Exposure to corruption and stock returns for the U.S. multinational firms: Evidence from Africa

Abstract

While corruption is doubtlessly harmful, it is inevitable for some firms to operate in corrupt regions. Prior studies indicate that firms under the pressure of stakeholders can enforce a higher standard of conduct in foreign operations. In this paper, we find that U.S. firms with higher corruption exposures are more likely to operate in Africa. With higher corruption exposures, the firms operating in Africa experience a higher return related to their peers without African operations. An identification strategy that matches our U.S. sample with Chinese firms with African operations confirms our results. In addition, country-level corruption exposure is not a proxy for state-level corruption within a country. Our results are also robust to various subsamples and alternative measures. Overall, our results suggest that there is a valuation gain for firms with greater corruption exposure to operations in corrupt destinations.

Keywords: Corruption, stock return, international operations, Africa, firm value

JEL: D73, G12, F23, N27, O55, G32

1 Introduction

Literature has widely documented the negative effects of corruption. At the societal level, corruption disrupts the allocation of resources and leads to inefficient investments. Mauro (1995) reports that corruption constitutes a severe obstacle to investment and thus lowers economic growth. Shleifer and Vishny (1993) document that corruption deteriorates social resource allocation by shifting investments from the potentially highest value projects to lowest value projects and consequently impedes growth. At the firm level, corruption reduces firm value because, for instance, bribes reduce free cash flow to shareholders.[1] Likewise, corruption negatively affects operating performance, as bribes also decrease the funding resources available to the firm (Azmat &Samaratunge, 2009).

Interestingly, the literature also documents that corruption may also increase corporate value. First, a firm that pays bribes can increase the probability of winning positive NPV contracts. Kaikati and Label (1980) and Zeume (2017) show that in the context of multinational operations, paying bribes facilitates doing business in certain countries. In contrast, imposing unilateral anti-corruption regulations that also apply to foreign bribes hurts firm value, as it gives a competitive advantage to unregulated foreign peers. Further, bribes allow for cutting through the bureaucratic red tape that may bring a larger countervailing benefit to shareholders in the future. Henisz (2000) and Hines (1995) report that foreign bribery payments are necessary to protect the position of foreign operations. In addition, corruption might allow foreign government officials who accept bribes to communicate better and work harder and enable companies that commit bribery to avoid the administrative delay of foreign bureaucrats (Huntington, 2006; Leff, 2002). Firms operating in a corrupt environment would be unlikely to be able to change the local corrupt culture; they have to instead adopt the culture for the sake of survival (DeBacker et al., 2015; Hofstede et al., 2010; Liu, 2016). This adaptability can be conducive to firm value.

Bad or good, corruption is inevitable as long as the government intervenes in the market and plays a part in the economic world (Acemoglu &Verdier, 2000; Ehrlich &Lui, 1999; Rose-

[1] Studies that document the negative effect of corruption include Butler et al. (2009), Dass et al. (2016), DeBacker et al. (2015), Liu (2016), Pantzalis et al. (Pantzalis et al., 2008), Smith (2016), Tirole (Tirole, 1996). The discussion of these studies will be in the Literature Review section.

Ackerman, 2013). Importantly, firms operating internationally are prone to the institutional environment of foreign countries — as they have to deal with different foreign governments — this increases the sources of corruption. As empirical evidence, O'Donovan et al. (2019) show that it is highly pervasive that firms use offshore financial activities to pay bribes and win business contracts from government agents of corrupt countries. Building upon the existing studies, our paper examines the following research question: How does a firm's exposure to corrupt cultures affect its stock returns?

Capturing the degree of corporate corruption is challenging because it is largely unobservable. For instance, although the Department of Justice (DOJ) has imposed U.S. Since the Foreign Corrupt Practices Act (FCPA) in 1977, only 143 corruption actions have been enforced against publicly listed U.S. firms according to FCPA between 1978 and 2013 by DOJ and the Securities and Exchange Commission (SEC) (Karpoff et al., 2017; Zeume, 2017). One way to address this issue, as suggested by Zeume (2017), is to examine the exogenous benefits and costs of doing business in perceptively corrupt countries. Following this line of thought, we employ a quasi-experimental design that allows us to study the market returns of firms that are subject to a possible exogenous increase or decrease in doing business in corrupt countries and relate to their corruption exposure to their operations in Africa.

