Anti-corruption and Corporate Investment: Evidence from Financial Disclosure Laws*

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Abstract

We exploit the adoption of global financial disclosure laws to study the effect of anti-corruption regulation on corporate investment and find that following the adoption of these laws, corporate investment rate decreases while investment efficiency improves. Our results indicate that anti-corruption laws effectively restrict firm's excessive investment caused by government subsidies in more corrupt environment. Our analysis sheds light on the benefits of anti-corruption laws and have important policy implications.

Keywords: Anti-corruption, Corporate Investment Rate, Corporate Investment Efficiency, Government Subsidies

JEL Classification: G31, H21, K29

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1 Introduction

Corruption, defined as "the abuse of power by a public agent for personal gain" (Jain (2001)), has been a major point of contention in contemporary socio-economic agendas. Typical corruption actions include but are not limited to bribery, kickbacks from public procurement, embezzlement of public funds, as well as provision of jobs in the civil service (Lederman et al. (2011)). Suggested by its connotation, corruption is theorized to be closely linked to not only the worsening of the state, which predicts low economic growth and poor public services, but also the pernicious social morality exhibited at individual-level, namely the reduction in subjective well-being due to a weakening of social fabric (Heukamp and Arino (2011)). Since the late 1990s, country-wide anti-corruption campaigns have been launched at an alarming rate. The mid-2000s saw a major rise in the number of countries involved in, of which a majority are high-income countries. This upward trend is also mirrored throughout the developing world regardless of jurisdiction and region. The phenomenon thus has elicited much debate on the nature of anti-corruption and its impact on real economy.

On the one hand, corruption may lead to government officials rent-seeking behavior (North (1991), Shleifer and Vishny (1993)), which not only hampers the economy's performance, resulting in mis-allocation of resources and economic inefficiencies, but also impedes firms growth and innovation. The provision of government subsidies meant to help firms grow can instead serve as a damage to firms development in the presence of corruption. Shleifer and Vishny (1994) modeled how politicians and managers bargain through subsidies and bribes, implying that the potentially profitable firms get privatized while the hopeless firms continue getting subsidized. On the other hand, corruption is viewed as the only remedies to bureaucratic inefficiency led by excessive regulation. Specifically, it points out that corruption can improve quality and quantity of investments and reduce the risk of expropriation (Smith (2016)). Global evidence on whether combating corruption at national level deters corporate investment is, however, scarce.

In this paper, we ask whether corruption indeed stifles firms investment and is harmful to economic efficiency. Specifically, exploiting global financial disclosure laws as a shock to officials willingness to be corrupted, we examine the relationship between anti-corruption laws and corporate investment on a global scale. Financial disclosure here refers to the disclosure behavior of public

officials as mandated by laws and regulations to report issues related to income, asset, and business interests. It is often viewed as a powerful enforcement of anti-corruption policy.

The passage of financial disclosure laws provide a unique setting to investigate these issues for several reasons. First, the launch of anti-corruption campaigns while started in different years across countries, is usually unanticipated by market participants, and can be considered exogenous to firm performance and corporate decisions. Financial disclosure laws are considered as the most powerful tool during the whole process of anti-corruption campaigns.

Second, financial disclosure laws that require public officials to disclose their financial assets and business interests of the firm provide an ideal setting to test how the investment behavior of firms, which bargain in ex ante more corrupt environments with government through bribes and corruption, changes after the law passage. Firms that thrive dependent on government subsidies are now in shortage of funds. Will this lead to a shrinkage in industry efficiency and obscure the efficacy of anti-corruption policies? Our results suggest the other way around.

Third, the pervasiveness of financial disclosure laws in the world provide a consistent framework to analyze the effect of anti-corruption across countries and on a global scale. We are able to use a large data covering 91 countries or regions and 24317 unique firms during the periods from 1987 to 2019. This allows us to test whether corruption results in firms decrease of investment rate regardless of country-specific characteristics.

Using difference-in-difference setting, we show that corporate investment rate decreases following the adoption of global financial disclosure laws. Our results are robust when we control for a variety of firm-level characteristics including firm size, tangibility, profitability, Tobins' Q, book leverage and cash holding as well as the country-level economic environment (GDP level and growth). We also control non-parametrically for industry-year specific shocks and firm time-invariant characteristics using fixed effects. The economic magnitude is large: the corporate investment rate decreases at 1.3%, which represents 26% decrease relative to its sample mean.

Importantly, we conduct several tests to validate our conclusion that anti-corruption laws help attenuate over-investment led by government subsidies in ex ante corrupt environment. First, we test how corporate investment efficiency changes following the adoption of global financial disclosure laws. The decrease in firms investment rate can be explained by two opposing mechanisms. The under-investment mechanism contends that firms cut investment due to shortage of funds, and

are now less responsive to investment opportunities, therefore expecting lower corporate investment efficiency. The over-investment mechanism, nevertheless, taken the firms ex ante investment level as the result of over-investment led by inefficient government subsidies in ex ante more corrupt environment, predicts higher corporate investment efficiency. Our results show that corporate investment efficiency improves after the passage of anti-corruption laws. Following previous previous studies (see Richardson (2006) among others), we also estimate investment residuals apart from the efficient capital allocation line, which reaffirms our finding of an ex post enhancement in investment efficiency.

Second, we run several cross-sectional analysis tests to mitigate concerns of omitted variables bias. The results indicate that the negative effect of anti-corruption on corporate investment rate does not differ among either countries with high political and economic uncertainty, nor firms in high financially constrained situation. Instead, we find that the negative effect of anti-corruption on corporate investment rate gets stronger among countries with high government subsidies, which reaffirms the over-investment mechanism and implies that anti-corruption laws can effectively restrict firm's excessive investment caused by government subsidies.

The key identifying assumption central to our difference-in-difference setting is that, in the absence of the passage of anti-corruption laws, the average change in firms investment rate would have been the same for both the treatment and control firms. The feature of financial disclosure laws and results from a variety of robustness tests help show that this parallel trends assumption is satisfied in our sample. First, due to the staggered passage of anti-corruption laws at a given year, firms can be in both the treatment group and the control group at different times, which helps alleviate concerns about large differences between treatment and control firms.

Second, we examine the timing of changes in corporate investment rate and find that changes in investment rate appear only after the passage of anti-corruption laws, which alleviates the concern of reverse causality. This result is robust to controlling for country-year trends in firms investment rates, which difference out all confounding factors that vary at the country-year level. We also conduct propensity score matching to ensure the comparability of treatment firms and control firms in observable characteristics.

In addition, these results continue to hold when we use alternative measures of corporate investment rate, other types of firms investment, and alternative samples. For example, we scale capital

expenditures by either firm's net Property, Plant, and Equipment(PPE), or firm sales for investment rate. We also use the logarithm of capital expenditures directly as a robustness check. Other types of investment by firms such as R&D expenses is also examined. While we fail to find that firms alter their R&D expenses after the anti-corruption, we document that firms increase their M&A expenses. This result suggests that firms reallocate funds and resources from corporate investment to M&A activities. However, the underlying reasons or whether these M&A activities are value-enhancing or value-destroying need further examination. We also test China as an alternative sample. Our findings are robust in different samples.

This paper belongs to a growing literature studying the effects of corruption, political connection and firm performance. A strand of the literature documents a negative effect of government intervention on firms investment efficiency. Firms with political connections are found to have greater access to bank financing in many countries (Sapienza (2004), Khwaja and Mian (2005)), which exacerbates the negative impact of government intervention on investment efficiency. Chen et al. (2011) find that in China, government intervention in state-owned enterprises (SOEs) results in investment inefficiency. Zhang et al. (2019) finds that the anti-corruption work of government has effectively restrained the excessive investment behavior of government-subsidized enterprises. Kong et al. (2020) documents that anti-corruption campaign can substantially improve firm productivity by increasing firms' investment efficiency and innovation in China.

