however, most of these studies present evidence from developing countries, often using survey data on small firms or individuals (e.g., Bates, 1981; Smarzynska and Wei, 2000; Fisman, 2001; Svensson, 2003; and Khwaja and Mian, 2005).[1]

Countries with high levels of corruption also tend to have weak legal and political institutions, which makes it difficult to pin down the effects of corruption versus other factors. Similarly, it is not evident that the micro-level evidence obtained from surveys of individuals and small firms can be extrapolated to the context of larger firms; nor does the survey evidence shed light on the underlying mechanism for the negative effect of corruption on firms. In particular, it is not known whether firms in more corrupt areas can overcome some of the disadvantages with internal changes, such as a stronger corporate governance. In this paper, we study the relation between public corruption and firm-level activity across different regions in a developed country, thereby fixing the institutional features of the country. We are also able to address the effect of corporate governance on the influence that local corruption has on firms and their policies.

Specifically, we focus our attention on corruption in the U.S. and its effect on large, public

[1]While there are some exceptions, the above description roughly characterizes the state of the literature.

firms. We acknowledge that one may be reasonably skeptical about the extent and significance of public corruption in the U.S. However, there is anecdotal as well as empirical evidence of at least some level of corruption in the U.S. – a case in point is the episode involving the lawyer Richard F. Scruggs, who is well known for winning multimillion dollar settlements for asbestos and tobacco-related illnesses. In a case against insurance companies (for not paying claims related to damage caused by Hurricane Katrina), Mr. Scruggs was charged for bribing a state-court judge in Mississippi and sentenced to prison.[2] It is also interesting to observe that, as per the World Bank's *Corruption Perceptions Index* of 2012, the U.S. is ranked 19th in the world, behind Nordic and Western European countries as well as East Asian countries such as Hong Kong, Japan, and Singapore.[3]

The level of corruption and especially the risk of expropriation or demand for bribes from public officials in the U.S. may be relatively low.[4] However, local corruption can influence (and be influenced by) economic activity through other channels. Public corruption may exist alongside and reinforce a broader "culture of corruption" that impinges on different aspects of economic activity in the local area (see, e.g., Manski, 1993; Guiso, Sapienza, and Zingales, 2006; and Fisman and Miguel, 2007). This culture of corruption can also encourage "private corruption" on the part of firms' managers. Hence, in a developed country such as the U.S., the "expropriation" based arguments may be less useful in understanding the effects of corruption while "culture" or social-norms based arguments are still valid.

Relying on the measures of state-level corruption, which have been used in the recent literature (e.g., Glaeser and Saks, 2006; and Butler, Fauver, and Mortal, 2009), as well as data on public firms from *Compustat*, we analyze the relation between the level of corruption in a state and the value of firms located in that state. We find strong evidence of a negative impact of corruption

[2]For more details, see Ferguson (2008) and the Wikipedia entry on Mr. Scruggs at `http://en.wikipedia.org/wiki/Richard_Scruggs`.

[3]`http://cpi.transparency.org/cpi2012/results/`.

[4]In part, this is due to long-standing effort by the federal government to target corrupt public officials. Also, as Shleifer and Vishny (1993) explain, there is robust (Bertrand-type) competition among government officials in the provision of public goods and services in a federalist system such as the U.S., which in theory can drive bribes down to zero.

on firm value: e.g., an increase in the level of corruption that reflects the difference between the 5th least corrupt state (Minnesota) and the 5th most corrupt state (Mississippi) is related with a 8.5% decrease in the average firm's *Tobin's Q*. This adverse effect of corruption on firm value is significant not only across states but also across different federal-court districts within a state after controlling for state fixed effects.

The relationship illustrated above may be endogenous: e.g., it is plausible that poorer economic conditions (reflected in lower firm value) are conducive to more corruption, and therefore, it is the lower firm value that encourages more corruption. To mitigate these concerns regarding reverse causality, we use instrumental variables that arguably have no direct effect on firm value but do have an impact on the level of corruption within the state. Specifically, we rely on the following two instruments that have been proposed in the political science literature (Johnson, LaFountain, and Yamarik, 2011): the number of days that a citizen has to be in residence in a state before being eligible to vote and the age of the state's constitution, both measured in 1970.[5] A longer waiting period is associated with a history of disenfranchisement. And, rewriting of the entire constitution is seen as much more dramatic than revising it with amendments. While the former reflects constraints on the electorate for punishing political corruption at the polls, the latter is related to the quality of the governing principles, which influences the legal ability to curb corruption. The basis for the exogeneity assumption is that there is no plausible economic argument for why these two political variables, as measured in 1970, would have a direct impact on the current firm values. Using these instrumental variables, we confirm the negative relation between the state-level corruption and the value of firms located in that state. The economic magnitude is greater compared with the OLS estimates: e.g., an increase in the level of corruption that reflects the difference between the 5th least corrupt state (Minnesota) and the 5th most corrupt state (Mississippi) is related with a 14.5% decrease in the average firm's *Tobin's Q*.

[5] Although we use the same measure of corruption as the one in Glaeser and Saks (2006), we refrain from using the demographic/socio-economic variables that these authors propose as instruments for the level of corruption because in our setting, with firm value as the dependent variable, these instruments are unlikely to satisfy the exclusion restriction.

The payment of bribes to public officials, which is symptomatic of the underlying corruption, is usually believed to be useful in maintaining a *quid pro quo* relationship, whereby firms pay bribes with the understanding that they will benefit in some way. We exploit this to further illustrate the relation between corruption and firm value. Specifically, we argue that some firms may be less vulnerable to the ill-effects of corruption and may instead benefit from it. For instance, firms which are more dependent on the public sector may be able to benefit from the *quid pro quo*. As such, we find that the negative effects of corruption are weaker in the case of firms that are more dependent on the government sector.

In addition to this cross-sectional heterogeneity among firms within the same state, we also utilize another time-series variation which helps strengthen our argument on government-dependence. Specifically, we test whether the benefit of the *quid pro quo* to government-dependent firms is greater when the value of goods and services procured by the government from the private sector is larger in the given year. We find evidence that is supportive of our prediction – the benefits of greater corruption increase with the level of government procurement but only for firms that are more government-dependent. On the other hand, the effect of corruption on firm value is not sensitive to the level of government procurement among firms that are less government-dependent.

Why is it that firms on average are hurt by corruption even when the quality of legal and political institutions in the U.S. is amongst the best? We hypothesize that one effect of the corrupt environment is that it encourages firms to be more opaque. This may be either because firms in more corrupt areas try to shelter their assets from expropriation or because the firms themselves are more corrupt and, therefore, try to dispel the informational transparency that is useful for investors. The latter is plausible if the state-level corruption is simply a reflection of the corrupt local culture, which is sometimes seen to be a function of demographic and socio-economic factors (e.g., Glaeser and Saks, 2006; and Guiso, Sapienza, and Zingales, 2006). The empirical evidence is supportive of our prediction: we find that firms in more corrupt states tend to provide less managerial guidance on earnings; manage their earnings more; and have a lower level of stock liquidity, thus reflecting greater information asymmetry surrounding their stock. These results are also economically meaningful: e.g., an increase in the level of corruption that reflects the difference between the 5th least corrupt state (Minnesota) and the 5th most corrupt state (Mississippi) is related with a 34.5% decrease in the average firm's liquidity (measured a là Amihud, 2002).

As we have mentioned above, there are two ways of explaining the corruption faced by firms in a country: either the firms face the risk of expropriation (e.g., demand for bribes) from public officials or the local cultural/social norms pervade the public as well as the private sector, by which corruption is just seen as "a way of doing business". In the former case, firms would be *victims* of corruption while in the latter case, they would be *complicit* in the culture of corruption by helping to perpetuate it. For instance, managers in a firm, like public officials in states with a culture of corruption, can demand kickbacks or bribes from suppliers in return for awarding contracts or favorable contractual terms, etc. This is akin to the findings of Fisman and Miguel (2007), whereby diplomats from more corrupt countries are more likely to exploit their diplomatic immunity and avoid paying parking fines. As we have stated earlier, we do not expect the risk of expropriation to be severe in the U.S., but differences in cultural norms across the states can lead to a noticeable heterogeneity in corruption within the U.S. This leads us to ask whether the firms' corporate governance plays a role in limiting the effects of corruption. The reason is as follows. If firms are victims of expropriation and bribery, which presumably affects all firms, then differences in firms' corporate governance will be immaterial. Whereas, if firms participate in the culture of corruption (e.g., by rent-seeking), then differences in firms' corporate governance will be important – firms with stronger governance mechanisms in place may be able to overcome the detrimental effects of the local corruption and can signal their superior quality with stronger governance mechanisms.

Therefore, in our final hypothesis, we argue that a stronger corporate governance is especially beneficial to firms located in more corrupt states. This is because when the external environment is weak, stronger internal governance mechanisms ensure that the cashflow and control rights of the investors are protected. We test for this prediction in various ways. We find that the negative impact of poor corporate governance (as measured by the governance index a lá Gompers, Ishii, and Metrick, 2003) is concentrated in more corrupt states; firm value is not affected by the governance index in less corrupt states. Following the findings of Giroud and Mueller (2011), we further test whether competition in the industry is a substitute for poor internal corporate governance when the ambient economic environment is corrupt. We find that the lack of both strong internal governance as well as greater industry competition hurts firm value only in more corrupt states; no such impact is found in less corrupt states. Overall, this evidence points to the fact that internal governance mechanisms may work in conjunction with the external economic and cultural environment.

Given the potential endogeneity in the firm's choice of corporate governance, we further test for the robustness of the above findings by analyzing the impact of an exogenous shock to corporate governance of all firms. The passage of Sarbanes Oxley Act of 2002 is an exogenous improvement in the corporate governance of all firms and is associated with an improvement in firm value for those previously less compliant with the provisions of the rules (Chhaochharia and Grinstein, 2007). We find that this benefits firm value only when the firm is located in a more corrupt state. Next, we consider another exogenous shock which arguably improved the level of informational transparency around the firms' stock. The Securities and Exchange Commission adopted the Regulation Fair Disclosure ("Reg FD") in 2000 in order to "promote the full and fair disclosure of information by issuers".[6] The enforcement of Reg FD increased the disclosure of information uniformly across all firms. However, the marginal benefit of this increase may be different across firms. We find that firms in more corrupt areas tend to benefit more from greater disclosure after the adoption of Reg FD. This finding is consistent with our argument that firms in more corrupt states tend to be more opaque; therefore, when they are forced to increase their information disclosure, the marginal benefit is greater.

Our paper contributes to several different strands of the literature. First, our paper is related

[6] http://www.sec.gov/rules/final/33-7881.htm.

to the literature on corruption. Much of the literature on corruption consists of either cross-country studies showing macro-level evidence that corruption impedes a country's economic growth (e.g., Mauro, 1995) or studies on developing countries that often rely on survey data and show micro-level evidence that corruption hurts small enterprises (e.g., Svensson, 2003) or individual households (Olken, 2006). Our paper is the first, to our knowledge, that analyzes the effect of corruption in a developed country on relatively large and public firms. Further, by exploiting the within-country variation in the level of corruption, we are able to abstract away from the confounding effects of the quality of legal/political institutions.

Second, by studying the effects of corruption in the U.S., we add to the literature that highlights the problem of corruption even amongst the most developed countries with fine legal/political institutions (e.g., La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997 and 1998; Glaeser and Saks, 2006). This is in spite of the fact that corruption is significantly higher in countries with lower GDP per capita and human capital as well as countries where the freedom of press is curtailed (Svensson, 2005). Therefore, by studying the effects of corruption in the U.S. – a country that is least expected to suffer from it as per the three factors highlighted above – we are able to establish a low benchmark for the ill-effects of corruption on mature public firms.

Third, our paper shows how firms act in the presence of local corruption – on average, the firms in more corrupt states tend to be more opaque, as reflected in their lower stock liquidity. As such, our paper contributes to the literature on the determinants of stock liquidity (Easley and O'Hara, 2003). The greater opacity may be due to two reasons (that may not be mutually exclusive): either the firms become opaque because they attempt to protect their assets from expropriation or because the local culture of corruption is shared by corporate managers, who restrict the flow of information to investors.

Finally, our paper contributes to the literature by highlighting the role of corporate governance mechanisms when the surrounding economic environment is rife with corruption. We find that stronger governance mechanisms are especially beneficial for the firm when there is more corruption in the local area. The choice of superior corporate governance can help firms distinguish themselves from other firms in more corrupt areas. This suggests that corporate governance mechanisms can at least partially overcome the problems of corruption due to poor political institutions. This is also consistent with other findings in the international finance literature whereby firms cross-list on foreign exchanges in order to signal their superior corporate governance (e.g., Stulz, 1999; Coffee, 2002).

The rest of the paper is structured as follows. Section 2 presents our hypotheses and Section 3 explains the construction of the data sample as well as the variables used. Section 4 presents the first set of results documenting the negative impact of corruption on firm value. Section 5 proposes some potential channels due to which firms in more corrupt states have lower value on average. Section 6 addresses the effect of firm's corporate governance on the relationship between state-level corruption and firm value. Section 7 concludes the paper.

## 2 Hypotheses

In this section, we develop our hypotheses and empirical predictions on the value and behavior of firms in more corrupt environments. As noted, there is a substantial literature on the relationship between corruption and economic activity, albeit at the cross-country level. The general notion is that public corruption can weaken economic activity since rent-seeking (or even the likelihood of it) by public officials leads to a wasteful misallocation of resources by firms (see, e.g., Murphy, Shleifer, and Vishny, 1993). There are, however, substantial cross-country differences in the extent to which corruption impinges on economic productivity: For instance, while some countries have experienced considerable economic growth despite high levels of corruption, in some other places the effect on economic progress seems devastating. A problem with cross-country studies is that the variation in the levels of institutional development and economic development is large, making it difficult to isolate the role of corruption *per se* from other country characteristics. Part of the motivation for our study is that we are able to study corruption across states in the U.S. (or across federal-court districts within larger states). Therefore, we can examine differences in corruption across areas with similar legal and institutional structures.

As the studies of corruption suggest, it is not straightforward to explain why some societies have high levels of public corruption, while others do not. However, there are some generally accepted facts about corruption patterns. One is that corruption tends to be persistent, i.e., history is important in explaining current levels of corruption. Tirole (1996) argues that generations that are born into corrupt environments will learn to be corrupt and cause it to persist. It is also argued that there may be a "tipping point" in terms of corruption. Hence, once the level of corruption is sufficiently high, even individuals who would have preferred to not be corrupt may have little choice since, for instance, their careers may be jeopardized if they are unwilling to accept bribes and share them with co-workers or superiors (Bardhan, 1997). Therefore, even if it is not apparent as to where corruption may take root, once it does, it tends to persist.