In this paper, we focus on publicly listed U.S. firms and measure a firm's corruption exposure using a similar approach to Zeume (2017), who captures "firms' exposure to high-corruption countries using a combination of firm-level subsidiary locations and Transparency International's Corruption Perceptions Index" (Zeume, 2017). Specifically, we construct the variable to capture firms' corruption exposure based on Transparency International's Corruption Perceptions Index (*CPI*) and the World Bank's Control of Corruption Index (*CCI*). With this measure, we first investigate firms' propensity to operate in Africa. Both subsidiary- and firm-level analyses show that corruption exposure is positively associated with a firm's propensity to operate in Africa. In studies on the financial effect of corruption, the literature commonly defines firm value as shareholder wealth. For example, Zeume (2017) evaluates firm value by computing cumulative abnormal returns to examine the effect of bribery. Borisov et al. (2015) explore whether corporate lobbying enhances market value by investigating the share market. There are several advantages of using stock market returns to capture firm value. For instance, Krüger (2015) argues that the

stock market reaction represents shareholders' direct estimation of the NPV associated with the information contained in corporate activities. Lemmon and Lins (2003) employ stock returns to evaluate firm value during the period of the financial crisis. They find that using alternative valuation measures such as Tobin's Q produces similar results, but stock market returns are less likely to be manipulated by the firm. Markides and Ittner (1994) claim that the stock price quickly and unbiasedly reflects the market's assessment of a firm's value-relevant information. Rapp et al. (2011) report that the stock market responds significantly and positively to value-based management systems, indicating that stock returns are credible signals of shareholder values. Durnev et al. (2004) document that stock prices convey meaningful information about the quality of their decisions on value-enhancing capital budgeting. Gompers et al. (2003) find that the stock market reflects how shareholders evaluate firm operations and whether the firm creates value. In our case, if corruption exposure has a valuation effect, it would be considered by the stock market.[2]

Our results show that, on average, firms with high corruption exposure and operating in Africa have a positive stock return. At the subsidiary level, after controlling for a range of country-level features, the results show that the higher the corruption exposure is, the greater the likelihood of having subsidiaries in African countries. At the firm level, we find that corruption exposure is significantly and positively related to the proportion of a firm's African subsidiaries to the total number of the firm's subsidiaries. This return is significantly higher than the average return of firms without African operations, which is shown to be negative. These results suggest that a firm with high corruption exposure can enhance value for shareholders given that the firm concentrates its operations in the region where corruption culture is dispersive.

Both stock returns and decisions to operate in Africa may be driven by conditions and factors specific to the United States that are not directly observable. This is also related to the challenge that we mentioned earlier that corruption itself is usually unobservable. If this is the case, then endogeneity may arise from omitted variables to affect our results. To address this concern, we adopt an identification strategy by using propensity score matching approaches, where the control group is a set of Chinese firms. While Chinese firms are also significantly involved in African

[2] For robustness, we also employ alternative measures of firm performance. For example, we look at changes in the return on capital (*ROC*) and changes in return on assets (ROA), as well as when we use level *ROC* instead of changes in *ROC*. The results are consistent.

operations, the factors that drive U.S. and Chinese firms to operate in Africa are exogenous to each other. Further, as the reference is outside of the United States, if endogeneity drives our results, then there would be a change in our results, and firms with high corruption may show a lower abnormal return than firms with low corruption. Using propensity score matching techniques, we document that firms with high corruption have a consistently stronger effect than firms with low corruption in terms of both economic and statistical significance. In essence, this finding suggests that the African operations associated with corruption exposures affecting stock returns are not driven by endogeneity.

We conduct a range of robustness checks. First, after controlling for different and additional variables for size, cultural distance, momentum factor, and firm age, our results do not materially change. Further, we exclude smaller and larger sample firms, and the results still hold. Another potential influence effect is the global financial crisis that significantly disrupts the stock market. Indeed, our results show that the coeffect of corruption exposure and African operations on stock returns is significant in the subsample period before and after the global financial crisis but is insignificant during the subsample period of the global financial crisis, suggesting that the effect of corruption exposure takes place during the "normal time". Last but not least, using the change in return on capital (*ROC*) as the dependent variable, we find that the co-effect of corruption exposure and African operations is positively related to changes in *ROC*. This finding suggests that the effect of corruption exposure and African operations on firm value is associated with fundamental changes.