It's worth noting that a number of contemporaneous papers exploring the effect of corruption on firms are confined in a specific country. Fisman and Svensson (2007) exploit a unique dataset providing firms estimated bribe payments in Uganda and found that the rate of bribery is negatively correlated with firm growth. Lee et al. (2020) using the World Bank Enterprise Survey data empirically showed that corruption improves firms' new product innovation. Nguyen and Van Dijk (2012) conducted a firm-level analysis in Vietnam and documented that corruption hampers the growth of private sector, but not that in the state sector. More importantly, research is not limited to developing economy. Athanasouli et al. (2012) investigates how corruption impacts firm performance in Greece, and found that large firms display a lower engagement than small and medium firms in corrupt practices. Collins et al. (2009) used a survey of executives data in India and figured out that executives social ties with government officials suggest firms high likelihood of engaging in corruption. Using US Department of Justice data, Smith (2016) found an upward-

leverage downward-liquidity pattern for firms in more corrupt areas, suggesting a practice to limit corrupt government officials' expropriation. Likewise, using federal corruption convictions data, Brown et al. (2021) analyzes the mechanisms for firms to moderate the negative relation between corruption and firm value. Firms value decline less when operating in high-rent product markets, subject to external monitoring by state governments, and under surveillance induced by disclosure transparency.

Despite the pervasive firm-level research focusing on a specific country, there are also region-wide analysis. Asiedu and Freeman (2009) uses firm-level data and measures corruption at both firm-level and country-level, concluding that corruption negatively impedes investment growth for firms in Transition countries but not in Latin America and Sub-Saharan Africa. However, Asiedu and Freeman (2009) examines only developing economies and do not identify anti-corruption changes, the same as Na et al. (2018) which examines how corruption affects corporate governance for firms in four emerging economics BRICs only.

In fact, recent work studies the local consequence of anti-corruption campaigns are not rare. Colonnelli and Prem (2017) exploit anti-corruption audits setting in Brazil and found that corrupt firms invest more and gained an improved access to finance. In their subsequent paper Colonnelli and Prem (2020) showed that politically connected firms suffered after the anti-corruption audits while there is an increase in the number of firms concentrated in sectors most dependent on government relationships. Moreover, exploiting China's anti-corruption campaign, Giannetti et al. (2021) established a negative relation between corruption and firm performance through the channel of more efficient allocation in labor and capital. They found that firms operating in ex ante more corrupt environments now exhibit higher growth of sales, larger productivity gains and lower cost of debt. Last but not least, Zeume (2017), exploiting the passage of the UK Bribery Act 2010, finds that UK firms operating in high-corruption regions of the world experience a drop in firm value after the Act's passage. More importantly, Zeume (2017) finds that the passage of the Act has unintended positive effects on non-UK unregulated peers. It therefore warrants the attention of policy makers to the consequences of unilateral anti-bribery regulation.

To help promote anti-corruption laws into a global phenomenon, research on what is the real effect of anti-corruption on firms apart from country-specific characteristics is in desperate need.

However, there is a blank in literature studying the effect of anti-corruption on firms on a global scale, and to our best of knowledge, we are the first paper filling this blank.

Our paper contributes in the following three ways. First, among existing literature, our paper is the first to study anti-corruption in an international setting and provide global empirical evidence, while most empirical papers focus only in certain country (e.g. Zhang et al. (2019)). By investigating whether anti-corruption policy reduces firms investment, our paper provides external validity to the current empirical findings on the local consequence of anti-corruption policy. Also, the international setting enables us to have large cross-sectional variation in terms of firms characteristics, country economic development, jurisdiction, and so on, which allows us to exclude confounding factors and examine the underlying economic channel.

Second, unlike other papers using country-level data, our paper uses firm-level data and managed to do rich tests to reach conclusions that do not apply only to selected context. Our firm-level analysis also contributes to the literature about anti-corruption and firm behavior.

Third, our paper has important policy implications for anti-corruption regulation. In the world, up till now, there remain countries not enacting any anti-corruption policies and still, many question the real effect of anti-corruption campaigns. They incur a cost to the society. While they might be beneficial to the whole economy, they increases political risks that can hinder firms development and reduce firms value.

The rest of the paper is organized as follows. Section 2 discusses the institutional background and describes the data. Section 3 introduces the empirical models and presents the results. Section 4 provides a rich set of robustness tests and alternative measures. Section 5 concludes. Variable definitions and result tables are provided in the Appendix.

2 Data

2.1 Adoption of financial disclosure laws

Financial disclosure, a term describing the disclosure behavior of public officials as mandated by laws and regulations to report issues related to income, asset, and business interests, is often characterized as a powerful enforcement of anti-corruption policy. On a global scale, country-wide passage of

financial disclosure laws can be seen as an exogenous shock to firm-level corporate investment decisions[1].

We take advantage of the World Bank financial disclosure law library, which collects legal documents containing anti-corruption policy over 1000 laws and across 176 jurisdictions. For countries not having English as the official language, World Bank provides translation to English context, meanwhile providing the link to the original version of the official legal documents. According to World Bank description, legally binding texts are provided at a national level, typically encompassing documents like constitutions, laws, acts, regulations, decrees and rules, while they may differ from one country to another. As our aim is to examine how anti-corruption policies affect corporate investment behavior, we restrict the laws to those containing information disclosure and on which categories of public officials are mandated to submit disclosures. To obtain the enforcement year of each law, based on the categorization, we obtain four sub-groups for each country: 1) anti-corruption laws, 2) asset declaration laws, 3) conflict of interest laws and 4) house of representatives code. A detailed description of each group is as followed.

For group 1), typical documents are: "anti-corruption law", "anti-corruption act", "prevention of corruption act", "decree (on law on corruption)" and "corruption eradication law". This group of laws require public officials in general to combat corruption, report income and are enforced at national level.

For group 2), typical documents are: "rules on declaration of assets and liabilities", "regulation on asset disclosure", "disclosure laws", "decree (on disclosure)", and "declaration of assets act". The passage of this group of laws are usually following the enforcement of group 1). They specifically require related parties to report income and business related interests.

For group 3), typical documents are: "conflict of interest laws", "resolution of legislative council on declaration of interests by officials" and "conflict of interests law election commission rules". This group of laws usually restricts certain group of public officials to report conflict of interests in business related transactions.

For group 4), typical documents are: "resolution (internal regulation of house of representatives)", "law on parliamentarians", "conflict of interest code house of commons", and "standing order of

[1]Our sample include regions like Hong Kong Special Administrative Region of the People's Republic of China, and for simplicity, throughout this paper we use "country" and "country and region" interchangeably.

parliament". This group of laws are not meant to combat national corruption, but normalize the ethics code of parliament members internally.

Laws in these groups differ in their names, but they share the same spirit, which is combating corruption through more disclosure of public officials' assets and business interests. In our main analysis, we code the enactment year as the earliest adoption year of these four groups of laws where applicable. We include laws in group 4) which are restricted to a small group of public officials (parliament members, for example), but in robustness check we exclude them and code the enactment year as the earliest adoption year of all the first three groups of laws where applicable.

2.2 Firm and country characteristics

We use firm level financial data from Compustat Global Database, which provides firm location and financial characteristics data during the sample period spanning from 1987 to 2019. To better control across-country variation, we obtain country level control data from World Bank. We identify the country firms headquartered in from Compustat Global, and merge with World Bank financial disclosure law library to obtain a law dummy variable indicating whether a country passes anti-corruption laws at the given year for each firm-year observation. As the Compustat Global Database starts from 1987, data limitations prevent our main sample from encompassing countries that pass financial disclosure laws before 1988. We do not include Mainland China in our main sample because up till now, China has not passed financial disclosure laws, even though there exists anti-corruption campaigns in Mainland China since 2012, which has already been widely documented in the literature Kong et al. (2020); Chen et al. (2011); Zhang et al. (2019)[2]. Our final sample include 343,284 firm-year observations (24,317 unique firms) operated in 91 countries or regions, of which 218,729 firm-year observations (15,494 unique firms) refer to treatment group covering 48 countries or regions that passes the anti-corruption laws. Our sample thus provides large across-country variations and broad geographical coverage.