Some skepticism may be appropriate when it comes to the possible impact of public corruption on publicly traded firms in the U.S. It seems plausible that given the robust legal and regulatory system in the U.S., the level of public corruption in the state/district may have little impact on the values and policies of firms. This is especially the case for public firms that are overseen and monitored by a number of different entities including federal agencies such as the SEC, national stock exchanges, and institutional investors. We take the view that there may be two channels through which public corruption could have an effect on firms. One is the direct channel that could operate through actions of state regulatory agencies, local land-use and zoning laws, permits/license requirements, etc. To the extent that value extraction by public officials is a problem in corrupt environments, it is possible that firms attempt to shield themselves by becoming more opaque and providing less public information to analysts and financial markets. Overall, though, public corruption may be somewhat limited – after all, firms in the U.S. have recourse to the legal system if there is, indeed, a significant threat of expropriation. However, public corruption can be used by some firms to their advantage through a *quid pro quo* with the public official: for instance, by using regulations like zoning requirements to impose costs/restrictions on competitors or by gaining governmental contracts on attractive terms.

There is, however, a second, more insidious, channel through which public corruption could affect firms. We hypothesize that local public corruption may have a broader corrupting influence, contributing to a "culture" of corruption in which "private corruption" exists alongside public corruption, and the two are reinforcing. What we term private corruption is that corporate managers, along with being comfortable in terms of bribing public officials, have few compunctions about extracting substantial private benefits from their firms as well. Further, these views of managers may well be shared by their board members. It is also plausible that there are social networks through which public official and corporate managers know each other, and share common attitudes toward extracting benefits – whether at the expense of tax-payers or shareholders. As we show below, we attempt to empirically distinguish between these channels by examining the effect of the passage of federal regulatory changes that require more disclosure or enhance governance.

We now turn to the specific hypotheses that we will empirically test, starting with the hypothesized impact of local corruption on firm value. We hypothesize that, on the whole, the firms in corrupt environments will suffer in terms of value. This could be on account of extraction of value by public officials that, as suggested in the literature, might force firms to shy away from dealing with the public sector (e.g., Svensson, 2003). There could also be a negative value effect if public corruption tends to be associated with a broader culture of corruption in which managers extract their own private benefits.

**Hypothesis 1 (H1):** *Firms that are located in more corrupt states (or federal-court districts) will have lower firm value (Tobin's Q) on average.*

While the typical firm may be less valuable in a corrupt environment, not all firms will be affected equally. In particular, we would expect some firms to develop a *quid pro quo* relationship with public officials. Specifically, firms that are heavily engaged in providing goods and services for the government may be able to use bribes to obtain government contracts on attractive terms. As a consequence, these firms may benefit more than they would without the payment of these bribes. This hypothesis provides a way to test whether any value effects that are found are driven by the presence of public corruption. After all, there is no reason to otherwise expect firms selling to the government to be affected differently than other firms. Our second hypothesis can be stated as follows:

**Hypothesis 2 (H2):** *Firms from industries that are more dependent on government contracts for their sales will be less affected by the adverse effects of greater corruption.*

Next, we attempt to understand the channels through which public corruption has a detrimental effect on the average firm's value (*Tobin's Q*). There could be multiple reasons due to which firms in more corrupt states have lower value: e.g., they invest and innovate less (Bates, 1987; Murphy, Shleifer, and Vishny, 1993), or have little financial slack (Caprio, Faccio, and McConnell, 2013). Shleifer and Vishny (1993) have argued that a characteristic feature of corruption that makes it harmful for the economy is its illegality, and consequently, its secrecy. In that vein, we argue that firms in more corrupt states will also adopt more secrecy. This may be either because they want to protect their assets from the public official's expropriation or they want to reduce the investors' scrutiny because they participate in activities that abet corruption. The prediction that follows can be stated as:

**Hypothesis 3 (H3):** *Firms in more corrupt states are likely to be informationally more opaque.*

Finally, what is the role of corporate governance mechanisms in firms that are located in more corrupt states? Is stronger corporate governance rewarded as much in the presence of more corruption as it is generally? Or, are the benefits due to stronger corporate governance especially pronounced when the surrounding economic atmosphere is unfavorable due to corruption? If the firms are the victims of corruption in the state (i.e., "expropriation" is dominant), then all firms, irrespective of their corporate governance, will be adversely affected. However, if firms are complicit in the local corruption and it is the investors that stand to lose from the actions of firms located in more corrupt areas (i.e., "cultural norms" prevail), then stronger corporate governance will help the investors. Specifically, firms with better governance mechanisms in place or an exogenous improvement in governance of all firms (say, following a legislative rule) will benefit the investors more if these firms are located in more corrupt states. The effect of regulatory changes that raise governance requirements or require greater transparency provides a means to test between the two channels – rent-extraction by public official or rent-extraction by managers in a corrupt culture. If, following governance-improving legislative changes, firms tend to experience an increase in value that is larger in corrupt environments, then this would be supportive of "culture of corruption" as the primary channel. Therefore, our final hypothesis is:

**Hypothesis 4 (H4):** *Firms with better corporate governance mechanisms in place or an exogenous (legislative) improvement in corporate governance of all firms will be more value-enhancing in more corrupt states.*

We take these empirical predictions to data. In the next section, we describe the data and elaborate on the variables used in our analyses.

# 3 Data and Description of Variables

We start with all the public firms listed on the NYSE, NASDAQ, and AMEX from 1990 to 2011. We exclude firms in the financial (SIC 6000-6999) and other regulated (SIC 4900-4999) industries as well as firms with total assets less than $10 million. We gather accounting information on all firms and their (historical) headquarter location from *Compustat* over the years 1990–2011. We also collect data on management's guidance on earnings and analysts' earnings forecasts from *FirstCall* and *I/B/E/S*, respectively. After merging these data together, we have 9,141 firms with 72,757 firm-year observations.

## 3.1 Measures of Local Corruption

We collect the number of corruption-related convictions by each local United States Attorney's Office district from 1990 to 2011; these data are available from the U.S. Department of Justice's

(DoJ's) Public Integrity Section Reports. The Public Integrity Section focuses on "crimes involving abuses of the public trust by government officials" (Public Integrity Section, 2007). These data provide an ex post measure of corruption and have been used in the political economy (e.g., Fisman and Gatti, 2002; Glaeser and Saks, 2006) and finance (Butler, Fauver, and Mortal, 2003) literatures. Glaeser and Saks (2006) provide a detailed discussion on these convictions data; as they point out, an advantage of using these data is that unlike the survey-based data or data on peoples'/firms' *perception* of corruption that have been used in earlier studies, these data are an *objective* measure of the corruption faced by firms.[7] Further, because these data are based on *convictions* of public officials, these serve as a lower benchmark for the actual level of corruption.

Another advantage of using these data is the availability of convictions at the federal-court district level, which provides an opportunity to differentiate the effect of local corruption from potential confounding effects at the state level. States with larger population tend to have more than one federal district; by using state-level fixed effects to control for state laws and regulation, we are able to rely on within-state variation in corruption across districts to identify the effect of local corruption. We measure the level of corruption in a state (district) every year by the ratio of the number of corruption-related convictions to population of the state (district) in millions; we denote this variable as *State Level* (*District Level*). Given the stability of the relative level of corruption over time (Tirole, 1996), we also use the time-series average of the state level of corruption (*State Average*) and the national rank of this time-series average (*State Rank*) as two alternative measures. As Figure 1 shows for *State Average*, there is significant variation in corruption across the United States.

### 3.2 Dependent Variables

The main dependent variable in our study is firm value; we proxy for it using *Tobin's Q*, which is defined as the sum of total assets and the difference between market value and book value of common equity, divided by total assets. In addition, we use several other dependent variables. To

[7] See Svensson (2005) for a description of the various measures of corruption that have been used in the literature.

study the disclosure policy of firms, we use the (logarithm of) frequency of managerial earnings guidance, as collected from the *FirstCall* database. Next, we follow Ashbaugh, LaFond, and Mayhew (2003) and construct two measures of earnings management using discretionary accruals: ROA in Estimation Discretionary Current Accruals (*REDCA*) and Portfolio Performance Adjusted Discretionary Current Accruals (*PADCA*). To examine the impact of local corruption on firms' opacity, we use several stock-liquidity measures such as the logarithm of Amihud's *Illiquidity*, logarithm of *Bid-Ask Spread*, the negative value of the logarithm of *Share Turnover*, and the logarithm of number of analysts following the firm's stock. The first three measures are constructed using data from *CRSP* and the last one is constructed using data from *I/B/E/S*. A detailed description of the variables is provided in the Appendix.

### 3.3 Corporate Governance

We follow Gompers, Ishii, and Metrick (2003) and adopt the *G Index* that counts the number of anti-takeover provisions in the corporate charter as a proxy for shareholder rights. Higher value of *G Index* indicates greater difficulty in acquiring the firm and thus weaker corporate governance. We obtain the data on *G Index* from Andrew Metrick's website.[8]

### 3.4 Other Independent Variables

We control for a number of firm characteristics that are known to affect firm value; these control variables are defined as follows. *Ln(Assets)* is the natural logarithm of total assets. *Leverage* is defined as the sum of long term debt and debt in current liabilities divided by total assets. *Sales Growth* is the difference between current and lagged net sales, divided by lagged net sales. *CapEx* is the ratio of capital expenditures to lagged net value of property, plant and equipment. *R&D* is the firm's research and development expenditure to sales ratio. *Cash* is the ratio of cash and short term investments to lagged assets. *Dividends* is sum of dividends to common and preferred stockholders divided by lagged assets. To control for industry effects on firm value, we include *Industry Tobin's*

[8] `http://faculty.som.yale.edu/andrewmetrick/downloads/Governance.xls`.

$Q$ as well as industry dummies; the former variable is defined as the median *Tobin's Q* for the given year in the firm's industry and for both variables, we classify firms into Fama-French 48 industries.

In addition to these financial control variables, we also control for a number of state level factors that could confound the effect of local corruption on firm value. To control for the state of firm's incorporation, we include a binary variable *Delaware Inc.* that equals one if the firm is incorporated in Delaware; it equals zero otherwise. In our sample, District of Columbia has substantially higher per capita corruption convictions relative to the rest of the sample. For instance, the 75th percentile of the time-series average of our state-level corruption measure is 3.840 (for New York) whereas the same average for District of Columbia is 70.081. To control for the effect of this outlier on our inferences, we include an indicator variable *D.C. Headquarter* in regressions that use a continuous measure of corruption. We also include other state level factors to control for the socio-economic environment: *Ln(Per Cap. GDP)* is the natural logarithm of the states' per-capita-GDP in 2005 dollars. *Education* is the percentage of the population 25 years and older that has a Bachelor's degree or higher. Finally, *MSA* is an indicator variable that equals one if the firm's headquarter is located in a Metropolitan Statistical Area; it is zero otherwise. We obtain these data from the decennial Census.

### 3.5 Summary Statistics

In Table 1, we provide summary statistics of the variables used in our empirical analysis. All the variables are winsorized at the 1st and 99th percentiles. We start with measures of corruption. As the first row shows, on average there are 3.166 corruption-related federal convictions per million population at the state-level every year. In the second row, we present the time-series average of these convictions in every state. We expand on this *State Average* corruption measure in Table 2, which shows that there is substantial variation in the level of corruption across states. As per these figures in Table 2, the least corrupt state is Oregon (with a *State Average* of 0.931) whereas the most corrupt state (excluding Washington D.C.) is Louisiana (with a *State Average* of 7.818). As noted, Washington D.C. is an outlier with a *State Average* of 70.081. As the next three columns in Table 2 show, there are several states with multiple districts and there is significant variation in corruption across districts within the state.

The last two columns in Table 2 present the state-level values of the two political variables used as instruments in our two-staged least squares (2SLS) instrumental variable (IV) regressions. Consistent with the discussion above, there appears to be a positive correlation between *Corruption* and *Residency Before Voting*, and a negative correlation between *Corruption* and *Constitution Age*. Oregon, the least corrupt state in our sample, requires only 30 days of residency before one can vote in the state and has a constitution that had existed for 111 years as of 1970. On the other hand, Louisiana, the most corrupt state in our sample, requires 360 days of residency before one can vote and has a constitution that had existed for only 49 years as of 1970. Since these two instrumental variables are only available for the 50 states, the firms headquartered in Washington D.C. would be excluded from the 2SLS analysis.

# 4 Effect of Corruption on Firm Value

## 4.1 Corruption Across and Within States

We start by presenting empirical results from the test of our first hypothesis (*H1*) that firms located in more corrupt states are likely to have lower value. We start by analyzing the effect of corruption across different states on the *Tobin's Q* of firms located in those states. We also include a series of firm- and state-level control variables as well as dummies for the year and Fama-French 48 industries. The regression model can be represented as:

$$\text{Tobin's Q}_{f,t} = \alpha + \beta_1 \text{Corruption}_{s,t} + \beta_2 \text{Industry Tobin's Q}_{i,t} + \gamma_1 FIRM + \gamma_2 STATE + \delta_i + \psi_t + \epsilon. \tag{1}$$

The subscripts *f*, $s$, $i$, and $t$ refer to the firm, state, industry, and year, respectively. We control for the median *Tobin's Q* in the firm's Fama-French 48 industry $i$. The firm-level control variables, denoted by *FIRM*, include: firm size (measured as logarithm of assets), leverage, sales growth, capital expenditures, investment in R&D, cash holdings, and dividends paid. Also included in *FIRM* are three dummies for firms that are: incorporated in Delaware, headquartered in a metropolitan statistical area (MSA), or headquartered in Washington D.C. These dummies are intended to control for potentially confounding effects. For instance, a majority of the firms in our sample are incorporated in Delaware and there is some evidence in the literature (e.g., Daines, 2001) that Delaware firms have a higher Tobin's Q. Similarly, MSAs may have higher corruption as well as more easily available human capital, which can be related to a higher Tobin's Q for local firms. Further, as noted above, Washington D.C. is an outlier as per our measures of corruption except when using *State Rank* as the proxy for corruption. *STATE* refers to the state-level control variables, and includes the state's GDP/capita (measured as a logarithm) and percentage of population that is at least college-educated. Finally, $\delta_i$ and $\psi_t$ refer to industry and year dummies.