In this study, we also shed light on multinational operation studies by examining corruption, one of the most important country-level exposures. The literature investigating the effects of multinational operations focuses mainly on intangible assets, taxation and cash holding (T.Gu, 2017; Hanlon et al., 2015; Harford et al., 2017; Huizinga et al., 2008; Morck &Yeung, 1991; Pinkowitz et al., 2012; Piotroski et al., 2018). There have been several studies on the effect of country-level factors (Denis et al., 2002; Desai et al., 2008; Henisz, 2000; LaPorta et al., 1999; Slangen &Beugelsdijk, 2010; Xu &Shenkar, 2002). Only a handful of studies have noted the effect of corruption (O'Donovan et al., 2019; Pantzalis et al., 2008; Zeume, 2017). Therefore, how country-level institutional factors, such as corruption, harm or benefit multinational companies,

remains an open question in finance and economic research. In this regard, we provide evidence concerning the effect of country-level exposure on corporate value.

The findings of this paper facilitate the understanding of corruption in Africa. Svensson (2003) documents that prices of public services in African countries are to a certain extent determined to extract bribes. In a study on the healthcare industry, N'Guessan (2004) reports that because of information asymmetry between foreign companies and African governments and agency problems between the government and bureaucrats, foreign pharmaceutical laboratories and healthcare providers can bribe bureaucrats to hide their true costs of health care. Due to the lack of information about the true value of international pharmaceutical services, the corrupt behavior of bureaucrats would cause sick people to be unable to bear the costs of receiving adequate treatment. D'Aoust and Sterck (2016) attribute corruption in Africa to judges' judicial discretionary power. Due to the multiplicity and overlap of the judicial system in African countries, the system used to make judgments can be chosen. This encourages corruption, as the judge may choose the system for their private benefit instead of retributive principles. The related literature shows that in Africa, even small bribes take effect on administrative actions in tax evasion and tariff reduction, which are two major driving factors of the engagement of firms in corruption (Delavallade, 2012; Sequeira, 2016). Contrary to the literature that corruption negatively affects economic growth, Voors et al. (2011) find that in African countries, a higher income stimulates corruption. Arezki and Gylfason (2013) provide supporting evidence showing that for Sub-Saharan African countries, resource rents constitute a significant source of income. However, higher resource rents are also associated with more corruption. Our paper updates this literature by indicating that the foreign firms doing business in Africa can in certain cases benefit if they are accustomed to the local corrupt culture.

A few studies have provided similar evidence. The literature has argued that affiliates of multinationals have little choice other than to work within local cultural norms with respect to corruption (Barbopoulos et al., 2014; Webster &Piesse, 2018). The most relevant study to ours is the work by Zeume (2017). We extend Zeume's (2017) work in several ways. First, Zeume (2017) adopts an event study method, whereas we employ several different techniques, including the univariate test, portfolio analysis, multivariate regression, and propensity score matching. Second, Zeume (2017) focuses on UK firms, whereas we provide supporting evidence based on US firms.

Third, and more importantly, we examine the effect of firm operations in Africa. In recent years, Africa has become the focus of investments from countries outside of the continent.[3] As a result, although worldwide foreign direct investments are continuously down at the same time, the popularity of investments in Africa does not diminish.[4] Further, while corruption is more extensive in Africa than in other continents, all of the inhabited continents are very heterogeneous from the perspective of corruption. For example, the evidence from Russia provided by Mironov (2015) concerning the openness of CEOs to corruption is highly relevant. An important argument is that in the presence of extensive and obstructive bureaucracy, bribery may be a second or third-best outcome. This has been supported by empirical evidence of a relationship between bureaucracy and corruption. Examples would be Wang and You (2012) in relation to China and Gavira (2002) with respect to Latin America. Therefore, a focus on Africa is not an excuse to ignore relevant insights from the literature from other parts of the world.

The remainder of the paper is structured as follows. Section 2 defines key terms, reviews the wider anti-bribery and corruption regime literature, and develops hypotheses. Section 3 describes the data and discusses the methodology for evaluating the relation between corruption exposure and value proxied by stock return at the firm level. Section 4 presents the empirical results, and Section 5 summarizes the findings.