Table 1 presents summary statistics. As is shown, we have two main variables of interests. *Inv*, the corporate investment rate, is defined as capital expenditures scaled by last year's total assets. The sample mean of *Inv* is 5% with a standard deviation of 0.077. *Anti Corrupt* is a dummy

[2]The results are robust to using Mainland China as the alternative sample.

variable indicating if the country in which the firm is headquartered has passed the anti-corrupt law (financial disclosure law) in any year. The sample mean indicates that over 62.4% firm-year observations of our main sample are in the treatment group, i.e. the country firms headquartered in passed the anti-corrupt law. The remaining variables are control variables measured at year t-1. Continuous variables are winsorized at their 1st and 99th percentiles. Firm total assets and country GDP are expressed in constant 2010 U.S dollars.

3 Empirical results

3.1 Anti-corruption and corporate investment rates

We adopt a difference-in-differences research design to examine the relation between the passage of anti-corruption laws and investment rate at the firm-year level. Specifically, we estimate the following panel regression model:

$$Inv_{i,j,t} = \beta Anti\ Corrupt_{j,t} + \phi X_{i,s,t} + \gamma C_{j,t} + \alpha_i + \alpha_{k,t} + \epsilon_{i,t} \tag{1}$$

where $Inv_{i,t}$ is a specific measure of firm investment rate at firm i in country j and year t, and $Anti\ Corrupt_{j,t}$ is an indicator variable for whether the country j in which the firm i is headquartered has passed the anti-corrupt law (financial disclosure law) as of year t. We control for a vector of time-varying firm characteristics, $X_{i,s,t}$, which include firm size, tangibility, profitability, Tobin's Q, book leverage and cash holding, a set of firm-level control variables commonly found in literature. We also control for country-level characteristics, $C_{j,t}$, including GDP level and growth, to help ensure that country-specific economic conditions do not spuriously drive our main results.

In all model specifications we include firm fixed effect α_i and industry-year joint fixed effect $\alpha_{k,t}$.[3] The firm fixed effect α_i controls for time-invariant omitted firm characteristics, which helps ensure that estimates of β reflect not simply the cross-sectional correlations, but the average within-firm changes in investment rate over time. Hence, any time-invariant firm, industry and country

[3]We also control for country-year trend that difference out all confounding factors that vary at the country-year level in our cross-sectional tests.

characteristics are absorbed by the firm fixed effects. The industry-year joint fixed effects $\alpha_{k,t}$ account for transitory industry-wide factors that could potentially affect firm investment rate.

We correct estimated standard errors in all regressions for heteroskedasticity and clustering at the country level. As the variation in anti-corruption laws is at the country level, this clustering method corrects for within-country and within-firm error term correlations over time.

The regression results are presented in Table 2. In Column 1, we only include a dummy variable $Anti\ Corrupt_{j,t}$ indicating whether a country in which the firm is headquartered has passed the anti-corrupt law (financial disclosure law) in year t. The negative coefficient is both statistically and economically significant, suggesting that corporate investment rate decreases after the law passage by 1.3 percentage points, which represents a relative reduction in investment rates of 26% (=0.013/0.050) to its sample mean.

In Column 2, we control for several firm characteristics including firm size, tangibility, profitability and Tobin's Q. The coefficient of $Anti\ Corrupt_{j,t}$ gets larger in both statistical and economic significance after adding these controls, with now a 1% significance level and a 15.38% increase relative to Column 1. Further including firm's book leverage and cash holdings (in Column 3), and country GDP and GDP growth (in Column 4) does not affect the economic significance of the effect of the law's passage. [4].

Overall, the above results suggest a negative relationship between anti-corruption and corporate investment rate. This relationship holds when we control for a variety of firm characteristics as well as country's economic environment that could possibly affect the corporate investment decisions.

3.2 Anti-corruption and investment efficiency

After presenting our baseline result that anti-corruption reduces corporate investment rate, we next examine its underlying mechanisms. On the one hand, the passage of anti-corruption policies could cause firms to under-invest. For example, the firms could become financially constrained as they receive less funds and support from government officials they used to have close relationship with, which prevents firms from taking profitable projects (Paravisini (2008)). Besides financial constraint, firms also under-invest in light of the spike of political and business uncertainty around the

[4]In untabulated test, we further control country-specific time trends and our results still hold.

law passage, and higher uncertainty reduces the responsiveness of investment to demand shocks or economic policies Bloom et al. (2007). On the other hand, the passage of anti-corruption policies could effectively restrict firm's excessive investment caused by lavish government funding and subsidies Zhang et al. (2019). While all of the two aforementioned mechanisms may be at play, our following analyses are in line with the latter mechanism that drives our baseline result.

We first test corporate investment efficiency. According to the Q theory of investment, there is an inverted U-shape relationship between investment rate and investment efficiency, and there exists an optimal investment level such that corporate investment efficiency is maximized. With the directional change in corporate efficiency on hand, we can infer whether the reduction in corporate investment rate suggests under-investment or the attenuation of over-investment found in ex ante more corrupt environment. Specifically, if we observe improvement in corporate investment efficiency conditional on a reduction in investment rate, we can infer that the original investment level is greater than the optimal level and results in over-investment prior the law passage, and thus following the adoption of anti-corruption laws, the reduction of corporate investment rate displays a good signal of attenuating the over-investment problems.

Table 3 presents the results for corporate investment efficiency, which is defined as sensitivity of corporate investment rate to investment opportunities. We create two measures for investment opportunities: Tobin's Q and annual sales growth. The specifications largely follow Column 4 of Table 2, except that we further control for country-year joint fixed effect in Column 2 and Column 4. The positive coefficients of the interaction term between *Anti Corrupt* and investment opportunities suggest that corporate investment efficiency improve after adoption of anti-corrupt law (financial disclosure law). All of the results are robust to including country-year joint fixed effect and using either measure of investment opportunity, while the magnitude is slightly larger when we use Tobin's Q (0.5%).

Overall, the above analyses show that corporate investment efficiency improves following the adoption of the anti-corrupt law. The results indicate that firms exhibit over-investment prior the law passage, and the law adoption can effectively restrict firm's excessive investment.

3.3 More evidence from investment residual

In this section, we provide more evidence to our findings in Table 2 and Table 3. We first follow previous studies (Richardson (2006), Zhao et al. (2013), Harford et al. (2017)) and estimate investment residuals using the following optimal-investment regression:

$$Inv_{i,t} = \beta_1 Size_{i,t-1} + \beta_2 Profitability_{i,t-1} + \beta_3 Tobin's Q_{i,t-1} + \beta_4 BookLeverage_{i,t-1} + \beta_5 CashHolding_{i,t-1} + \beta_6 Inv_{i,t-1} + \beta_7 Ret_{i,t-1} + \alpha_t + \alpha_k + \epsilon_{i,t} \quad (2)$$

where the outcome variable $Inv_{i,t}$ refers to investment expenditure by firm i in year t. To account for the changes in firm-specific characteristics that might correlate with the dependant variable and error terms, we include firm size, profitability, Tobin's Q, book leverage, cash holding, and stock return as the explanatory variables.