The estimated coefficients are presented in Table 3. In Column (1), we measure *Corruption* by the annual number of corruption-related convictions per million population for the given state while in Column (2), we use the time-series average of this corruption measure. Given that these corruption figures are not cardinal numbers – i.e., a state with four corruption-related convictions per million population need not be twice as corrupt as a state with only two such convictions – we also construct an ordinal version of these corruption figures by ranking the states in ascending order by their time-series average convictions. We use this ordinal rank in Column (3) as a third measure of *Corruption.* The coefficients in Column (1) are estimated using a pooled OLS regression. When using the *State Average* and *State Rank* based corruption measures in Columns (2) and (3), respectively, we estimate the coefficients using a Fama-MacBeth type model, i.e., we first estimate a cross-sectional relationship for each year and then report the average of the time-series of estimated coefficients. The standard errors in this case are based on the Newey-West correction for serial correlation in coefficients. Note that we do not include the year dummies when estimating the regression as a Fama-MacBeth model. In Column (3) we do not control for *D.C. Headquarter* because *State Rank* based measure of corruption is not skewed by outliers.

The results in Table 3 are supportive of our hypothesis *H1.* Specifically, we find that the estimated coefficient on *Corruption* is significant at the 5% level in Column (1) and at the 1% level in Columns (2) and (3). These results are also economically large: e.g., as per the estimates in Column (2), an increase in the level of corruption that reflects the difference between the 5th least corrupt (Minnesota) and 5th most corrupt (Mississippi) states is associated with an 8.5% decrease in the average firm's *Tobin's Q*.

We enhance these preliminary results by exploiting the within-state variation in the level of corruption. Specifically, in the DoJ convictions data, the larger states are subdivided into more than one federal-court district (e.g., the two largest states by population – California and Texas – each have four districts) while smaller states (such as Delaware and Connecticut) have a single district. These district-level data help us control for state-specific factors such as the legal and regulatory environment that might affect both the level of corruption and the value of firms located in that state. We estimate the regression using the number of convictions per million population at the district-level and present the results in Table 4. The right-hand side variables in Column (1) are the same as those shown in Equation (1). In Column (2), we additionally control for *State* fixed-effects and in Column (3), we replace the year and state fixed effects by within-state-year (i.e., state × year) fixed effects. As a result, the coefficients $\gamma_2$ for the two state-year variables denoted by *STATE* in Equation (1) cannot be estimated in Column (3).

The coefficient on district-level corruption is statistically significant across the three columns of Table 4. These results confirm our earlier findings and show that, even within a state, firms that are located in different districts of the state are negatively affected by the level of corruption in the local district. By controlling for state-year level factors, these regressions provide further support for a negative relationship between the degree of corruption in the local area and the value of the average firm located there.

## 4.2 Instrumental Variables for Corruption

Although the results presented above are supportive of our hypothesis, we conduct additional tests to show that the effect of corruption on firm value is likely to be causal. Specifically, we rely on the

2SLS IV regression methodology, using as instruments two variables that have been proposed in the political science literature (Johnson, LaFountain, and Yamarik, 2011) as being related with the level of corruption. These two instrumental variables are: *Residency Before Voting* and *Constitution Age*, both measured in 1970. As described earlier, the former reflects the constraints on the electorate for limiting the politicians' corrupt behavior, while the latter reflects the strength of legal governing principles that can help mitigate corruption.

We expect the influence of these two variables to persist over time. By placing institutional constraints on politicians/bureaucracies, these legal and political arrangements are likely to have a long-lasting influence on the nature of future political corruption and, possibly, on the cultural norms vis-à-vis corruption. Note that these legal/political characteristics are measured at least 20 years prior to the start of our sample. For perspective, it is worth pointing out that firms go public at an age of around 12 years (Ritter, 1991) and the typical publicly-listed firm is only 7-8 years old, as measured since its listing (Shumway, 2001). This suggests that our instrumental variables reflect legal/political arrangements that were in place well before most of the firms in the sample came into existence. We believe that this makes our identification strategy plausible: First, this suggests that reverse causality is unlikely to be of significant concern. Second, we expect these long-established institutional arrangements to influence current levels of corruption; however, we do not expect them to (directly) affect firm value/policies other than through their influence on the state's current climate of corruption.

We reestimate Equation (1) as a 2SLS IV regression model and report the first and second stage estimates in Columns (1) and (2), respectively, of Table 5. Here, firms that are located in Washington D.C. are not included in the regressions because the instrumental variables are not available for the capital. The first-stage results show that, indeed, the two instrumental variables (measured in 1970) have a strong predictive power in explaining the current levels of corruption in the state; coefficients on both these variables are significant at the 1% level. These coefficients are also economically large: e.g., an increase of 180 days of residency requirement in 1970 (which amounts to going from Minnesota to Kentucky) is associated with a 48% increase in corruption-related convictions from the median. Similarly, a 50 years decrease in the age of state constitution in 1970 (which amounts to going from Wisconsin to Alabama) corresponds to a 15.3% increase in corruption-related convictions from the median.

Importantly, the second-stage estimates in Column (2) confirm the previous findings. Here the dependent variable is firms' *Tobin's Q* and the independent variable of interest is the instrumented value of *Corruption*. The 2SLS coefficient estimate on corruption is significant at the 1% level and suggests that the difference in corruption between the 5th least corrupt state (Minnesota) and the 5th most corrupt state (Mississippi) is associated with a 14.5% decrease in average firm's *Tobin's Q*. All the control variables are the same as those in Equation (1) and their coefficients are similar to those reported earlier in Column (1) of Table 3. Further, the Kleibergen-Paap Wald $F$ test and the $p$-value of Hansen's $J$ test reported at the bottom of Column (2) indicate that our two instruments pass the relevance and exogeneity restrictions, respectively.

We also estimate instrumental variable (IV) regressions using the *State Average* and *State Rank* based measures of corruption.[9] As before, we estimate these regressions using a Fama-MacBeth type model (and do not include year dummies). We report the second-stage coefficients in Columns (3) and (4) of Table 5. Our inferences remain unchanged: firm value is negatively affected by the level of corruption and the coefficients on corruption are statistically significant at the 1% level. The statistical tests for relevance and exogeneity of instruments are also strongly significant.

Overall, the results presented in Tables 3–5 offer evidence in support of our hypothesis *H1* that firms that are located in more corrupt states tend to have lower value. In the next subsection, we test our second hypothesis, *H2*.

### 4.3 Government Procurement From the Private Sector

The most common form of public corruption in a country entails individuals or private firms having to pay bribes for access to goods or services that are monopolized by the government. The greater

[9] Since the instrumental variables are at the state-level, we cannot estimate the IV regression at the district-level.

the interaction with the public sector, the greater is the likelihood of bribe-taking by the public official, so much so that there is empirical evidence of firms shrinking so as to minimize their interaction with the public sector (Svensson, 2005). At the same time, a firm may bribe public officials in return for regulatory actions that benefit the firm. For instance, a firm could induce public officials to use the zoning and permitting process to limit competition from other firms or have the official purchase goods and services for the government at inflated prices from the firm. In particular, firms that are inherently dependent on the public sector for their sales have a strong incentive to develop a *quid pro quo* relationship in which firms pay bribes to obtain easy access to government services or to get "rewarded" with government contracts. Hence, corrupt public officials and the firm (and its shareholders) could benefit each other at the expense of tax-payers and potential competitors.

We test this prediction empirically by examining whether the effect of corruption on firm value is different for firms that are more government-dependent. Following the literature (Goldman, Rocholl, and So, 2013), we obtain data on the government's procurement of goods and services (by industry) from the Federal Procurement Reports.[10] The advantage of this test is that it gives us another way to confront the possibility that the documented relationship is spurious: specifically, while a third factor that affects both corruption and firm value can lead to a spurious relationship between the two, it is unlikely that the spurious relationship is somehow weakened or even reversed in the case of firms that are more government-dependent. The regression that we estimate can be expressed as:

$$\text{Tobin's } Q_{f,t} = \alpha + \beta_1 \text{Corruption}_{s,t} + \beta_2 \text{Corruption}_{s,t} \times \text{Gov. Dependence}_{i,t} + \beta_3 \text{Government Dependence}_{i,t}$$
$$\beta_4 \text{Industry Tobin's } Q_{i,t} + \gamma_1 FIRM + \gamma_2 STATE + \delta_i + \psi_t + \epsilon. \quad (2)$$

As described in the second hypothesis (*H2*), our prediction is that the negative effect of corruption on firm value will be mitigated by the firm's dependence on government contracts, i.e., we expect $\beta_2$ to be positive even though $\beta_1$ may be negative. We measure *Government Dependence* of an

[10] https://www.fpds.gov/fpdsng_cms/index.php/reports

industry as the federal government procurement contract value of the industry (2-digit SIC prior to 2001 and 3-digit NAICS afterwards) divided by the total sales of the corresponding industry in Compustat. All the other variables are the same as those used in Equation (1).

The OLS estimates are presented in Table 6; for brevity, we do not report the coefficients on the control variables. As before, we use the annual measure of *Corruption* at the state level in Column (1), the time series average of each state's corruption measure in Column (2), and the state's rank as per the average corruption in Column (3). The results are generally supportive of our prediction. The coefficient on *Corruption* is still negative and significant (at the 1% level) while the coefficient on the interaction term is positive, though statistically significant only in Columns (1) and (2). These results are also economically meaningful: e.g., based on estimates in Column (2), an increase in the level of corruption that reflects the difference between the 5th least corrupt state (Minnesota) and the 5th most corrupt state (Mississippi) is associated with an 8.6% decrease in the firm's *Tobin's Q* from the mean. However, this decrease in *Tobin's Q* is only 5.7% for firms whose government-dependence is one standard deviation higher than the average firm.

As a robustness check, we reestimate Equation (2) using the within-state variation in corruption-related convictions. We report the estimated coefficients using district-level corruption measures in Column (4) and additionally control for state fixed-effects in Column (5). Our inferences remain unchanged as the estimated $\beta_1$ is found to be negative and $\beta_2$ is positive; both these coefficients are statistically significant in Columns (4) as well as (5). Overall, the results in Table 6 indicate that firms that are more government-dependent appear to do relatively better in more corrupt environments, possibly on account of the *quid pro quo* relationships with public officials.

We explore these findings further by exploiting the time-series variation in the aggregate level of federal government procurement from the private sector. Specifically, we expect political corruption to benefit the more government-dependent firms to a greater extent in the years when the level of government's procurement from the private sector is higher. We again obtain these data from the annual Federal Procurement Reports. To test our prediction, we interact our measures of corruption with the level of government's procurement in the year and estimate this regression separately in subsamples of firms that belong to "more" and "less" government-dependent industries. We classify firms as more or less government-dependent if the fraction of the industry's total sales that are procured by the federal government is above/at or below median, respectively. As per hypothesis *H2*, we expect the coefficient on the interaction between *Corruption* and *Government Procurement* to be significantly positive in the subsample of firms that are more dependent on the government sector.

As in Table 6, we first estimate the regression using the annual measure of corruption at the state level, followed by the state corruption average and rank. Finally, we also use district-level measures of within-state corruption (both with and without state fixed-effects). The results, presented in Table 7, support our prediction. Across all specifications except the one using the state-rank based measure of corruption, the coefficient on the interaction between *Corruption* and *Government Procurement* is significantly positive only for firms that are more government-dependent. In the complementary subsample of firms that are less dependent on the government, the coefficient on the interaction term is not significantly different from zero.

Overall, the results in Tables 6 and 7 offer evidence in support of hypothesis *H2*. These findings also suggest that firms are not equally affected by public corruption; those that are more dependent on the government sector can develop a symbiotic relationship with the public officials and benefit from the public corruption. In this regard, the effects of corruption in the U.S. are similar to those found in developing countries.

## 5 Informational Transparency

In this section, we propose a potential explanation for the adverse effects of corruption on firm value that are documented in the previous section. Specifically, we test the various implications of our hypothesis *H3* that firms may be informationally more opaque when corruption is higher.

As discussed earlier, the institutional framework in the U.S. limits the risk of expropriation by public officials and makes it unlikely to be of significant concern to firms and individuals. However, the societal norms for conducting business could vary, with firms located in more corrupt states functioning differently than those located in less corrupt states. In other words, there may be a "culture of corruption" that explains the similar behavior of public officials and managers of firms in the private sector. Managerial or "private corruption" may arise because of both, the managers' willingness to "play ball" with corrupt officials as well as the tendency to capture private benefits (i.e., engage in behavior reflective of moral hazard). In a "culture of corruption," we would expect private and public corruption to reinforce each other. In other words, an environment in which it is acceptable to bribe public officials, managers may also be comfortable in extracting private benefits. Such a cultural environment can be sustained if the corporate managers and board members as well as public officials share similar social backgrounds and a common moral compass regarding what is considered appropriate in economic/business transactions.

We argue that it is these common social norms that could explain why public corruption is related to firm behavior. Firms in more corrupt states may be more accepting of corruption and may be complicit in such questionable activities. Given the illegality and secrecy surrounding corrupt behavior, the management of firms in more corrupt states will also tend to prefer secrecy, thereby resulting in less informational transparency vis-à-vis their investors. As such, firms in more corrupt states would take steps to limit the disclosure of information to financial markets.

### 5.1 Managerial Guidance on Earnings

We start by testing this prediction using a regression model that is similar to Equation (1) except that the dependent variable is frequency of earnings guidance provided by the firm's management. Our methodology is similar to that in Table 5, i.e., given the endogeneity of the level of corruption, we utilize the two variables that we have used above to instrument for corruption. Therefore, we estimate the coefficients using an IV regression model and present the second-stage coefficients in Table 8. As in the previous tables, we estimate the model in Column (1) using annual corruption figures for each state while in Columns (2) and (3) we use the *State Average* and *State Rank*, respectively. As such, we estimate the IV regression using a 2SLS model in Column (1) while we use the Fama-MacBeth type IV regression in Columns (2) and (3).

The estimated coefficients are consistent with our prediction: the coefficient on instrumented *Corruption* is negative and statistically significant (at the 1% level) in all three columns. These results are also economically large: e.g., an increase in the level of corruption that reflects the difference between the 5th least corrupt state (Minnesota) and the 5th most corrupt state (Mississippi) is related with a 17% decrease in the earnings guidance provided by the firm's management. Note that the Kleibergen-Paap Wald $F$ test and the $p$-value of Hansen's $J$ test reported at the bottom of the table indicate that our two instruments pass the relevance and exogeneity restrictions, respectively.