We use the residuals from the optimal-investment regression to measure a firm's deviation from its optimal investment level. We classify the types of companies' inefficient investments from the regression residuals: a firm is classified as under-investing if its firm-year observation is with negative residual and over-investing if with positive residual. On top of that, the absolute value of investment efficiency indicates capital value efficiency: the higher the value, which suggests the larger deviation from optimal investment level, the lower the capital value efficiency.

Table 4 presents the results. In Column 1, the coefficient of *Anti Corrupt* is negative and significantly significant at 1%. This suggests that the estimated investment residual decreases after the passage of anti-corruption laws. The negative and statistically significant coefficients in Column 2 and 3 indicate that there is decrease in over-investment tendency after the law passage, suggesting a good sign of improving capital allocation efficiency.

These results validate our findings that the passage of anti-corruption laws help attenuate firm's over-investment tendency and improves firm's capital allocation efficiency.

3.4 Cross-sectional variation in firm and country characteristics

We next exploit cross-sectional variation in industry and country characteristics to estimate difference-in-difference-in-differences (DDD) regression models. While the main goal of these tests is to validate

our results in Table 2 and Table 3, one most important purpose served by these tests is that they provide evidence on which industries and firms are more affected by the passage of anti-corruption laws. By identifying firms within treated countries that are more likely affected by the adoption of the laws and comparing groups of firms within country, the DDD estimator can help mitigate the econometric concern that unobserved factors or unobserved trends in investment rate might affect firms headquartered in countries that do and do not pass the anti-corruption laws differently.

The first set of cross-sectional tests is based on industry and firm characteristics. Table 5 presents the results. In Column 1 and Column 2, we interact *Anti Corrupt* with the dummy variable *Manufacturing* indicating whether the firm is in the manufacturing industry. We define the manufacturing industries as those having 2-digit SIC codes from 20 to 39. Column 1 shows that the negative effect of anti-corruption on corporate investment rate gets stronger for manufacturing industries. The decrease in corporate investment rate is 2.1% for manufacturing industries and 0.9% for non-manufacturing industries. The result is robust to including country-year joint fixed effect in Column 2. Column 3 and Column 4 present results for innovation firms which are defined as those having R&D expenses. As shown in Column 3, the negative effect of anti-corruption on corporate investment rate gets attenuated for innovation firms. This suggests that the excessive investment prior to law adoption might be less of a concern for innovation firms. While including country-year joint fixed effect weakens both the statistical and economic significance of the coefficient in Column 4, the positive sign remains.

The second set of cross-sectional tests exploits the fact that the passage of anti-corruption laws shocks more to firms in country with higher government subsidies, but not uncertainty. In Column 5, we interact *Anti Corrupt* with the dummy variable *High Uncertainty* indicating if the country-level "Uncertainty Index" is above the sample median. The index is taken from Ahir et al. (2018), which captures economic or political uncertainty regarding both near-term and long-term concerns. Although we find negative coefficient in Column 5, it is statistically insignificant. In Column 6, we interact *Anti Corrupt* with the dummy variable *High Subsidy* indicating if the government subsidies is above the sample median. We obtain government subsidies data from World Bank (Subsidies and other transfers as a percentage of government expenses)[5]. The coefficient is negative and statistically

[5]https://data.worldbank.org/indicator/GC.XPN.TRFT.ZS

significant at 5%, suggesting that the negative effect of anti-corruption on corporate investment rate gets stronger for firms receiving more government subsidies.

The third set of cross-sections is based on firms financial condition to exclude the caveat concerning our over-investment analysis that firms, nevertheless, cut investment due to a shortage of funds and being financially constrained. We test our baseline regression among financially constrained firms to examine whether the reduction in corporate investment rate is driven by firm's under-investment due to financial constraints. After passage of the financial disclosure laws, firms may receive less funds and support from the government, which are highly relied on firm's close relationship with the government officials. If that is the true channel, we would expect the negative effect of anti-corruption on corporate investment rate gets stronger among financially constrained firms. Table 6 presents the results.

Financial Constrained is a dummy variable indicating whether the firm is classified as financially constrained at the most recent fiscal year end before the corporate investment decisions, and we define financial constraints in different ways across columns. In Column 1, financially constrained firms are defined as having below-median cash holdings. Although the estimated coefficient on the interaction term between *Financial Constrained* and *Anti Corrupt* is negative, it is statistically insignificant. In Column 2, following previous studies (Rajan and Zingales (1998), Byoun (2008), Bai et al. (2020), among others), we assume firms are dependent on external finance if their capital expenditures exceed operating cash flows. The estimate is positive and statistically insignificant. Column 3 and Column 4 classify non-dividend-paying and small firms (firm size below sample median) as financially constrained firms, and no statistically significant effect is found. Column 5 and Column 6 measure financial constraints using KZ index (from Kaplan and Zingales (1997)) and WW index (from Whited and Wu (2006)). *Financial Constrained* is equal to one if the value of the index is above the sample median and zero otherwise. Similarly, we do not find statistically significant effect.

The above cross-sectional variation analyses lend confidence to our findings in Table 2 and Table 3 for several reasons. First, the negative effect of anti-corruption on corporate investment rate gets stronger among manufacturing industries, which is in line with the fact that a large fraction of capital expenditures should come from manufacturing industries. Second, we show that the negative effect of anti-corruption on corporate investment rate does not differ among firms that are headquartered

in countries with high uncertainty index or are financially constrained, which help rule out the possibility that the reduction in corporate investment rate is driven by firm's under-investment due to economic/policy uncertainty or financial constrains. Third, in line with Zhang et al. (2019), we find that the negative effect of anti-corruption on corporate investment rate gets stronger among firms headquartered in countries with high government subsidies, which helps demonstrate that anti-corruption can effectively restrict firm's excessive investment caused by government subsidies.

4 Additional evidence and robustness checks

This study is not immune to endogeneity issues or the concern that our results are sensitive to the sample and measures selected. To alleviate such concerns, we conduct several additional robustness tests. First, we present the timing of changes in corporate investment rate around the anti-corrupt law (financial disclosure law). Second, we examine the robustness of the negative relation between firm investment rate and anti-corruption law passage to controlling for differences in firm characteristics between treatment and control firms. We conduct propensity score matching to ensure that treatment and control firms are similar in observable characteristics. Third, we use alternative measures of corporate investment rate and re-run the analysis. We also present other types of investment, including R&D expenses, acquisition expenses and Selling, General & Administrative expenses (SG&A) expenses. Last but not least, we consider alternative samples for analysis.

4.1 Dynamic timing around the law adoption

In this subsection we conduct an additional test to help alleviate the concern for reverse causality and provide support for the conclusion that our setting likely satisfies the parallel trends assumption. To do so, we present the timing of changes in corporate investment rate relative to the timing of the passage of anti-corrupt law (financial disclosure law). For example, Anti Corrupt (-3) is a dummy variable indicating if the country in which the firm is headquartered will pass the anti-corrupt law (financial disclosure law) in 3 years. Anti Corrupt (≥ 3) indicates whether or not the country in which the firm is headquartered has passed the anti-corrupt law for at least 3 years. The same applies for other dummy variables in Table 7, and other specifications follow Column 4 of Table 2.

If reverse causality is an issue for our setting, or pre-treatment trends exist, then we would observe a decline (or increase) in corporate investment rate before the passage of the law.

As presented in Table 7, the coefficient of Anti Corrupt (-3) is positive and statistically insignificant. Although the coefficients for Anti Corrupt (-2) and Anti Corrupt (-1) are negative, they are not statistically significant. Starting in the year of anti-corruption law passage, however, the decrease in corporate investment rate is drastic and significant. The coefficient of Anti Corrupt (0) is -0.014 and statistically significant at 1%. Although the statistical and economic significance decrease slightly for the coefficient of Anti Corrupt $(+1)$, the magnitudes get larger for Anti Corrupt $(+2)$ and Anti Corrupt (≥ 3). This declining trend appears persistent and it takes around eight years for investment level to revert.