## 5.2 Earnings Management

Financial reports convey information about a firm's performance and prospects to investors. Given the nature of auditing and accounting standards, managers have leeway in their reporting of information that is relevant to the investors (see, e.g., Healy and Wahlen, 1999). However, the flexibility offered by the accounting standards can also lead to opportunistic earnings management such that the financial reporting does not fully or accurately convey the firm's true state of affairs. Managers can "manage" earnings by taking seemingly innocuous steps, such as recognizing revenue prematurely or deferring R&D/advertising expenses; these steps ultimately affect the accrual of earnings. Managers who are prone to greater agency problems and extraction of private benefits would favor opaqueness over informational transparency to better conceal their activities. To the extent that the culture of corruption also encourages private corruption, we would expect actions such as premature revenue recognition or deferment of R&D/advertising expenses to be more widespread in states with greater corruption.

We test this prediction using a model similar to Equation (1), except that the dependent variable is a measure of earnings management. Although finding clear evidence of earnings management is difficult, it is widely believed in the accounting literature that abnormal accrual of earnings is a sign of earnings management. As such, we follow the accounting literature (e.g., Ashbaugh, LaFond, and Mayhew, 2003) and proxy for earnings management with two different measures: ROA in Estimation Discretionary Current Accrual (*REDCA*) and Portfolio Performance Adjusted Discretionary Current Accruals (*PADCA*). Both measures take into account the performance of the firm in the estimation of discretionary current accrual. The REDCA estimate of discretionary current accruals controls for the lagged ROA of the firm while the PADCA estimate is adjusted by the median discretionary current accruals of its ROA decile portfolio in the 2-SIC industry. A more detailed description of the two measures is provided in the Appendix.

We follow the same methodology as in the previous table: specifically, for both dependent variables, we start by estimating a 2SLS model using the annual corruption figures for each state and then also estimate two Fama-MacBeth type IV regressions, using state average and rank measures of corruption. The results are presented in Columns (1)–(3) of Table 9 for the dependent variable *REDCA* and in Columns (4)–(6) for the dependent variable *PADCA*. These results support our prediction – we find that firms which are located in more corrupt states show evidence of greater earnings management. Besides being statistically significant, the results are also economically meaningful: e.g., as per the coefficients in Column (1)/(4), an increase in the level of corruption that reflects the difference between the 5th least corrupt state (Minnesota) and the 5th most corrupt state (Mississippi) is associated with a 8.8%/9.3% increase in the average firm's *REDCA/PADCA*.

### 5.3 Effect on Stock Liquidity

The lack of frequent guidance on earnings or the greater propensity of earnings management by the firms in more corrupt states should translate into greater information asymmetry in the market about the firm's stock. This would be reflected in lower stock market liquidity for firms located in more corrupt states. The empirical proxies that are commonly used in the literature measure the stock's *il*liquidity instead of liquidity. We follow this convention and test our prediction using a regression model that is similar to Equation (1) except the dependent variables are the various measures of stock illiquidity or measures that are associated with greater information asymmetry. Specifically, we use Amihud's (2002) illiquidity measure and bid-ask spread as dependent variables. We also use a measure of turnover in shares; however, since greater turnover implies more liquidity, we use the negative of turnover to make it consistent with our measures of *il*liquidity. Finally, we also use the number of analysts as a dependent variable, higher values of which are associated with generation of more information about the stock.

As before, we start by estimating a 2SLS model using the annual corruption figures for each state. We then also estimate two Fama-MacBeth type IV regressions using state average and rank measures of corruption; however, for brevity, we only report results estimated using the *State Rank* measure. Results using the dependent variables *Ln(Illiquidity)*, *Ln(Bid-Ask Spread)*, *–Ln(Share Turnover)*, and *Ln(Number of Analysts)* are presented in Columns (1)–(2), (3)–(4), (5)–(6), and (7)–(8), respectively, of Table 10. The results support our prediction as we find that (instrumented) corruption is positively related with measures of stock illiquidity and negatively related with proxies for more information about the firm's stock.

Overall, the results presented in Tables 8–10 support our hypothesis *H3* that firms in states with greater corruption tend to be informationally more opaque. We believe that, with the risk of expropriation being an unlikely explanation for the lower transparency, it is likely that the local culture tolerates the extraction of private benefits by managers (as well as the corrupt practices of local public officials).

# 6 Effect of Corporate Governance

## 6.1 Can Better Governance Overcome the Effects of Corruption?

Are all firms within a state similar or can some firms separate themselves by adopting mechanisms that can overcome the drawbacks of greater corruption within the state? In other words, can firms choose to break away from the culture of corruption? We argue that a firm's corporate governance mechanisms may play an important role especially when the surrounding economic environment is corrupt. In more corrupt states, firms that prefer informational transparency and want to differentiate themselves from peer firms will choose stronger corporate governance mechanisms and place a greater value on shareholder rights. As a result, the better-governed firms will be rewarded by investors, resulting in a higher valuation (Stulz, 1999), but only in more corrupt states. This is akin to international firms from developing countries that eschew poor corporate governance that is symptomatic of countries with weaker institutions, and instead borrow stronger corporate governance by, for instance, cross-listing their shares on foreign exchanges (Coffee, 2002).

We test this hypothesis (*H4*) in our sample of U.S. firms. Using Gompers, Ishii, and Metrick's (2003) index as a proxy for the quality of a firms' corporate governance, we test whether poorer corporate governance hurts firm value especially if the firm is located in a more corrupt state. We operationalize this test by estimating the relation between governance and firm value in subsamples of more or less corrupt states. As such, we classify states into two categories: those with an above or equal to the median level of corruption-related convictions and those in the complementary group with a below-median level of corruption. The regression model that we estimate in these two subsamples can be expressed as follows:

$$\text{Tobin's Q}_{f,t} = \alpha + \beta_1 \text{G-Index}_f + \beta_2 \text{Industry Tobin's Q}_{i,t} + \gamma_1 FIRM + \gamma_2 STATE + \delta_i + \psi_t + \epsilon. \quad (3)$$

*G-Index$_f$* is the measure of firm's corporate governance; the rest of the variables are the same as in Equation (1). We first split the sample by the median of annual state-level measures of corruption and present the OLS estimates in Columns (1)–(2) of Table 11. We then split the sample by the median of *State Rank* and present the OLS estimates in Columns (3)–(4) of Table 11.[11]

The results show that the coefficient $\beta_1$ on G-Index is negative and significant only in the subsample of above-median corruption. Our estimates in Column (2) suggest that, in state-years with more corruption, the average firm's *Tobin's Q* will be 6.9% higher if it goes from being a "dictatorship" firm to a "democracy" firm (i.e., its G-Index goes from $\geq 14$ to $\leq 5$). No such

[11]Since the *State Rank* is based on the *State Average*, splitting the sample by the median of state-average will result in the same subsamples as in the latter pair of columns.

difference is apparent in state-years with less corruption. Results in Columns (3)–(4) are similar. These results suggest that firms with stronger corporate governance mechanisms in place are rewarded with higher valuations, but only when they are located in more corrupt areas.

### 6.2 Effect of Product Market Competition

We further test our hypothesis *H4* by building on the findings of Giroud and Mueller (2011), who show that weaker corporate governance (measured using the same G-Index as above) hurts firm value only in less competitive industries. We conduct a test similar to Equation (3) above in two separate subsamples of more and less corrupt states, except we now interact measures of competition in the firm's Fama-French 48 industry with the firm's G-Index. Specifically, following Giroud and Mueller (2011), we construct three dummy variables based on terciles of the industries' Herfindahl-Hirschman Index (HHI), and interact these three dummies with the firm's G-Index. We argue that weaker corporate governance not only hurts firm value in less competitive industries but that this is especially true when corruption is greater. In other words, the adverse effect on firm value would be greatest when there is confluence of three factors: no external pressure due to market competition, poor corporate governance, and a culture of corruption in the surrounding economic environment.

We report our empirical results in Table 12, first using the annual corruption figures for each state (in Columns (1)–(2)) and then using the state-rank based measure of corruption (in Columns (3)–(4)). As in Table 11, we split the sample at the median of the respective corruption measures in both cases; again, the subsamples based on the state-average measure of corruption would be the same as in the latter pair of columns.

The results are consistent with our prediction: the combination of poor corporate governance and lack of external market pressures diminish firm value, but only when corruption in the firm's state is higher. There is no such evidence in less corrupt states, which suggests that the drawbacks of weaker corporate governance and lack of market competition are particularly destructive when combined with a culture of corruption.

## 6.3 Exogenous Changes in Corporate Governance and Information Disclosure

While the above tests indicate that good corporate governance appears to matter the most for firm value in corrupt states, there may be concerns about the endogeneity of corporate governance (in the sense that the level of corruption may affect the level of corporate governance). We therefore analyze the relationship between governance and corruption using exogenous variation in all firms' corporate governance. Specifically, we utilize the passage of the Sarbanes Oxley Act (SOX) of 2002, which enforced stronger governance mechanisms across all firms. As has been shown in the literature (e.g., Chhaochharia and Grinstein, 2007), firms that were previously less compliant with the provisions of these rules benefited more with the passage of the law as they underwent a bigger improvement in their governance. In this subsection, we test whether these value-enhancing improvements in governance are particularly beneficial when the firm is located in a more corrupt state. This is consistent with the reasoning for the test of Equation (3) in Subsection 6.1 – irrespective of whether the firm chooses or is forced to have better governance, stronger shareholder rights benefit firm value more when local corruption is greater.

Our empirical model is similar to Equation (3) except we focus on a $[t-3, t+3]$ window around the passage of SOX in 2002. We interact the state-level measures of corruption with a dummy variable *Post* that equals one in the post-SOX period. For brevity, we report the results using the annual state-level convictions and the state-rank based measure of corruption. The results in Columns (1) and (2), respectively, of Table 13 are generally consistent with our prediction, although not always significant. (We also do not report coefficients on control variables for brevity.) We find that while corruption hurts firm value, these effects are somewhat diminished after the passage of SOX.

As we have argued above in Section 5, one reason why firms in more corrupt areas tend to have lower value is because they are informationally more opaque than firms in less corrupt states. It is as if the culture of corruption engenders a tendency for secrecy and lack of transparency. In the spirit of the exogenous shock to governance considered above, we analyze the effect of another regulatory exogenous shock to informational transparency – the adoption of Regulation Fair Disclosure ("Reg FD") in 2000. As Reg FD improved the firms' informational transparency and discouraged information asymmetry between market participants, we argue that the benefits due to Reg FD should be more evident in the case of firms that are located in more corrupt states. As shown in Columns (3) and (4) of Table 13, we find empirical evidence in support of our prediction: once again, the adverse effects of a culture of corruption can be overcome if firms are made more transparent.

The findings in Table 13 have important policy implications as they suggest that some of the ill-effects of corruption can be overcome with regulation that encourages stronger governance and informational transparency, both of which are generally accepted to be a boon in financial markets. We cannot rule out the possibility that such a benefit accrues only in the context of U.S., where the quality of institutional infrastructure is superior.

Overall, the results presented in this section indicate that stronger corporate governance – either by firm's own choice or by regulation – has benefits that can help overcome the detrimental effects of corruption. In our view, this is more consistent with the notion of a "culture of corruption" and not expropriation by the public official because the latter is expected to affect all firms equally, irrespective of their corporate governance. Further, if the lack of transparency was the outcome of managers seeking to protect assets from corrupt public officials, then forcing firms to become more transparent could decrease rather than increase firm value.

# 7 Conclusion

In this paper, we investigate the effect of local corruption in the U.S. on the value (*Tobin's Q*) and policies of firms. We proxy for local corruption using Department of Justice data on corruption-related convictions of public officials in different states or federal-court districts within states. Over our sample period 1990–2011, we find evidence that firm value is substantially lower in more corrupt states as well as in more corrupt districts of a given state. We address reverse-causality concerns (i.e., that poor economic conditions can lead to more corruption) by using two state-level instrumental variables that can explain current levels of corruption but are unlikely to have a direct effect on firm value. The two instrumental variables, measured in 1970, are: the length of residency (in number of days) in the state before an individual is eligible to vote and the age of the state's constitution (in years). We argue that these variables are valid instruments because they are political in nature and are measured in 1970, thereby unlikely to be affected by current economic conditions.

We show that firms are not affected equally by corruption; firms that sell a significant fraction of their output to the federal government (i.e., "government-dependent firms") are less negatively impacted by corruption. The negative impact of corruption may be mitigated either because the firm is able to sell goods and services to the government at favorable prices or because it is able to limit competition from other firms. We interpret this finding as suggestive of a *quid-pro-quo* relationship between these firms and public officials.

We acknowledge that the level of corruption, and especially the risk of expropriation or demand for bribes from public officials, in the U.S. may be relatively low. Nonetheless, there is anecdotal and empirical evidence of corruption in the U.S., as reflected in federal convictions of public officials. We argue that local corruption can influence (and be influenced by) economic activity through channels other than bribery alone. For instance, public corruption may exist alongside and reinforce a broader "culture of corruption" that impinges on different aspects of economic activity in the local area. This culture of corruption can also encourage "private corruption" on the part of firms' managers. We contend that the value effect of corruption, despite the high quality of legal and political institutions in the U.S., can result in these firms becoming informationally less transparent. This may be either because firms in more corrupt areas try to shelter their assets from expropriation or, more likely, because the firms themselves are more corrupt in these areas and limit transparency to facilitate the management's extraction of private benefits at the cost of shareholders. Consistent with both possibilities, we find that firms' stock prices are less informative if they are based in more corrupt states; e.g., these firms' managers provide less earnings guidance and their stock is illiquid.

We test whether our hypothesis about a "culture of corruption" – as opposed to rent-extraction by public officials – is supported empirically. Consistent with the "culture" argument, we find that a stronger corporate governance is especially beneficial to firms in more corrupt states. This is because when the external environment is weak, stronger internal governance mechanisms may ensure that the cash flow and control rights of the investors are protected. We further test whether competition in the industry is a substitute for poor internal corporate governance when the ambient economic environment is corrupt. We find that the lack of both strong internal governance as well as greater industry competition hurts the firm value largely in more corrupt states; no significant impact is found in less corrupt states. Overall, this evidence points to the fact that internal governance mechanisms may work in conjunction with the external economic and cultural environment.

Given the potential endogeneity in the firm's choice of corporate governance, we further test for the robustness of the above findings by analyzing the impact of an exogenous shock to corporate governance of all firms. We find that the passage of Sarbanes Oxley Act in 2002 benefited firms, but more so if they were located in more corrupt states. Similarly the adoption of Regulation Fair Disclosure in 2000, which encouraged information disclosure by firms, benefited firms more if they were located in more corrupt states.