The above results indicate that firms cut their capital expenditures following the adoption of anti-corruption law, but not before the law passage. The results also indicate that firms do not (fully) anticipate the adoption of anti-corruption law in their headquartered countries.

4.2 Propensity score matching

There is an endogeneity concern that some omitted factors might affect both corporate investment decisions and anti-corruption law adoption. For example, when a country is undergoing a tough economic environment, the country may choose to initiate the anti-corruption policy to stimulate the economy, and firms in treatment country may cut their corporate investment in the meanwhile. In this circumstance, we might observe a negative relationship between anti-corruption and corporate investment rate, but cannot conclude that anti-corruption leads to decrease in firms investment rate as firms in treatment country and control country are different in observable characteristics other than the treatment. Propensity score matching methodology, requiring treatment and control firms are similar and comparable in observables (e.g. similar economic environments) can help alleviate such concern.

In this subsection, we conduct propensity score matching to compare treatment and control firm's investment rate controlling for observable characteristics. Following Bai et al. (2020), we first retain all treatment firms in a 3-year window around the adoption of the financial disclosure law. Then, we require control firms are in the same region (assigned by World Bank) and the treatment

firms are in the same 2-digit SIC industry. We require treatment and control firms have at least one year coverage before and after the treatment year.

Next, in the year before law adoption we estimate the propensity scores that a firm is in the treatment group with control variables used in Column 4 of Table 2. After that, we match control firms to each treatment firm by requiring the closest propensity score. To ensure robustness of the results, we try retaining up to one, two or three control firms for each treatment firm and present the results in Table 8.

Treat is a dummy variable indicating if the firm is headquartered in a country that adopts the anti-corrupt law (financial disclosure law). *Post* is a dummy variable indicating the periods after the law passage. As shown in Table 8, the estimated coefficient of the interaction term between *Treat* and *Post* is negative and statistically significant at 1%, showing that treatment firms decrease corporate investment rate significantly after the adoption of anti-corrupt law (financial disclosure law). This result is consistent with what we present in Table 2. Our result is robust to different matched sample, which substantiate our baseline finding and ensures that the reduction in corporate investment rate is not driven by differences in observable characteristics between firms that headquartered in country that passed the anti-corrupt law and in country that did not.

4.3 Alternative measures and other types of corporate investment

To ensure robustness of our results, we use several alternative measures of corporate investment rate to complement our analysis. We first scale capital expenditures by firm's beginning-year net Property, Plant, and Equipment (Capx_ppent). Besides, we scale capital expenditures by firm sale (Capx_sale). We also take logarithm of capital expenditures (Log_capx) and include it as dependent variable in our analysis.

Table 9 presents the results. Across all columns, the coefficient of *Anti Corrupt* is negative and statistically significant at 5%. These results suggest that the reduction in corporate investment rate after anti-corrupt law adoption is robust to different measures of corporate investment rate.

We also examine other types of investment in this subsection due to several reasons. First, some previous studies document that anti-corruption (corruption) can promote (impede) corporate innovation (for example, Xu and Yano (2017), Gan and Xu (2019) and Ellis, Smith, and White

(2020)). We examine the change in corporate R&D expenses after anti-corrupt law adoption to test whether such findings can be extended to a global setting. Second, we ask if firms increase other types of investment as a substitute when they cut capital expenditures. Specifically we analyze the change in M&A expenses and Selling, General Administrative (SG&A) expenses.

Table 10 presents the results for other types of investment. In Column 1, we scale firm's R&D expenses by 1-year lagged total assets (RnD_at). The coefficient of *Anti Corrupt* is negative and statistically insignificant[6]. In Column 2, the outcome variable is acquisition expenses scaled by 1-year lagged total assets (Acq_at). The coefficient is positive and statistically significant at 5%, suggesting that firms increase M&A expenses after the anti-corruption. The magnitude is notable, the 0.2% increase in M&A expenses represent 5.43 million US dollars. In Column 3, the outcome variable is Selling, General Administrative (SG&A) expenses scaled by 1-year lagged total assets. Similar with R&D expenses, the coefficient of *Anti Corrupt* is negative, but the magnitude is much larger. In Column 4, we aggregate firm's capital expenditures, R&D expenses and acquisition expenses and scale them by 1-year lagged total assets as the outcome variable. The statistical and economic significance of the coefficient of *Anti Corrupt* are comparable to Column 4 of 2. When we further add SG&A expenses in Column 5, the coefficient of *Anti Corrupt* is negative and statistically significant at 1%, and the magnitude gets larger.

Overall, our results shows that the reduction in corporate investment rate is robust to different measures and firms tend to conduct more M&A activities following the adoption of financial disclosure laws. Besides, we do not find that the financial disclosure law has a clear impact on corporate innovation or other types of investment.

4.4 Alternative sample for analysis

In this subsection, we examine the alternative sample that is different from our main sample used in Table 2. First, as an alternative scheming for law adoption, we exclude financial disclosure laws that are applied to only parliament members. Second, we include firms headquartered in Mainland China in the analysis.

[6]The results are similar if we scale R&D expenses by firm sale instead.

We present our analysis in Table 11. In Column 1, among the sample using alternative law scheming, the coefficient of *Anti Corrupt* remains negative and statistically significant at 5%, although the economic magnitude gets lower relative to Column 4 of Table 2 (0.015). In Column 2, when we include firms headquartered in Mainland China in the analysis, the coefficient of *Anti Corrupt* remains negative and statistically significant at 1%. The economic magnitude is lower relative to Column 4 of Table 2 (0.015), which is consistent with our expectation since Mainland China has anti-corruption policy in the analysis but firms headquartered in Mainland China are coded as control firms for all years. In untabulated analysis, we also exclude one country a time and re-run the regression analysis. Our results do not change qualitatively, suggesting that they are not driven by one country.

In Table 11, we examine the anti-corruption campaign in Mainland China directly. The anti-corruption campaign was initiated in November 2012, and we code treatment year as 2012. The campaign can be viewed as plausibly exogenous and influential on firm's performance as well as investment decisions. As shown in Column 3 and Column 4, firms headquartered in mainland China experience less investment but higher investment efficiency after the anti-corruption campaign. This finding is consistent with what we document in our main results, and also consistent with the studies by Zhang et al. (2019) and Pan and Tian (2020).

5 Conclusion

In this paper, we examine the effect of anti-corruption policies on corporate investment in an international setting. To better identify the potential causal effect, we exploit the adoption of financial disclosure laws by country or region. Using a difference-in-differences research design, we compare changes in investment rate of firms headquartered in countries that pass this law to changes in investment rate of firms in countries that do not adopt.

Our findings reveal that following the adoption of financial disclosure laws, corporate investment rate decreases significantly at 1.3%, which represents 26% of its sample mean. We also find that the negative relation between the adoption of this law and firms investment rate is stronger for firms operating in countries with higher government subsidies. Our findings are consistent with theories predicting that corruption as a financial friction, leads to excessive inefficiency in society, i.e. over-

investment with high government subsidies. We provide evidence of this channel by showing that following the adoption of these laws, firm investment efficiency increases. We reject the alternative under-investment channel by showing that the reduction in corporate investment rate does not differ among countries with high political or economic uncertainty or among financially constrained firms. In sum, our results indicate that the passage of anti-corruption laws improves business environment, curbing corrupt behaviours in high subsidized firms and therefore, attenuating over-investment of firms in the event of corruption.

Our firm-level empirical results add novel global evidence to the long-stream of corruption literature that anti-corruption policy has a positive impact on firm behavior. We contribute to the investment literature by showing that despite the decrease of firms investment, anti-corruption policy mitigates financial friction and yields increase in investment efficiency. Our findings also have important policy implications for anti-corruption regulation.