We believe that our findings have significant implications for both research as well as policy-making. Our results indicate that the local cultural environment (including attitudes toward corruption) can have a greater impact, than has been recognized, on the value-implications of corporate governance and informational transparency. What is surprising is that, despite the strong judicial/political systems and relatively low levels of corruption in the U.S., the value effects of the variation in state-level corruption are economically important. We believe that the link between public corruption and corporate governance is a fruitful avenue for future research.

The findings in this paper have useful policy implications. First, at least in the context of the U.S. where expropriation by public officials is small, regulation that requires greater information disclosure and adoption of stronger governance standards could help overcome some of the ill-effects of corruption. Second, it is important to curb the "culture" of corruption. In that vein, it is plausible that conviction of corrupt public officials has a parallel to the "broken-window" view of crime: strictly limiting public corruption could signal that private corruption is also unacceptable.

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## Appendix: Variable Definitions

### Corruption

- *State Level Corruption* is the number of corruption convictions per million population of the state.
- *State Average Corruption* is the time series average of *State Level Corruption* for each state.
- *State Rank Corruption* is the rank of the time series average of *State Level Corruption*.
- *District Level Corruption* is the number of corruption convictions per million population of the district.

### State Characteristics

- *Ln(Per Cap. GDP)* is the natural logarithm of state per capita GDP in 2005 dollar.
- *Education* is the percentage of the population 25 years and over that have Bachelor's degree or more. We obtain data from Census and update it every decade.
- *State Government Procurement* is the total value of state government procurement contracts divided by the state nominal GDP.
- *Residency Before Voting* is the number of days an individual had to be in residence in a state in 1970 in order to be eligible to vote. Data is collected from the Book of the States (1970).
- *Constitution Age* is the number of years with same constitution in 1970. Data is collected from the Book of the States (1970).

### Firm Characteristics

- *Tobin's Q* is the sum of total assets and the difference between market value and book value of total common equity, divided by total assets.
- *Ind. Tobin's Q* is the industry median level of *Tobin's Q* at the 2-digit SIC level.
- *Ln(Assets)* is the natural logarithm of total assets.
- *Leverage* is the sum of long term debt and debt in current liabilities divided by total assets.
- *Delaware Inc.* is a binary variable that equals 1 if the firm is incorporated in Delaware and 0 otherwise.
- *MSA* is a binary variable that equals 1 if the firm's headquarter is located is in the Metropolitan Statistical Areas and 0 otherwise. We obtain data from Census and update it every decade.
- *D.C. Headquarter* is a binary variable that equals 1 if the headquarter of the firm is located in District of Columbia and 0 otherwise.
- *Sales Growth* is the difference between current net sales and lagged net sales divided by lagged net sales.
- *CapEx* is the capital expenditure to lagged total net value of property, plant and equipment ratio.
- *R&D* is the firm's R&D expenditure to sales ratio.
- *Cash* is the cash and short term investments to lagged asset ratio.
- *Dividend* is sum of dividend to common and preferred stockholders to lagged asset ratio.
- *ROA* is equal to earnings before extraordinary items to lagged asset ratio.
- *Stock Return* is the annual stock return of the fiscal year.
- *Government Dependence* is the federal government procurement contract value of the industry (2-digit SIC prior to 2001 and 3-digit NAICS afterwards) divided by the total sale of corresponding industry in Compustat.

### Other Dependent Variables

- *G Index* is a measure of shareholder rights following Gompers, Ishii, Metrick (2003).
- *REDCA*: is the ROA in Estimation Discretionary Current Accruals following Ashbaugh, LaFond, and Mayhew (2003). We first estimate the following model in each 2-SIC industry:
  $CA = \alpha_1 \frac{1}{Assets_{t-1}} + \alpha_2 \Delta Rev + \alpha_3 ROA_{t-1} + \epsilon$,
  where current accruals $CA$ is net income before extraordinary items plus depreciation and amortization minus operating cash flows divided by lagged assets and $\Delta Rev$ is the change in net sales divided by lagged assets. The expected current accrual estimated with a performance control $ECAPC$ equals to:
  $ECAPC = \hat{\alpha_1} \frac{1}{Assets_{t-1}} + \hat{\alpha_2}(\Delta Rev - \Delta AR) + \hat{\alpha_3} ROA_{t-1}$,
  where $\Delta AR$ is the change in accounts receivable divided by lagged assets. $REDCA$ is then equal to:
  $REDCA = ln(|CA - ECAPC| \times 100)$

- *PADCA*: is the Portfolio Performance Adjusted Discretionary Current Accruals following Ashbaugh, LaFond, and Mayhew (2003). We first estimate the following model in each 2-SIC industry:
  $CA = \alpha_1 \frac{1}{Assets_{t-1}} + \alpha_2 \Delta Rev + \epsilon,$
  where current accruals $CA$ is net income before extraordinary items plus depreciation and amortization minus operating cash flows divided by lagged assets and $\Delta Rev$ is the change in net sales divided by lagged assets. The expected current accrual $ECA$ equals to:
  $ECA = \hat{\alpha_1} \frac{1}{Assets_{t-1}} + \hat{\alpha_2}(\Delta Rev - \Delta AR),$
  where $\Delta AR$ is the change in accounts receivable divided by lagged assets. Discretionary current accrual DCA is equal to CA minus ECA. We then partition firms within each 2-SIC industry into deciles based on their lagged ROA and adjust DCA by the median DCA of the corresponding ROA portfolio. *PADCA* is then equal to:
  $PADCA = ln(|DCA - DCA_{decilemedian}| \times 100)$
- *Ln(Illiquidity)* is defined as $ln(AvgILLIQ \times 10^9)$, where $AvgILLIQ$ is an yearly average of illiquidity measured as the absolute return divided by dollar trading volume:$AvgILLIQ_{i,t} = \frac{1}{Days_{i,t}} \sum_{d=1}^{Days_{i,t}} \frac{|R_{i,t,d}|}{DolVol_{i,t,d}}$ where $Days_{i,t}$ is the number of valid observation days for stock $i$ in fiscal year $t$, and $R_{i,t,d}$ and $DolVol_{i,t,d}$ are the return and dollar trading volume of stock $i$ on day $d$ in the fiscal year $t$.
- $-Ln(ShareTurnover) = -ln(\frac{1}{Days_{i,t}} \sum_{d=1}^{Days_{i,t}} \frac{Vol_{i,t,d}}{Shrout_{i,t,d}})$ where $Vol_{i,t,d}$ and $Shrout_{i,t,d}$ are the trading volume in shares and number of shares outstanding for firm $i$ on day $d$ of fiscal year $t$, $Days_{i,t}$ is the number of valid observation days for stock $i$ in fiscal year $t$.
- $Ln(Bid-Ask\ Spread) = ln(\frac{1}{Days_{i,t}} \sum_{d=1}^{Days_{i,t}} \frac{Ask_{i,t,d} - Bid_{i,t,d}}{(Ask_{i,t,d} + Bid_{i,t,d})/2})$ where $Days_{i,t}$ is the number of observations for stock $i$ in fiscal year $t$, and $Ask_{i,t,d}$ and $Bid_{i,t,d}$ are the closing ask and bid prices of the stock $i$ on day $d$ of year $t$.
- *Ln(Number of Analysts)* is the natural logarithm of one plus the number of analysts following the stock for the year.

**Table 1: Summary Statistics.**

This table presents summary statistics of the main variables used in our analyses. We winsorize all the variables at the 1st and 99th percentiles. All the variables are defined in the Appendix.

| | N | Mean | Std. Dev. | 25th | Median | 75th |
|---|---|---|---|---|---|---|
| **Corruption** | | | | | | |
| State Level | 72,284 | 3.166 | 3.637 | 1.836 | 2.629 | 4.188 |
| State Average | 72,757 | 3.155 | 3.232 | 2.420 | 2.602 | 3.840 |
| State Rank | 72,757 | 26.075 | 11.566 | 22.000 | 23.000 | 36.000 |
| District Level | 71,188 | 3.249 | 4.162 | 1.260 | 2.414 | 4.254 |
| **Firm Characteristics** | | | | | | |
| Tobin's Q | 72,757 | 1.973 | 1.537 | 1.073 | 1.456 | 2.236 |
| Ln(Assets) | 72,757 | 5.339 | 1.830 | 3.912 | 5.111 | 6.541 |
| Leverage | 72,757 | 0.223 | 0.216 | 0.022 | 0.180 | 0.352 |
| Delaware Inc. | 72,757 | 0.615 | 0.487 | 0.000 | 1.000 | 1.000 |
| MSA | 72,757 | 0.958 | 0.201 | 1.000 | 1.000 | 1.000 |
| D.C. Headquarter | 72,757 | 0.002 | 0.045 | 0.000 | 0.000 | 0.000 |
| Sales Growth | 72,757 | 0.246 | 0.712 | -0.017 | 0.095 | 0.272 |
| CapEx | 72,757 | 0.422 | 0.601 | 0.131 | 0.238 | 0.457 |
| R&D | 72,757 | 0.204 | 0.919 | 0.000 | 0.000 | 0.069 |
| Cash | 72,757 | 0.270 | 0.512 | 0.026 | 0.100 | 0.310 |
| Dividend | 72,757 | 0.010 | 0.027 | 0.000 | 0.000 | 0.009 |
| ROA | 72,757 | -0.027 | 0.262 | -0.047 | 0.034 | 0.087 |
| Stock Return | 72,576 | 0.146 | 0.705 | -0.281 | 0.024 | 0.376 |
| Government Dependence | 64,588 | 0.043 | 0.133 | 0.003 | 0.008 | 0.025 |
| G Index | 15,364 | 8.989 | 2.761 | 7.000 | 9.000 | 11.000 |
| **State Characteristics** | | | | | | |
| Ln(Per Cap. GDP) | 72,757 | 10.564 | 0.176 | 10.445 | 10.560 | 10.691 |
| Education | 72,757 | 23.695 | 4.383 | 20.600 | 23.400 | 26.600 |
| Government Procurement | 64,053 | 0.023 | 0.016 | 0.013 | 0.020 | 0.028 |
| Residency Before Voting | 72,608 | 110.717 | 64.929 | 60.000 | 90.000 | 180.000 |
| Constitution Age | 72,608 | 83.804 | 45.672 | 68.000 | 91.000 | 100.000 |
| **Other Dependent Variables** | | | | | | |
| REDCA | 66,398 | 1.776 | 0.921 | 1.100 | 1.733 | 2.386 |
| PADCA | 66,435 | 1.630 | 0.988 | 0.885 | 1.612 | 2.315 |
| Ln(Illiquidity) | 72,745 | 4.380 | 3.277 | 1.917 | 4.379 | 6.884 |
| Ln(Bid-Ask Spread) | 69,313 | -4.255 | 1.418 | -5.159 | -3.994 | -3.211 |
| Ln(Share Turnover) | 72,753 | 5.516 | 1.084 | 4.735 | 5.445 | 6.206 |
| Ln(Number of Analyst) | 55,099 | 1.822 | 0.761 | 1.099 | 1.792 | 2.398 |

## Table 2: Corruption by State.

This table presents summary statistics of corruption and political variables used in our analyses. All the variables are defined in the Appendix.

| State | Average Number of Corruption-related Convictions per Million Population (1990-2011) | Number of Districts | Minimum District Corruption | Maximum District Corruption | Residency Before Voting (1970) | Constitution Age (1970) |
|---|---|---|---|---|---|---|
| Oregon | 0.931 | 1 | | | 30 | 111 |
| New Hampshire | 0.955 | 1 | | | 180 | 186 |
| Nebraska | 1.045 | 1 | | | 40 | 95 |
| Utah | 1.178 | 1 | | | 120 | 74 |
| Minnesota | 1.292 | 1 | | | 0 | 112 |
| Kansas | 1.428 | 1 | | | 30 | 9 |
| Washington | 1.481 | 2 | 1.355 | 1.555 | 90 | 81 |
| Colorado | 1.497 | 1 | | | 90 | 94 |
| Iowa | 1.554 | 2 | 1.358 | 1.684 | 60 | 113 |
| Nevada | 1.678 | 1 | | | 30 | 106 |
| Wisconsin | 1.696 | 2 | 0.767 | 2.318 | 10 | 122 |
| North Carolina | 1.812 | 3 | 1.523 | 2.172 | 30 | 102 |
| Indiana | 2.029 | 2 | 1.364 | 3.015 | 60 | 119 |
| Michigan | 2.175 | 2 | 1.867 | 2.786 | 30 | 7 |
| South Carolina | 2.204 | 1 | | | 180 | 75 |
| Idaho | 2.237 | 1 | | | 30 | 81 |
| Arizona | 2.309 | 1 | | | 30 | 59 |
| New Mexico | 2.316 | 1 | | | 90 | 59 |
| Arkansas | 2.379 | 2 | 1.077 | 3.390 | 180 | 96 |
| Vermont | 2.386 | 1 | | | 90 | 177 |
| Connecticut | 2.389 | 1 | | | 180 | 152 |
| California | 2.420 | 4 | 1.178 | 3.019 | 90 | 91 |
| Texas | 2.602 | 4 | 2.047 | 3.377 | 180 | 94 |
| Rhode Island | 2.887 | 1 | | | 180 | 127 |
| Massachusetts | 2.943 | 1 | | | 180 | 190 |
| Maine | 3.022 | 1 | | | 90 | 150 |
| Georgia | 3.100 | 3 | 3.183 | 3.479 | 180 | 25 |
| Maryland | 3.158 | 1 | | | 180 | 103 |
| Oklahoma | 3.187 | 3 | 2.720 | 4.019 | 180 | 63 |
| Missouri | 3.239 | 2 | 3.068 | 3.429 | 60 | 25 |
| West Virginia | 3.398 | 2 | 1.598 | 4.836 | 60 | 98 |
| Hawaii | 3.557 | 1 | | | 90 | 20 |
| Delaware | 3.644 | 1 | | | 90 | 73 |
| Wyoming | 3.703 | 1 | | | 60 | 80 |
| Pennsylvania | 3.764 | 3 | 1.620 | 5.212 | 60 | 2 |
| New York | 3.840 | 4 | 2.730 | 6.696 | 120 | 76 |
| New Jersey | 4.021 | 1 | | | 60 | 23 |
| Tennessee | 4.204 | 3 | 2.404 | 8.639 | 90 | 100 |
| Alabama | 4.211 | 3 | 4.097 | 4.371 | 360 | 69 |
| Florida | 4.245 | 3 | 2.357 | 7.169 | 180 | 1 |
| Ohio | 4.328 | 2 | 2.847 | 5.737 | 40 | 119 |
| Virginia | 4.667 | 2 | 2.425 | 5.611 | 180 | 68 |
| Illinois | 4.762 | 3 | 2.211 | 5.475 | 90 | 100 |
| Kentucky | 5.536 | 2 | 2.890 | 8.202 | 180 | 79 |
| Montana | 5.544 | 1 | | | 30 | 81 |
| Alaska | 5.679 | 1 | | | 30 | 14 |
| Mississippi | 6.445 | 2 | 5.063 | 8.740 | 360 | 80 |
| South Dakota | 6.446 | 1 | | | 90 | 81 |
| North Dakota | 7.235 | 1 | | | 90 | 81 |
| Louisiana | 7.818 | 3 | 3.925 | 12.725 | 360 | 49 |
| District Of Columbia | 70.081 | 1 | | | | |

## Table 3: State Corruption and Firm Value.

In this table, we show that firms located in corrupt states tend to have lower firm value. We present estimates from regressions where the dependent variable is *Tobin's Q* and the independent variables of interest are various measures of local corruption at the state level including the level of *Corruption* (Column (1)), the time series average of *Corruption* (Column (2)), and the rank of the time series average (Column (3)). We estimate Model (1) by OLS and Models (2)-(3) by Fama-MacBeth method. In all the regressions we control for *Industry Tobin's Q* at Fama-French 48 industry level. In addition, we control for firm characteristics including *Log Assets*, *Leverage*, *Delaware Inc.*, *MSA*, *D.C. Headquarter*, *Sales Growth*, *CapEx*, *R&D*, *Cash*, and *Dividend*; state characteristics including *Ln(Per Cap. GDP)* and *Education*. All the variables are defined in the Appendix. Year and industry dummies are also included. For OLS models, we present $t$-statistics using firm-clustered standard errors in brackets. For Fama-MacBeth models, we present $t$-statistics based on standard errors with Newey-West correction for serial correlation of coefficients up to 5 years. *, ** and *** indicate significance better than 10%, 5%, and 1% respectively.

| Corruption Measures: | State Level (1) | State Average (2) | State Rank (3) |
|---|---|---|---|
| Corruption | -0.008** | -0.024*** | -0.002*** |
| | (-2.48) | (-4.03) | (-3.40) |
| Ind. Tobin's Q | 0.812*** | 0.422*** | 0.420*** |
| | (23.89) | (6.01) | (6.03) |
| Ln(Assets) | 0.005 | 0.008 | 0.008 |
| | (0.73) | (0.54) | (0.54) |
| Leverage | -0.535*** | -0.451*** | -0.454*** |
| | (-10.20) | (-3.42) | (-3.44) |
| Delaware Inc. | 0.083*** | 0.090*** | 0.090*** |
| | (3.89) | (7.61) | (7.38) |
| MSA | 0.009 | -0.009 | -0.013 |
| | (0.17) | (-0.49) | (-0.64) |
| D.C. Headquarter | 1.085*** | 1.986*** | |
| | (3.56) | (5.65) | |
| Sales Growth | 0.150*** | 0.178*** | 0.178*** |
| | (11.99) | (10.10) | (10.18) |
| CapEx | 0.256*** | 0.305*** | 0.306*** |
| | (14.97) | (10.93) | (10.88) |
| R&D | 0.072*** | 0.091*** | 0.091*** |
| | (4.38) | (3.33) | (3.32) |
| Cash | 0.625*** | 0.733*** | 0.733*** |
| | (25.34) | (8.73) | (8.71) |
| Dividend | 6.263*** | 7.050*** | 7.052*** |
| | (13.27) | (9.99) | (10.01) |
| Ln(Per Cap. GDP) | -0.195* | -0.094 | 0.016 |
| | (-1.73) | (-0.98) | (0.14) |
| Education | 0.006 | 0.003 | 0.002 |
| | (1.62) | (1.00) | (0.42) |
| Constant | 2.561** | 2.055* | 0.926 |
| | (2.27) | (1.85) | (0.73) |
| Adjusted $R^2$ | 0.296 | 0.281 | 0.281 |
| Observations | 71,895 | 72,365 | 72,365 |
| Model | OLS | FM | FM |
| Industry Dummies | YES | YES | YES |
| Year Dummies | YES | NO | NO |

**Table 4: District Corruption and Firm Value.**

In this table, we show that firms located in corrupt districts tend to have lower firm value. We present estimates from regressions where the dependent variable is *Tobin's Q* and the independent variables of interest is *Corruption* at the district level. In all the regressions we control for *Industry Tobin's Q* at Fama-French 48 industry level. In addition, we control for firm characteristics including *Log Assets*, *Leverage*, *Delaware Inc.*, *MSA*, *D.C. Headquarter*, *Sales Growth*, *CapEx*, *R&D*, *Cash*, and *Dividend*; state characteristics including *Ln(Per Cap. GDP)* and *Education*. All the variables are defined in the Appendix. Year and industry dummies are also included. In Column (2), we control for state fixed effects in the regression. In Column (3), we include the interaction of state and year fixed effects in the regression. We present *t*-statistics using firm-clustered standard errors in brackets. *, ** and *** indicate significance better than 10%, 5%, and 1% respectively.

| | (1) | (2) | (3) |
|---|---|---|---|
| Corruption | -0.009*** | -0.005** | -0.009* |
| | (-3.92) | (-2.08) | (-1.96) |
| Ind. Tobin's Q | 0.802*** | 0.804*** | 0.753*** |
| | (23.45) | (23.43) | (21.64) |
| Ln(Assets) | 0.006 | 0.006 | 0.006 |
| | (0.87) | (0.84) | (0.95) |
| Leverage | -0.546*** | -0.531*** | -0.535*** |
| | (-10.60) | (-10.37) | (-10.35) |
| Delaware Inc. | 0.080*** | 0.073*** | 0.073*** |
| | (3.75) | (3.31) | (3.29) |
| MSA | 0.013 | -0.000 | -0.003 |
| | (0.22) | (-0.00) | (-0.05) |
| D.C. Headquarter | 1.195*** | | |
| | (4.13) | | |
| Sales Growth | 0.152*** | 0.153*** | 0.153*** |
| | (12.01) | (12.08) | (12.03) |
| CapEx | 0.256*** | 0.253*** | 0.255*** |
| | (14.88) | (14.74) | (14.82) |
| R&D | 0.073*** | 0.071*** | 0.071*** |
| | (4.49) | (4.31) | (4.32) |
| Cash | 0.626*** | 0.617*** | 0.612*** |
| | (25.21) | (24.89) | (24.64) |
| Dividend | 6.241*** | 6.296*** | 6.298*** |
| | (13.21) | (13.51) | (13.50) |
| Ln(Per Cap. GDP) | -0.182 | -0.227 | |
| | (-1.60) | (-1.06) | |
| Education | 0.006 | -0.002 | |
| | (1.54) | (-0.17) | |
| Constant | 2.445** | 2.979 | 0.821*** |
| | (2.15) | (1.37) | (4.12) |
| Adjusted $R^2$ | 0.296 | 0.299 | 0.309 |
| Observations | 70,804 | 70,804 | 70,804 |
| Model | OLS | OLS | OLS |
| Industry Dummies | YES | YES | YES |
| Year Dummies | YES | YES | NO |
| State Fixed Effects | NO | YES | NO |
| State × Year Fixed Effects | NO | NO | YES |

**Table 5: Corruption and Firm Value: Instrumental Variable Approach.**

In this table, we test the relation between local corruption and firm value using instrumental variable approach. We present estimates from regressions where the dependent variable is *Tobin's Q* and the independent variables of interest are various measures of local corruption at the state level including the level of *Corruption* (Column (1) and (2)), the time series average of *Corruption* (Column (3)), and the rank of the time series average of *Corruption* (Column (4)). We use *Residency Before Voting* in 1970 and *Constitution Age* in 1970 as instruments for the measures of corruption. In Column (1) we report first stage estimates where the dependent variable is state level of *Corruption*. We estimate Model (1)-(2) by 2SLS and Models (3) and (4) by Fama-MacBeth method based on cross-sectional 2SLS estimates in each year. In all the regressions we control for *Industry Tobin's Q* at Fama-French 48 industry level. In addition, we control for firm characteristics including *Log Assets*, *Leverage*, *Delaware Inc.*, *MSA*, *Sales Growth*, *CapEx*, *R&D*, *Cash*, and *Dividend*; state characteristics including *Ln(Per Cap. GDP)* and *Education*. All the variables are defined in the Appendix. Year and industry dummies are also included. For 2SLS models, we present $t$-statistics using firm-clustered standard errors in brackets. For Fama-MacBeth models, we present $t$-statistics based on standard errors with Newey-West correction for serial correlation of coefficients up to 5 years. Kleibergen-Paap rk Wald $F$ statistic and Hansen's $J$ ($p$-value) of Fama-MacBeth models are the average of these statistics for the cross-sectional regressions across year. *, ** and *** indicate significance better than 10%, 5%, and 1% respectively.

| Corruption Measures: | State Level | | State Average | State Rank |
|---|---|---|---|---|
| | 1st Stage | 2nd Stage | | |
| | (1) | (2) | (3) | (4) |
| Residency Before Voting | 0.007*** | | | |
| | (26.32) | | | |
| Constitution Age | -0.008*** | | | |
| | (-24.90) | | | |
| *Instrumented* Corruption | | -0.045*** | -0.041*** | -0.004*** |
| | | (-2.59) | (-3.29) | (-3.06) |
| Ind. Tobin's Q | 0.083*** | 0.815*** | 0.418*** | 0.418*** |
| | (2.60) | (23.93) | (6.24) | (6.23) |
| Ln(Assets) | 0.027*** | 0.006 | 0.009 | 0.009 |
| | (3.43) | (0.83) | (0.53) | (0.53) |
| Leverage | 0.116** | -0.523*** | -0.446*** | -0.447*** |
| | (1.97) | (-9.98) | (-3.36) | (-3.36) |
| Delaware Inc. | 0.072** | 0.089*** | 0.092*** | 0.094*** |
| | (2.54) | (4.15) | (7.55) | (7.50) |
| MSA | -0.003 | 0.013 | -0.008 | -0.004 |
| | (-0.03) | (0.24) | (-0.40) | (-0.22) |
| Sales Growth | -0.008 | 0.151*** | 0.179*** | 0.179*** |
| | (-0.87) | (12.05) | (10.38) | (10.36) |
| CapEx | -0.030** | 0.256*** | 0.306*** | 0.306*** |
| | (-2.32) | (14.95) | (10.52) | (10.52) |
| R&D | -0.015 | 0.071*** | 0.091*** | 0.091*** |
| | (-1.31) | (4.33) | (3.23) | (3.23) |
| Cash | -0.043*** | 0.622*** | 0.730*** | 0.731*** |
| | (-2.58) | (25.18) | (8.65) | (8.64) |
| Dividend | 0.985*** | 6.290*** | 7.053*** | 7.050*** |
| | (2.61) | (13.26) | (9.55) | (9.56) |
| Ln(Per Cap. GDP) | 3.373*** | -0.106 | -0.064 | -0.049 |
| | (17.61) | (-0.85) | (-0.70) | (-0.56) |
| Education | -0.112*** | 0.002 | 0.002 | 0.002 |
| | (-15.78) | (0.46) | (0.54) | (0.58) |
| Adjusted $R^2$ | 0.120 | | | |
| Kleibergen-Paap rk Wald $F$ | | 539.41 | 375.58 | 465.58 |
| Hansen's $J$ ($p$-value) | | 0.54 | 0.37 | 0.39 |
| Observations | 71,758 | 71,758 | 72,216 | 72,216 |
| Model | 2SLS | 2SLS | IVFM | IVFM |
| Industry Dummies | YES | YES | YES | YES |
| Year Dummies | YES | YES | NO | NO |

**Table 6: Government Dependence, Corruption and Firm Value.**

In this table, we show that the negative relation between local corruption and firm value is weaker when firms are dependent on government procurement. We present estimates from regressions where the dependent variable is *Tobin's Q* and the independent variables of interest are the interaction term between *Government Dependence* and various measures of local corruption including *Corruption* at the state level (Column (1)), the time series average of *Corruption* at the state level (Column (2)), the rank of the time series average at the state level (Column (3)), and *Corruption* at the district level (Columns (4) and (5)). In all the regressions we control for *Industry Tobin's Q* at Fama-French 48 industry level. In addition, we control for firm characteristics including *Log Assets*, *Leverage*, *Delaware Inc.*, *MSA*, *D.C. Headquarter*, *Sales Growth*, *CapEx*, *R&D*, *Cash*, and *Dividend*; state characteristics including *Ln(Per Cap. GDP)* and *Education*. All the variables are defined in the Appendix. Year and industry dummies are also included. *t*-statistics using firm-clustered standard errors are in brackets. *, ** and *** indicate significance better than 10%, 5%, and 1% respectively.

| Corruption Measures: | State Level | State Average | State Rank | District Level | |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Corruption | -0.011*** | -0.027*** | -0.003*** | -0.012*** | -0.008*** |
| | (-3.25) | (-2.92) | (-2.65) | (-4.50) | (-3.05) |
| Corruption × Gov. Dependence | 0.044* | 0.062** | 0.009 | 0.040** | 0.039* |
| | (1.95) | (2.16) | (1.14) | (2.03) | (1.95) |
| Government Dependence | -0.491*** | -0.544*** | -0.599** | -0.499*** | -0.479*** |
| | (-4.23) | (-4.15) | (-2.47) | (-4.31) | (-4.11) |
| Industry Tobin's Q | YES | YES | YES | YES | YES |
| Firm Control Variables | YES | YES | YES | YES | YES |
| State Control Variables | YES | YES | YES | YES | YES |
| Adjusted $R^2$ | 0.296 | 0.296 | 0.295 | 0.296 | 0.298 |
| Observations | 63,791 | 64,261 | 64,261 | 62,759 | 62,759 |
| Model | OLS | OLS | OLS | OLS | OLS |
| Industry Dummies | YES | YES | YES | YES | YES |
| Year Dummies | YES | YES | YES | YES | YES |
| State Dummies | NO | NO | NO | NO | YES |