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Table 1. Summary Statistics

This table presents the summary statistics of the main variables used in the analysis. *Inv* is capital expenditures scaled by last year's total assets which is the outcome variable used in the regression analysis. *Anti Corrupt* is a dummy variable indicating if the country in which the firm is headquartered has passed the anti-corrupt law (financial disclosure law) in any year. All other variables are control variables 1 year before *Inv* and are defined as follows (Compustat items are indicated in parentheses). *Size* is logarithm of firm total assets (*at*) in constant 2010 U.S. dollars. *Tangibility* is Net Property, Plant and Equipment (*ppent*) scaled by firm total assets (*at*). *Profitability* is the sum of Income Before Extraordinary Items (*ib*) and Depreciation and Amortization (*dp*) scaled by firm total assets (*at*). *Tobin's Q* is the sum of book value of liability (*at* - *ceq*) and market value of equity (calculated from Compustat Global) scaled by firm total assets (*at*). *Book Leverage* is the sum of Debt in Current Liabilities (*dlc*) and Long-Term Debt (*dltt*) scaled by firm total assets (*at*). *Cash Holding* is Cash and Short-Term Investments (*che*) scaled by firm total assets (*at*). *Log(GDP)* is logarithm of country GDP per capita in constant 2010 U.S. dollars. *GDP Growth* is the percentage change in country GDP per capita. For each continuous variable, we winsorize it at 1% and show its number of observations, sample average, standard deviation, minimum value, 25th percentile, 75th percentile and maximum value.

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Inv	343,284	0.050	0.077	0.000	0.005	0.061	0.480
Anti Corrupt	343,284	0.624	0.484	0	0	1	1
Size	343,284	7.906	3.195	1.117	5.497	10.280	15.589
Tangibility	343,284	0.310	0.220	0.000	0.130	0.455	0.885
Profitability	343,284	0.046	0.131	−0.690	0.017	0.102	0.343
Tobin's Q	343,284	1.531	1.751	0.422	0.883	1.464	14.623
Book Leverage	343,284	0.246	0.212	0.000	0.061	0.377	1.002
Cash Holding	343,284	0.140	0.150	0.0003	0.032	0.194	0.748
Log(GDP)	343,284	9.450	1.417	6.587	8.360	10.647	11.369
GDP Growth(%)	343,284	2.544	2.732	−6.028	0.900	4.352	7.856

Table 2. Anti-corruption and Corporate Investment Rate

This table presents the effect of anti-corruption on corporate investment rate (*Inv*), which is measured by capital expenditures scaled by last year's total assets. *Anti Corrupt* is a dummy variable indicating if the country in which the firm is headquartered has passed the anti-corrupt law (financial disclosure law) in any year. All variables are defined in Table 1. Industry fixed effects are defined at the 2-digit SIC level. Standard errors are clustered on country level. *, **, *** indicate statistical significance at the 10%, 5% and 1% level, respectively. All continuous variables are winsorized at 1% level.

	Dependent variable:			
	Inv_t			
	(1)	(2)	(3)	(4)
Anti Corrupt	-0.013^{**}	-0.015^{***}	-0.014^{***}	-0.015^{***}
	(0.005)	(0.005)	(0.005)	(0.004)
Size_{t-1}		-0.008^{***}	-0.008^{***}	-0.009^{***}
		(0.002)	(0.002)	(0.002)
Tangibility_{t-1}		0.005	0.019^{***}	0.018^{***}
		(0.005)	(0.006)	(0.006)
$\text{Profitability}_{t-1}$		0.071^{***}	0.058^{***}	0.057^{***}
		(0.012)	(0.009)	(0.010)
Tobin's Q_{t-1}		0.002^{***}	0.002^{***}	0.002^{***}
		(0.001)	(0.001)	(0.001)
Book Leverage_{t-1}			-0.031^{***}	-0.029^{***}
			(0.004)	(0.004)
Cash Holding_{t-1}			0.031^{***}	0.031^{***}
			(0.008)	(0.008)
Log(GDP)_{t-1}				0.020^{**}
				(0.009)
GDP Growth_{t-1}				0.001^{**}
				(0.0004)
Industry×Year FE?	y	y	y	y
Firm FE?	y	y	y	y
Observations	343,284	343,284	343,284	343,284
R^2	0.354	0.370	0.374	0.375
Adjusted R^2	0.300	0.317	0.322	0.323

Table 3. Anti-corruption and Investment Efficiency

This table shows how anti-corruption affects corporate investment efficiency, which is defined as the sensitivity of corporate investment to investment opportunities. In Column 1 and Column 2, Investment opportunities are proxied by firm's Tobin's Q. In Column 3 and Column 4, Investment opportunities are proxied by firm's sales growth. Other specifications are similar to Table 2, except that we further control for country-year joint fixed effect in Column 2 and Column 4. Standard errors are clustered on country level. *, **, *** indicate statistical significance at the 10%, 5% and 1% level, respectively. All continuous variables are winsorized at 1% level.

	Dependent variable:			
	Inv_t			
	(1)	(2)	(3)	(4)
Anti Corrupt	-0.022^{***}		-0.014^{***}	
	(0.005)		(0.004)	
Anti Corrupt × Tobin's Q_{t-1}	0.005^{**}	0.005^{***}		
	(0.002)	(0.002)		
Anti Corrupt × Sales Growth_{t-1}			0.004^{***}	0.002^{***}
			(0.001)	(0.001)
Size_{t-1}	-0.009^{***}	-0.012^{***}	-0.008^{***}	-0.011^{***}
	(0.002)	(0.002)	(0.001)	(0.002)
Sales Growth_{t-1}			0.003^{***}	0.003^{***}
			(0.001)	(0.001)
Tangibility_{t-1}	0.019^{***}	0.017^{***}	0.017^{***}	0.015^{***}
	(0.005)	(0.006)	(0.005)	(0.005)
$\text{Profitability}_{t-1}$	0.056^{***}	0.052^{***}	0.058^{***}	0.054^{***}
	(0.009)	(0.009)	(0.010)	(0.010)
Tobin's Q_{t-1}	0.003^{**}	0.002^{**}	0.005^{***}	0.005^{***}
	(0.001)	(0.001)	(0.001)	(0.0005)
Book Leverage_{t-1}	-0.030^{***}	-0.026^{***}	-0.030^{***}	-0.028^{***}
	(0.005)	(0.005)	(0.004)	(0.004)
Cash Holding_{t-1}	0.029^{***}	0.027^{***}	0.028^{***}	0.025^{***}
	(0.008)	(0.007)	(0.006)	(0.005)
Log(GDP)_{t-1}	0.020^{**}		0.019^{**}	
	(0.010)		(0.009)	
GDP Growth_{t-1}	0.001^{**}		0.001^{**}	
	(0.0004)		(0.0003)	
Industry×Year FE?	y	y	y	y
Firm FE?	y	y	y	y
Country×Year FE?		y		y
Observations	343,284	343,284	312,953	312,953
R^2	0.376	0.403	0.390	0.416
Adjusted R^2	0.325	0.350	0.336	0.359

Table 4. Anti-corruption and capital allocation efficiency

This table presents the effect of anti-corruption on capital allocation efficiency. In Column 1, the outcome variable is the investment residual estimated from Equation 2. In Column 2, the outcome variable is the absolute value of investment residual, with higher value indicating less capital allocation inefficiency. In Column 3, the outcome variable is a dummy variable indicating overinvestment which is defined as having greater than 0 investment residual. Other specifications follow Column 4 of Table 2. Standard errors are clustered on country level. *, **, *** indicate statistical significance at the 10%, 5% and 1% level, respectively. All continuous variables are winsorized at 1% level.