## Table 7: Government Procurement, Corruption and Firm Value.

In this table, we show that government dependent firms are positively (adversely) affected by local corruption when the amount of government procurement is high (low). We present estimates from regressions where the dependent variable is *Tobin's Q* and the independent variables of interest are the interaction term between *Government Procurement* and various measures of local corruption including *Corruption* at the state level (Columns (1) and (2)), the time series average of *Corruption* at the state level (Columns (3) and (4)), the rank of the time series average at the state level (Columns (5) and (6)), and *Corruption* at the district level (Columns (7)-(10)). We estimate in subsamples where firms have above/below median level of *Government Dependence*. In all the regressions we control for *Industry Tobin's Q* at Fama-French 48 industry level. In addition, we control for firm characteristics including *Log Assets*, *Leverage*, *Delaware Inc.*, *MSA*, *D.C. Headquarter*, *Sales Growth*, *CapEx*, *R&D*, *Cash*, and *Dividend*; state characteristics including *Ln(Per Cap. GDP)* and *Education*. All the variables are defined in the Appendix. Year and industry dummies are also included. $t$-statistics using firm-clustered standard errors are in brackets. *, ** and *** indicate significance better than 10%, 5%, and 1% respectively.

| Corruption Measures: | State Level | | State Average | | State Rank | | District Level | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Gov. Dependence: | More (1) | Less (2) | More (3) | Less (4) | More (5) | Less (6) | More (7) | Less (8) | More (9) | Less (10) |
| Corruption | -0.016** | -0.009* | -0.042*** | -0.018 | -0.005** | -0.001 | -0.020*** | -0.005 | -0.014*** | -0.002 |
| | (-2.27) | (-1.73) | (-3.05) | (-1.50) | (-2.51) | (-0.79) | (-4.22) | (-1.23) | (-2.67) | (-0.47) |
| Corruption | 0.171** | 0.001 | 0.189* | 0.071 | 0.092 | -0.011 | 0.199*** | -0.044 | 0.155** | -0.065 |
| × Gov. Procurement | (2.05) | (0.01) | (1.90) | (1.07) | (1.10) | (-0.15) | (2.74) | (-0.66) | (2.11) | (-0.99) |
| Gov. Procurement | -1.374 | 0.404 | -1.149 | 0.215 | -2.146 | 1.034 | -1.608 | 0.477 | 1.020 | 0.078 |
| | (-1.39) | (0.39) | (-1.03) | (0.20) | (-0.77) | (0.34) | (-1.63) | (0.45) | (0.56) | (0.05) |
| Ind. Tobin's Q | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| Firm Controls | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| State Controls | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| Adjusted $R^2$ | 0.292 | 0.303 | 0.292 | 0.303 | 0.291 | 0.303 | 0.293 | 0.305 | 0.296 | 0.308 |
| Observations | 31,639 | 31,605 | 31,887 | 31,827 | 31,887 | 31,827 | 31,440 | 31,319 | 31,440 | 31,319 |
| Model | OLS | OLS | OLS | OLS | OLS | OLS | OLS | OLS | OLS | OLS |
| Industry Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| Year Dummies | YES | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| State Dummies | NO | NO | NO | NO | NO | NO | NO | NO | YES | YES |

## Table 8: Corruption and Earnings Guidance.

In this table, we show that firms located in corrupt areas tend to issue earnings guidance less frequently. We present estimates from regressions where the dependent variable is the frequency of *Earnings Guidance* and the independent variables of interest are various measures of local corruption at the state level including the level of *Corruption* (Column (1)), the time series average of *Corruption* (Column (2)), and the rank of the time series average (Column (3)). We estimate Model (1) by 2SLS and (2)-(3) by Fama-MacBeth method based on cross-sectional 2SLS estimates in each year. In all the regressions we control for firm characteristics including *Log Assets*, *Leverage*, *Delaware Inc.*, *MSA*, *Sales Growth*, *CapEx*, *R&D*, *Cash*, and *Dividend*; state characteristics including *Ln(Per Cap. GDP)* and *Education*. All the variables are defined in the Appendix. Year and industry dummies are also included. For 2SLS models, we present $t$-statistics using firm-clustered standard errors in brackets. For Fama-MacBeth models, we present $t$-statistics based on standard errors with Newey-West correction for serial correlation of coefficients up to 5 years. Kleibergen-Paap rk Wald $F$ statistic and Hansen's $J$ ($p$-value) of Fama-MacBeth models are the average of these statistics for the cross-sectional regressions across year. *, ** and *** indicate significance better than 10%, 5%, and 1% respectively.

| Corruption Measures: | State Level (1) | State Average (2) | State Rank (3) |
|---|---|---|---|
| *Instrumented* Corruption | -0.033*** | -0.035*** | -0.004*** |
| | (-3.43) | (-6.69) | (-6.53) |
| Ln(Assets) | 0.137*** | 0.140*** | 0.140*** |
| | (39.76) | (4.29) | (4.30) |
| Leverage | -0.227*** | -0.238*** | -0.239*** |
| | (-9.90) | (-3.88) | (-3.88) |
| Delaware Inc. | -0.023* | -0.020* | -0.018 |
| | (-1.92) | (-1.71) | (-1.52) |
| MSA | -0.010 | -0.017*** | -0.013*** |
| | (-0.39) | (-3.20) | (-2.65) |
| Sales Growth | -0.019*** | -0.014*** | -0.014*** |
| | (-6.81) | (-3.76) | (-3.74) |
| CapEx | 0.028*** | 0.038*** | 0.038*** |
| | (6.19) | (3.10) | (3.11) |
| R&D | -0.034*** | -0.023*** | -0.023*** |
| | (-9.90) | (-2.81) | (-2.82) |
| Cash | -0.057*** | -0.067*** | -0.067*** |
| | (-10.33) | (-3.38) | (-3.37) |
| Dividend | -0.530*** | -0.344** | -0.344** |
| | (-4.04) | (-2.37) | (-2.36) |
| Ln(Per Cap. GDP) | -0.050 | -0.017 | 0.002 |
| | (-0.75) | (-0.78) | (0.11) |
| Education | -0.002 | -0.003** | -0.003** |
| | (-0.74) | (-2.35) | (-2.47) |
| Kleibergen-Paap rk Wald $F$ | 547.61 | 412.07 | 505.31 |
| Hansen's $J$ ($p$-value) | 0.37 | 0.54 | 0.60 |
| Observations | 61,890 | 61,985 | 61,985 |
| Model | 2SLS | IVFM | IVFM |
| Industry Dummies | YES | YES | YES |
| Year Dummies | YES | NO | NO |

**Table 9: Corruption and Earnings Management.**

In this table, we show that firms located in corrupt areas tend to manipulate earnings numbers. We present estimates from regressions where the dependent variable are measures of earnings accrual: *REDCA* (Columns (1) to (3)), and *PADCA* (Columns (4) to (6)) and the independent variables of interest are various measures of local corruption at the state level including *Corruption* (Columns (1) and (4)), the time series average of *Corruption* (Columns (2) and (5)), and the rank of the time series average (Columns (3) and (6)). We estimate Models (1) and (4) by 2SLS and the rest by Fama-MacBeth method based on cross-sectional 2SLS estimates in each year. In all the regressions we control for firm characteristics including *Log Assets*, *Leverage*, *Delaware Inc.*, *MSA*, *Sales Growth*, *CapEx*, *R&D*, *Cash*, and *Dividend*; state characteristics including *Ln(Per Cap. GDP)* and *Education*. All the variables are defined in the Appendix. Year and industry dummies are also included. For 2SLS models, we present $t$-statistics using firm-clustered standard errors in brackets. For Fama-MacBeth models, we present $t$-statistics based on standard errors with Newey-West correction for serial correlation of coefficients up to 5 years. Kleibergen-Paap rk Wald $F$ statistic and Hansen's $J$ ($p$-value) of Fama-MacBeth models are the average of these statistics for the cross-sectional regressions across year. *, ** and *** indicate significance better than 10%, 5%, and 1% respectively.

| Dependent Variables: | REDCA | | | PADCA | | |
|---|---|---|---|---|---|---|
| Corruption Measures: | State Level | State Average | State Rank | State Level | State Average | State Rank |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| *Instrumented* Corruption | 0.017* | 0.017*** | 0.002*** | 0.018** | 0.021*** | 0.002*** |
| | (1.96) | (3.29) | (3.45) | (1.99) | (2.96) | (3.07) |
| Ln(Assets) | -0.113*** | -0.109*** | -0.109*** | -0.122*** | -0.117*** | -0.117*** |
| | (-39.76) | (-29.79) | (-29.71) | (-42.07) | (-41.46) | (-41.21) |
| Leverage | 0.243*** | 0.240*** | 0.240*** | 0.289*** | 0.287*** | 0.287*** |
| | (10.20) | (8.63) | (8.60) | (11.51) | (11.72) | (11.70) |
| Delaware Inc. | 0.047*** | 0.041*** | 0.040*** | 0.039*** | 0.038*** | 0.037*** |
| | (4.64) | (4.75) | (4.62) | (3.73) | (6.31) | (6.00) |
| MSA | 0.031 | 0.024 | 0.021 | 0.026 | 0.023 | 0.020 |
| | (1.50) | (1.38) | (1.24) | (1.10) | (1.03) | (0.91) |
| Sales Growth | 0.150*** | 0.145*** | 0.145*** | 0.130*** | 0.127*** | 0.127*** |
| | (22.47) | (16.70) | (16.70) | (17.92) | (12.77) | (12.78) |
| CapEx | 0.167*** | 0.159*** | 0.159*** | 0.142*** | 0.152*** | 0.152*** |
| | (19.90) | (12.19) | (12.17) | (15.69) | (12.85) | (12.81) |
| R&D | 0.015** | 0.013* | 0.013* | -0.015** | -0.015 | -0.015 |
| | (2.51) | (1.77) | (1.77) | (-2.36) | (-1.37) | (-1.36) |
| Cash | 0.230*** | 0.242*** | 0.242*** | 0.247*** | 0.245*** | 0.244*** |
| | (20.39) | (12.22) | (12.22) | (20.88) | (11.72) | (11.69) |
| Dividend | 0.389** | 0.199 | 0.199 | 0.256 | 0.036 | 0.038 |
| | (2.26) | (0.77) | (0.77) | (1.43) | (0.12) | (0.13) |
| Ln(Per Cap. GDP) | -0.040 | -0.034 | -0.044 | -0.020 | 0.010 | 0.000 |
| | (-0.63) | (-0.63) | (-0.83) | (-0.30) | (0.19) | (0.00) |
| Education | 0.004* | 0.003 | 0.004* | 0.004 | 0.002 | 0.002 |
| | (1.89) | (1.59) | (1.69) | (1.56) | (1.16) | (1.24) |
| Kleibergen-Paap rk Wald $F$ | 518.70 | 351.38 | 433.63 | 519.47 | 351.59 | 433.90 |
| Hansen's $J$ ($p$-value) | 0.17 | 0.50 | 0.51 | 0.22 | 0.50 | 0.51 |
| Observations | 68,364 | 68,760 | 68,760 | 68,402 | 68,798 | 68,798 |
| Model | 2SLS | IVFM | IVFM | 2SLS | IVFM | IVFM |
| Industry Dummies | YES | YES | YES | YES | YES | YES |
| Year Dummies | YES | NO | NO | YES | NO | NO |

**Table 10: Corruption and Opacity.**

In this table, we show that firms located in corrupt areas tend to be more opaque. We present estimates from regressions where the dependent variables are *Ln(Illiquidity)* in Columns (1) and (2), *Ln(Bid-Ask Spread)* in Columns (3) and (4), -*Ln(Share Turnover)* in Columns (5) and (6), and *Ln(Number of Analysts)* in Columns (7) and (8); the independent variables of interest are various measures of local corruption at the state level including *Corruption* (Columns (1), (3), (5), and (7)), and the rank of the time series average (Columns (2), (4), (6), and (8)). We estimate Models (1), (3), (5), and (7) by 2SLS and the rest by Fama-MacBeth method based on cross-sectional 2SLS estimates in each year. We control for firm characteristics including *Log Assets*, *Leverage*, *Delaware Inc.*, *MSA*, *Sales Growth*, *CapEx*, *R&D*, *Cash*, and *Dividend*; state characteristics including *Ln(Per Cap. GDP)* and *Education*. All the variables are defined in the Appendix. Year and industry dummies are also included. For 2SLS models, we present $t$-statistics using firm-clustered standard errors in brackets. For Fama-MacBeth models, we present $t$-statistics based on standard errors with Newey-West correction for serial correlation of coefficients up to 5 years. *, ** and *** indicate significance better than 10%, 5%, and 1% respectively.

| Dependent Variables: | *Ln(Illiquidity)* | | *Ln(Bid-Ask Spread)* | | *–Ln(Share Turnover)* | | *Ln(Number of Analysts)* | |
|---|---|---|---|---|---|---|---|---|
| Corruption Measures: | State Level (1) | State Rank (2) | State Level (3) | State Rank (4) | State Level (5) | State Rank (6) | State Level (7) | State Rank (8) |
| Corruption | 0.072*** | 0.007*** | 0.041*** | 0.004*** | 0.031* | 0.003*** | -0.022** | -0.002*** |
| (*Instrumented*) | (2.63) | (7.53) | (3.78) | (3.81) | (1.91) | (3.69) | (-2.35) | (-5.10) |
| Ln(Assets) | -1.553*** | -1.559*** | -0.457*** | -0.468*** | -0.170*** | -0.178*** | 0.367*** | 0.373*** |
| | (-182.91) | (-55.86) | (-112.78) | (-14.22) | (-32.57) | (-6.34) | (130.65) | (47.82) |
| Leverage | 2.658*** | 2.502*** | 0.960*** | 0.966*** | 0.300*** | 0.241*** | -0.570*** | -0.539*** |
| | (36.18) | (15.73) | (33.41) | (26.24) | (7.66) | (2.95) | (-21.89) | (-8.62) |
| Delaware Inc. | -0.082** | -0.098*** | -0.016 | -0.025** | -0.130*** | -0.131*** | 0.046*** | 0.046*** |
| | (-2.50) | (-3.66) | (-1.24) | (-2.09) | (-6.61) | (-11.49) | (4.23) | (3.65) |
| Sales Growth | -0.129*** | -0.163*** | -0.048*** | -0.053*** | -0.091*** | -0.093*** | -0.001 | 0.010 |
| | (-10.42) | (-4.08) | (-10.02) | (-3.23) | (-14.09) | (-5.83) | (-0.34) | (1.49) |
| Investment | -0.434*** | -0.474*** | -0.141*** | -0.154*** | -0.217*** | -0.216*** | 0.069*** | 0.099*** |
| | (-25.63) | (-11.22) | (-22.43) | (-10.27) | (-22.87) | (-10.61) | (13.24) | (7.69) |
| R&D | -0.084*** | -0.083*** | -0.002 | -0.004 | -0.034*** | -0.038*** | 0.028*** | 0.020*** |
| | (-6.29) | (-4.54) | (-0.39) | (-0.79) | (-4.80) | (-5.02) | (6.56) | (4.69) |
| Cash | -0.407*** | -0.617*** | -0.148*** | -0.195*** | -0.311*** | -0.390*** | 0.010 | 0.087** |
| | (-20.18) | (-5.97) | (-18.62) | (-4.69) | (-28.08) | (-9.00) | (1.62) | (2.49) |
| Dividend | -3.327*** | -3.942*** | -0.463*** | -0.694** | 2.134*** | 2.319*** | -0.475*** | -0.495** |
| | (-7.75) | (-5.68) | (-2.59) | (-1.98) | (8.71) | (6.67) | (-3.37) | (-2.15) |
| Ln(Per Cap. GDP) | 0.577*** | 0.530*** | 0.196** | 0.154*** | 0.562*** | 0.404*** | -0.109 | -0.132*** |
| | (2.99) | (3.68) | (2.53) | (3.16) | (5.14) | (3.90) | (-1.64) | (-2.72) |
| Education | -0.014** | -0.013** | -0.002 | -0.001 | -0.016*** | -0.012** | 0.000 | 0.000 |
| | (-2.02) | (-2.04) | (-0.81) | (-0.63) | (-3.98) | (-2.15) | (0.08) | (0.38) |
| MSA | -0.065 | -0.023 | 0.010 | 0.030 | -0.072* | -0.049* | 0.044* | 0.044*** |
| | (-0.94) | (-0.45) | (0.40) | (1.44) | (-1.69) | (-1.72) | (1.70) | (4.25) |
| K-P rk Wald $F$ | 538.40 | 471.40 | 538.08 | 457.44 | 538.46 | 471.43 | 397.41 | 353.59 |
| Hansen's $J$ ($p$-value) | 0.15 | 0.49 | 0.22 | 0.43 | 0.04 | 0.43 | 0.02 | 0.32 |
| Observations | 74,828 | 75,291 | 71,359 | 71,791 | 74,836 | 75,299 | 57,037 | 57,376 |
| Model | 2SLS | IVFM | 2SLS | IVFM | 2SLS | IVFM | 2SLS | IVFM |
| Industry Dummies | YES | YES | YES | YES | YES | YES | YES | YES |
| Year Dummies | YES | NO | YES | NO | YES | NO | YES | NO |