	Dependent variable:		
	Inv_Resid	abs(Inv_Resid)	I(Inv_Resid >0)
	(1)	(2)	(3)
Anti Corrupt	-0.006^{***}	-0.004^{***}	-0.079^{**}
	(0.002)	(0.001)	(0.034)
Size_{t-1}	-0.007^{***}	-0.003^{***}	-0.033^{***}
	(0.001)	(0.001)	(0.007)
Tangibility_{t-1}	-0.026^{***}	0.002	-0.007
	(0.005)	(0.002)	(0.028)
$\text{Profitability}_{t-1}$	-0.028^{***}	0.027^{***}	-0.472^{***}
	(0.004)	(0.003)	(0.038)
Tobin's Q_{t-1}	-0.0004	0.002^{***}	-0.005^{*}
	(0.0004)	(0.0003)	(0.003)
$\text{Book Leverage}_{t-1}$	-0.030^{***}	-0.014^{***}	-0.261^{***}
	(0.004)	(0.003)	(0.023)
$\text{Cash Holding}_{t-1}$	0.020^{***}	0.016^{***}	0.180^{***}
	(0.003)	(0.002)	(0.015)
Log(GDP)_{t-1}	0.016^{***}	0.014^{***}	0.084
	(0.006)	(0.004)	(0.052)
GDP Growth_{t-1}	0.0003	0.0003	0.005
	(0.0004)	(0.0002)	(0.003)
Industry×Year FE?	y	y	y
Firm FE?	y	y	y
Observations	273,655	273,655	273,655
R^2	0.193	0.328	0.260
Adjusted R^2	0.111	0.259	0.184

Table 5. Cross-sectional variation of corporate investment rate

This table presents the cross-sectional variation results for our baseline finding presented in Table 2. We interact the dummy variable *Anti Corrupt* with several indicator variables. *Manufacturing* indicates if the firm is in the manufacturing industry (2-digit SIC codes range from 20 to 39). *R&D Firm* indicates if the firm has R&D expenses in any year, and if they are missing we treat them as 0. *High Uncertainty* indicates if the country-level "Uncertainty Index" is above the sample median. We obtain the index from Ahir et al. (2018). *High Subsidy* indicates if the country-level government subsidy is above the sample median. We obtain the measure of government subsidy from World Bank. Other specifications follow Column 4 of Table 2. Standard errors are clustered on country level. *, **, *** indicate statistical significance at the 10%, 5% and 1% level, respectively. All continuous variables are winsorized at 1% level.

	Dependent variable:					
	Inv_t					
	(1)	(2)	(3)	(4)	(5)	(6)
Anti Corrupt	-0.009^{**}		-0.017^{***}		-0.015^{***}	-0.006^{***}
	(0.005)		(0.005)		(0.005)	(0.002)
Anti Corrupt × Manufacturing	-0.012^{***}	-0.010^{***}				
	(0.003)	(0.003)				
Anti Corrupt × R&D Firm			0.010^{***}	0.001		
			(0.003)	(0.002)		
Anti Corrupt × High Uncertainty					−0.002	
					(0.003)	
Anti Corrupt × High Subsidy						-0.004^{**}
						(0.001)
Manufacturing						
R&D Firm			−0.001	0.003^{**}		
			(0.002)	(0.001)		
High Uncertainty					−0.0002	
					(0.001)	
High Subsidy						0.0002
						(0.001)
Control Variables?	y	y	y	y	y	y
Industry×Year FE?	y	y	y	y	y	y
Firm FE?	y	y	y	y	y	y
Country×Year FE?		y		y		
Observations	343,284	343,284	343,284	343,284	339,834	217,168
R^2	0.375	0.403	0.376	0.403	0.374	0.378
Adjusted R^2	0.324	0.349	0.324	0.349	0.323	0.318

Table 6. Financially constrained firms

This table presents the effect of anti-corruption on corporate investment rate among financially constrained firms. *Financial Constrained* is a dummy variable indicating whether or not the firm is classified as financially constrained at the most recent fiscal year end before the corporate investment decisions. The heading in each column represent the measure of financial constraints. In Column 1, financially constrained firms are defined as having below-median cash holdings. In Column 2, following previous studies we assume firms are dependent on external finance if their capital expenditures exceed operating cash flows. Column 3 and Column 4 classify non-dividend-paying and small firms (firm size below sample median) as financially constrained firms. Column 5 and Column 6 measure financial constraints using KZ index and WW index, and *Financial Constrained* is equal to one if the value of the index is above the sample median and zero otherwise. Other specifications follow Column 4 of Table 2. Standard errors are clustered on country level. *, **, *** indicate statistical significance at the 10%, 5% and 1% level, respectively. All continuous variables are winsorized at 1% level.

	Dependent variable:					
	Inv_t					
	Cash holdings	External finance	Non-dividend-paying	Small firms	KZ index	WW index
	(1)	(2)	(3)	(4)	(5)	(6)
Anti Corrupt × Financial Constrained	−0.003	0.002	−0.009	0.003	−0.003	−0.002
	(0.004)	(0.003)	(0.006)	(0.005)	(0.003)	(0.004)
Financial Constrained	−0.005***	0.011***	−0.004***	0.0002	−0.002	−0.014***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Control Variables?	y	y	y	y	y	y
Industry×Year FE?	y	y	y	y	y	y
Firm FE?	y	y	y	y	y	y
Country×Year FE?	y	y	y	y	y	y
Observations	343,284	283,631	340,196	343,284	276,433	332,015
R^2	0.403	0.424	0.406	0.403	0.460	0.416
Adjusted R^2	0.350	0.364	0.353	0.349	0.400	0.362

Table 7. Anti-corruption and Timing of Corporate Investment Rate

This table presents the timing of changes in corporate investment rate around the anti-corrupt law (financial disclosure law) adoption. Anti Corrupt (-3) is a dummy variable indicating if the country in which the firm is headquartered will pass the anti-corrupt law (financial disclosure law) in 3 years. Other indicator variables are constructed in the similar way, with numbers in parentheses indicating the difference in number of years relative to the law passage if there is any. Other specifications follow Column 4 of Table 2. Standard errors are clustered on country level. *, **, *** indicate statistical significance at the 10%, 5% and 1% level, respectively. All continuous variables are winsorized at 1% level.

	Dependent variable:
	Inv_t
Anti Corrupt (-3)	0.001
	(0.006)
Anti Corrupt (-2)	-0.003
	(0.005)
Anti Corrupt (-1)	-0.005
	(0.004)
Anti Corrupt (0)	-0.014^{***}
	(0.003)
Anti Corrupt $(+1)$	-0.011^{***}
	(0.004)
Anti Corrupt $(+2)$	-0.018^{***}
	(0.005)
Anti Corrupt (≥ 3)	-0.018^{***}
	(0.007)
Control Variables?	y
Industry×Year FE?	y
Firm FE?	y
Observations	343,284
R^2	0.375
Adjusted R^2	0.323

Table 8. Propensity Score Matching

This table presents the impact of anti-corruption on corporate investment rate using the propensity score matched samples over the window ±3 years around the law passage. The propensity scores are estimated based the control variables used in Column 4 of Table 2, including firm size, tangibility, profitability, Tobin's Q, book leverage, cash holdings, country GDP level and growth. We require that treatment group and control group are in the same 2-digit SIC industry and region (assigned by World Bank). We also require that treatment and control firms have at least one year coverage in both the pre-treatment and post-treatment periods. *Treat* is a dummy variable indicating if the firm is headquartered in a country that adopts the anti-corrupt law (financial disclosure law). *Post* is a dummy variable indicating the periods after the law passage. In Column 1, for each treatment firm we retain 1 control firm with the closest propensity score. We retain 2 control firms in Column 2 and 3 control firms in Column 3. Other specifications follow Column 4 of Table 2. Standard errors are clustered on country level. *, **, *** indicate statistical significance at the 10%, 5% and 1% level, respectively. All continuous variables are winsorized at 1% level.