**Table 11: Corporate Governance, Corruption and Firm Value.**

In this table, we show that the corporate governance has a greater effect on firm value when firms are located in corrupt areas. We present estimates from regressions where the dependent variable is *Tobin's Q* and the independent variables of interest is *GIndex*. In all the regressions we control for *Industry Tobin's Q* at Fama-French 48 industry level. In addition, we control for firm characteristics including *Log Assets*, *Leverage*, *Delaware Inc.*, *MSA*, *Sales Growth*, *CapEx*, *R&D*, *Cash*, and *Dividend*; state characteristics including *Ln(Per Cap. GDP)* and *Education*. All the variables are defined in the Appendix. Year and industry dummies are also included. *t*-statistics using firm-clustered standard errors are in brackets. *, ** and *** indicate significance better than 10%, 5%, and 1% respectively.

| Corruption Measures: | State Level | | State Rank | |
|---|---|---|---|---|
| Sample: | Below-Median<br>(1) | Above-Median<br>(2) | Below-Median<br>(3) | Above-Median<br>(4) |
| G Index | -0.003 | -0.015** | 0.004 | -0.020** |
| | (-0.36) | (-2.14) | (0.41) | (-2.27) |
| Ind. Tobin's Q | 0.764*** | 0.561*** | 0.760*** | 0.580*** |
| | (7.25) | (6.77) | (6.99) | (6.47) |
| Ln(Assets) | 0.037 | 0.007 | 0.044 | -0.005 |
| | (1.59) | (0.38) | (1.64) | (-0.23) |
| Leverage | -0.692*** | -0.451*** | -0.786*** | -0.435*** |
| | (-3.53) | (-3.12) | (-3.39) | (-2.78) |
| Delaware Inc. | 0.082 | 0.056 | 0.060 | 0.070 |
| | (1.59) | (1.25) | (0.91) | (1.33) |
| Sales Growth | 0.530*** | 0.257*** | 0.538*** | 0.264*** |
| | (6.44) | (3.14) | (6.75) | (3.20) |
| Investment | 0.755*** | 0.879*** | 0.744*** | 0.849*** |
| | (6.53) | (5.52) | (5.82) | (5.17) |
| R&D | -0.147** | -0.118** | -0.137** | -0.147*** |
| | (-2.32) | (-2.52) | (-2.23) | (-2.76) |
| Cash | 1.352*** | 1.570*** | 1.493*** | 1.309*** |
| | (7.72) | (8.17) | (8.04) | (6.96) |
| Dividend | 12.145*** | 15.440*** | 10.683*** | 16.821*** |
| | (9.43) | (10.64) | (6.94) | (9.96) |
| Ln(Per Cap. GDP) | 0.584** | 0.294* | 0.486 | 0.295 |
| | (2.10) | (1.72) | (1.61) | (1.40) |
| Education | -0.012 | -0.003 | -0.004 | -0.003 |
| | (-1.08) | (-0.41) | (-0.31) | (-0.31) |
| MSA | -0.077 | 0.072 | -0.141 | 0.150 |
| | (-0.48) | (0.62) | (-0.82) | (0.94) |
| Constant | -4.215 | -1.910 | -3.020 | -2.203 |
| | (-1.56) | (-1.09) | (-1.03) | (-1.04) |
| Adjusted $R^2$ | 0.356 | 0.369 | 0.376 | 0.363 |
| Observations | 7,615 | 7,682 | 7,549 | 7,748 |
| Model | OLS | OLS | OLS | OLS |
| Industry Dummies | YES | YES | YES | YES |

**Table 12: Corporate Governance, Product Market Competition, Corruption and Firm Value.**

In this table, we show that the interactive effects of corporate governance and product market competition on firm value is significant when firms are located in corrupt areas. We present estimates from regressions where the dependent variable is *Tobin's Q* and the independent variables of interest are the interaction term between *G Index* and indicator variables that *HHI* is in different tertiles of the sample. *HHI* is the industry concentration measure based on Fama-French 48 industry classification. We show the estimates for the subsample of states with below (above) the median of the level or time series average of *Corruption*. In all the regressions we control for *Industry Tobin's Q* at Fama-French 48 industry level. In addition, we control for firm characteristics including *Log Assets*, *Leverage*, *Delaware Inc.*, *MSA*, *Sales Growth*, *CapEx*, *R&D*, *Cash*, and *Dividend*; state characteristics including *Ln(Per Cap. GDP)* and *Education*. All the variables are defined in the Appendix. Year and industry dummies are also included. *t*-statistics using firm-clustered standard errors are in brackets. *, ** and *** indicate significance better than 10%, 5%, and 1% respectively.

| Corruption Measures: | State Level | | State Rank | |
|---|---|---|---|---|
| Sample: | Below-Median | Above-Median | Below-Median | Above-Median |
| | (1) | (2) | (3) | (4) |
| G Index × High HHI | -0.002 | -0.025** | 0.008 | -0.031** |
| | (-0.13) | (-2.14) | (0.53) | (-2.04) |
| G Index × Median HHI | 0.001 | -0.014 | 0.013 | -0.029*** |
| | (0.06) | (-1.60) | (1.11) | (-2.69) |
| G Index × Low HHI | -0.007 | -0.007 | -0.010 | 0.001 |
| | (-0.50) | (-0.53) | (-0.62) | (0.05) |
| High HHI | -0.099 | 0.097 | -0.088 | 0.024 |
| | (-0.63) | (0.72) | (-0.51) | (0.14) |
| Low HHI | 0.041 | -0.061 | 0.186 | -0.274 |
| | (0.25) | (-0.39) | (1.05) | (-1.55) |
| Industry Tobin's Q | YES | YES | YES | YES |
| Firm Control Variables | YES | YES | YES | YES |
| State Control Variables | YES | YES | YES | YES |
| Adjusted $R^2$ | 0.356 | 0.369 | 0.377 | 0.363 |
| Observations | 7,615 | 7,682 | 7,549 | 7,748 |
| Model | OLS | OLS | OLS | OLS |
| Industry Dummies | YES | YES | YES | YES |
| Year Dummies | YES | YES | YES | YES |

**Table 13: Corruption and Firm Value After Regulation Fair Disclosure and Sarbanes–Oxley Act.**

In this table, we show that the negative relation between local corruption and firm value is weaker after the adoption of Regulation Fair Disclosure in October 2000 and after the enactment of Sarbanes–Oxley Act in July 2002. We present estimates from difference-in-differences regressions in a 7-year window surrounding the adoption of SOX (Reg FD) in Columns (1) and (2) ((3) and (4)). The dependent variable is *Tobin's Q* and the independent variables of interest are the interaction term between measures of local corruption and a binary variable *Post* that indicates the period after the exogenous change in regulation. Measures of local corruption include *Corruption* at the state level (Columns (1) and (3)), and the rank of the time series average at the state level (Columns (2) and (4)). In all the regressions we control for *Industry Tobin's Q* at Fama-French 48 industry level. In addition, we control for firm characteristics including *Log Assets*, *Leverage*, *Delaware Inc.*, *MSA*, *D.C. Headquarter*, *Sales Growth*, *CapEx*, *R&D*, *Cash*, and *Dividend*; state characteristics including *Ln(Per Cap. GDP)* and *Education*. All the variables are defined in the Appendix. Industry dummies are also included. *t*-statistics using firm-clustered standard errors are in brackets. *, ** and *** indicate significance better than 10%, 5%, and 1% respectively.

| Event: | SOX | | Reg FD | |
|---|---|---|---|---|
| Corruption Measures: | State Level (1) | State Rank (2) | State Level (3) | State Rank (4) |
| Corruption | 0.004 | -0.004*** | 0.002 | -0.005*** |
| | (0.72) | (-2.68) | (0.47) | (-3.21) |
| Corruption × Post | 0.009 | 0.004*** | 0.017*** | 0.004*** |
| | (1.50) | (2.70) | (3.06) | (2.85) |
| Post | -0.006 | -0.166*** | -0.340*** | -0.281*** |
| | (-0.20) | (-3.38) | (-5.62) | (-5.72) |
| Industry Tobin's Q | YES | YES | YES | YES |
| Firm Control Variables | YES | YES | YES | YES |
| State Control Variables | YES | YES | YES | YES |
| Adjusted $R^2$ | 0.307 | 0.304 | 0.304 | 0.301 |
| Observations | 24,690 | 24,694 | 26,903 | 26,912 |
| Model | OLS | OLS | OLS | OLS |
| Industry Dummies | YES | YES | YES | YES |
| State Dummies | YES | NO | YES | NO |

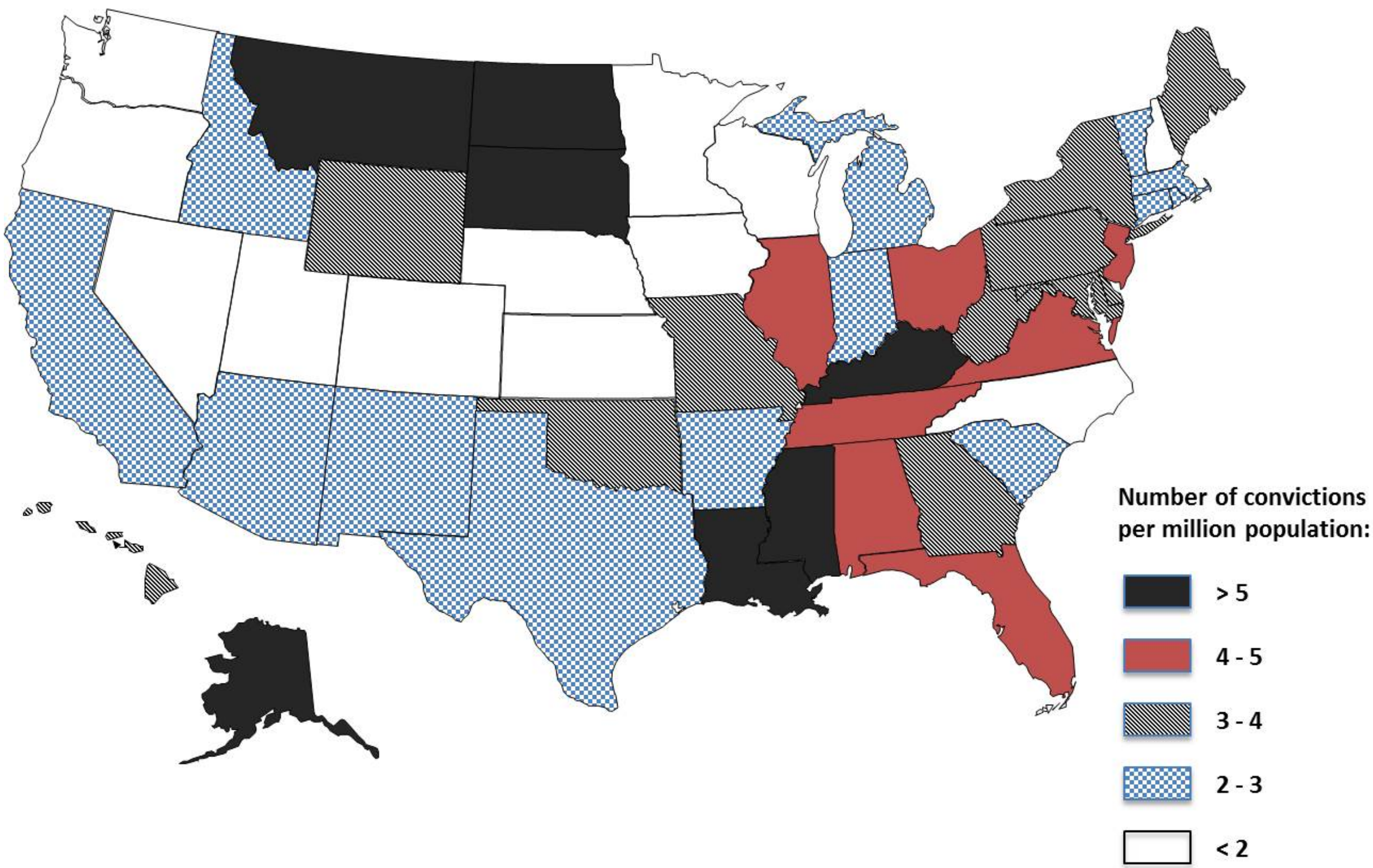


**Figure 1: Map showing variation in the average corruption across the United States**