	Dependent variable:		
	Inv_t		
	1-1 matching	2-1 mathcing	3-1 matching
	(1)	(2)	(3)
Treat	0.013***	0.011***	0.010***
	(0.002)	(0.002)	(0.002)
Treat × Post	−0.022***	−0.021***	−0.019***
	(0.003)	(0.003)	(0.003)
Post	0.007***	0.005***	0.004***
	(0.001)	(0.001)	(0.001)
Control Variables?	y	y	y
Industry×Year FE?	y	y	y
Firm FE?	y	y	y
Observations	39,368	47,542	55,078
R^2	0.503	0.482	0.468
Adjusted R^2	0.399	0.390	0.384

Table 9. Alternative Measures of Corporate Investment Rate

This table presents the effect of anti-corruption on corporate investment rate which is defined in 3 alternative ways. In Column 1, corporate investment rate is defined as capital expenditures scaled by last year's net property, plant and equipment (ppent). In Column 2, we scale capital expenditures by last year's total revenue instead. In Column 3, we take the logarithm of capital expenditures as the measure of corporate investment rate. Other specifications follow Column 4 of Table 2. Standard errors are clustered on country level. *, **, *** indicate statistical significance at the 10%, 5% and 1% level, respectively. All continuous variables are winsorized at 1% level.

	Dependent variable:		
	Capx_ppent_t	Capx_sale_t	Log_capx_t
	(1)	(2)	(3)
Anti Corrupt	-0.046^{**}	-0.014^{**}	-0.717^{**}
	(0.020)	(0.007)	(0.358)
Size_{t-1}	-0.057^{***}	-0.006^{***}	0.524^{***}
	(0.011)	(0.001)	(0.059)
Tangibility_{t-1}	-0.877^{***}	0.057^{***}	1.255^{***}
	(0.068)	(0.012)	(0.207)
$\text{Profitability}_{t-1}$	0.333^{***}	0.024^{***}	1.501^{***}
	(0.039)	(0.009)	(0.248)
Tobin's Q_{t-1}	0.014^{**}	0.002^{***}	0.051^{***}
	(0.005)	(0.001)	(0.010)
Book Leverage_{t-1}	-0.110^{***}	-0.037^{***}	-0.627^{***}
	(0.019)	(0.008)	(0.185)
Cash Holding_{t-1}	0.333^{***}	0.091^{***}	0.282
	(0.038)	(0.014)	(0.269)
Log(GDP)_{t-1}	0.108^{**}	0.029^{**}	0.203
	(0.042)	(0.014)	(0.719)
GDP Growth_{t-1}	0.002	0.001	0.003
	(0.001)	(0.001)	(0.014)
Industry×Year FE?	y	y	y
Firm FE?	y	y	y
Observations	339,128	336,593	343,284
R^2	0.365	0.426	0.811
Adjusted R^2	0.312	0.377	0.795

Table 10. Other Types of Investment

This table presents the effect of anti-corruption on other types of investment made by firms. In Column 1, the outcome variable is R&D expenses scaled by 1-year lagged total assets. When R&D expenses are missing, we treat them as 0. In Column 2, the outcome variable is acquisition expenses scaled by 1-year lagged total assets. When acquisition expenses are missing, they are treated as 0. In Column 3, the outcome variable is Selling, General Administrative (SG&A) expenses scaled by 1-year lagged total assets. In Column 4, we aggregate firm's capital expenditures, R&D expenses and acquisition expenses and scale them by 1-year lagged total assets as the outcome variable. In Column 5, we aggregate firm's capital expenditures, R&D expenses, acquisition expenses and SG&A expenses, and scale them by 1-year lagged total assets as the outcome variable. Other specifications follow Column 4 of Table 2. Standard errors are clustered on country level. *, **, *** indicate statistical significance at the 10%, 5% and 1% level, respectively. All continuous variables are winsorized at 1% level.

	Dependent variable:				
	RnD_at$_t$	Acq_at$_t$	SGA_at$_t$	Inv_at$_t$	Inv2_at$_t$
	(1)	(2)	(3)	(4)	(5)
Anti Corrupt	-0.001	0.002^{**}	-0.024	-0.014^{***}	-0.041^{***}
	(0.001)	(0.001)	(0.015)	(0.005)	(0.015)
Size$_{t-1}$	-0.0005^{***}	-0.001^{***}	-0.030^{***}	-0.012^{***}	-0.045^{***}
	(0.0001)	(0.0002)	(0.006)	(0.002)	(0.008)
Tangibility$_{t-1}$	0.001	-0.001	-0.015	0.017^{**}	-0.003
	(0.001)	(0.001)	(0.014)	(0.007)	(0.019)
Profitability$_{t-1}$	-0.003	0.003^{*}	-0.058^{***}	0.048^{***}	-0.012
	(0.002)	(0.002)	(0.018)	(0.014)	(0.034)
Tobin's Q$_{t-1}$	0.0003^{**}	0.001^{**}	0.007^{***}	0.004^{***}	0.012^{***}
	(0.0001)	(0.0002)	(0.002)	(0.001)	(0.003)
Book Leverage$_{t-1}$	-0.002^{***}	-0.004^{***}	-0.015^{*}	-0.042^{***}	-0.062^{***}
	(0.001)	(0.001)	(0.009)	(0.004)	(0.010)
Cash Holding$_{t-1}$	-0.001^{*}	0.011^{***}	-0.020	0.052^{***}	0.042
	(0.001)	(0.002)	(0.019)	(0.010)	(0.029)
Log(GDP)$_{t-1}$	0.004^{***}	0.0001	0.033	0.028^{***}	0.069^{**}
	(0.001)	(0.001)	(0.024)	(0.010)	(0.027)
GDP Growth$_{t-1}$	-0.0001^{**}	0.0002^{**}	0.0001	0.001^{**}	0.001
	(0.00004)	(0.0001)	(0.001)	(0.0005)	(0.001)
Industry×Year FE?	y	y	y	y	y
Firm FE?	y	y	y	y	y
Observations	343,284	343,284	335,563	343,284	335,563
R^2	0.755	0.221	0.721	0.385	0.608
Adjusted R^2	0.734	0.156	0.697	0.334	0.574

Table 11. Alternative Sample for Analysis

This table presents the effect of anti-corruption on corporate investment using alternative sample. In Column 1, the difference from the main panel analyzed in Table 2 is that the anti-corrupt laws (financial disclosure laws) which only apply to the parliament members are not included in the analysis. In Column 2, the difference from the main panel analyzed in Table 2 is that firms headquartered in Mainland China are also included in the analysis. In Column 3 and Column 4, the sample is limited to firms headquartered in Mainland China only. *Post 2012* indicates whether or not the year is after 2012, in which anti-corruption policy was officially launched in Mainland China. Other specifications follow Column 4 of Table 2. Standard errors are clustered on country level. *, **, *** indicate statistical significance at the 10%, 5% and 1% level, respectively. All continuous variables are winsorized at 1% level.

	Dependent variable:			
	Inv_t			
	Alter Law scheming	Including Mainland China	Mainland China only	
	(1)	(2)	(3)	(4)
Anti Corrupt	-0.012^{**}	-0.014^{***}		
	(0.005)	(0.004)		
Post 2012			-0.013^{***}	-0.016^{***}
			(0.002)	(0.002)
Post 2012 × Tobin's Q_{t-1}				0.001^{**}
				(0.001)
Control Variables?	y	y	y	y
Industry×Year FE?	y	y		
Firm FE?	y	y	y	y
Observations	421,741	381,160	37,876	37,876
R^2	0.390	0.378	0.392	0.392
Adjusted R^2	0.338	0.325	0.322	0.322