2 Literature review and hypothesis development

2.1 The existence of corruption in global operation

Scholars suggest that corruption is inevitable as long as governments intervene in the economy (Acemoglu &Verdier, 2000; Rose-Ackerman, 2013). Shleifer and Vishny (1993) define corruption as "the sale by government officials of government property for personal gain" (1993, p. 599). According to this definition, government officials have discretion over the provision of properties owned by the state, such as licenses and permits, and they can collect bribery through

[3] According to figures from the United Nations, Africa received $46 billion in foreign direct investments (FDI) in 2018, up by 11% from 2017. This increase is, to a large extent, attributed to the competition between the United States under Donald Trump and other major global players such as China (Forde, 2019).
[4] See United Nations Conference on Trade and Development UNCTAD's World Investment Report 2019: https://unctad.org/en/PublicationsLibrary/wir2019_en.pdf

this discretion by charging private agents.[5] Ehrlich and Lui (1999) claim that corrupt behavior is to exercise the chance to obtain bribery, which is the side payment to close the gap between free-market prices and shadow prices generated due to government intervention in the economy by taking responsibility for resource allocation in the economy. Further, Acemoglu and Verdier (2000) argue that corruption is "an unpleasant side effect" as a result of government intervention designed to direct financial activities and correct market failures. These definitions are highly consistent with Rose-Ackerman (2013), who suggests that corruption is inevitable when the government acts as a market player, even if the original intentions are good.

While the degree might be different, corruption exists in both developed and emerging markets. In the developed market, for example, Amore and Bennedsen (2013) find corporate rent-seeking activities in Denmark, Duggan and Levitt (2002) find evidence of corruption in Japan, and Bobonis et al. (2016) discuss monitoring corrupt activities in Puerto Rico. In the emerging market, ample corrupt evidence is also available, such as Callen and Long (2015) for Afghanistan, Ferraz and Finan (2011) for Brazil, Johnson and Mitton (2003) for Malaysia, Mironov (2015) for Russia, Olken (2007) for Indonesia, Oliva (2015) for Mexico, Sequeira (2016) for Mozambique and South Africa, and Svensson (2003) for Uganda.

Foreign operations usually increase information asymmetries between a company and foreign governments. To minimize the influence of information asymmetries, governments almost always intervene in the market for cross-border trading.[6] Consequently, a company may have to pay a premium to access a new institutional environment (Calhoun, 2002; Denk et al., 2012; Zaheer, 1995). Meanwhile, the arrival of foreign companies increases the difficulty of monitoring, which may generate extra costs for governments as well. Governments need to hire bureaucrats to perform duties on their behalf, which may add another layer of incomplete information because of information asymmetry between the government and bureaucrats. These bureaucrats may also be subject to "bounded rationality" when collecting information, making decisions, and implementing policies (Acemoglu &Verdier, 2000). Moreover, these bureaucrats, as self-interest agents, have

[5] The objects of bribery do not necessarily be physical goods. For example, they can be the rights to get access to certain areas or buy certain land with a fixed price, or the actions that prohibit the entry of competitors.

[6] In an ideal economic world, the market is informationally complete, and the government is independent of the market and is rational. However, in a world with incomplete information, the government is not independent of the market, and this leads to the necessity of government intervention. Meanwhile, studies have also suggested that the government is not rational. Therefore, there are always rent-seeking opportunities.

superior information, which leaves room for them to seek rent. This is likely because bribes are largely unobserved. Using evidence from the Panama Papers, O'Donovan et al. (2019) report that it is widespread for companies around the world to use foreign subsidiaries to finance corruption activities. Karpoff et al. (2017) suggest that foreign bribery is not easily caught even in countries where regulations are strictly enforced, such as the United States. Because both companies and bureaucrats tend to hide bribery activities, two layers of information asymmetries would leave big room for bureaucrats to have a strong incentive to use the informational advantage associated with their positions to seek additional rents.

Realizing the importance and pervasive nature of corruption, literature has widely researched anti-bribery and corruption regimes. Earlier studies emphasized the role of competition. For instance, Ades and Di Tella (1999) report that the degree of corruption is lower for countries that do not avoid foreign competition, that the economy is not dominated by few companies, and that anti-trust regulations are effective. However, Bliss and Tella (1997) find no evidence that competition can lower the level of corruption, arguing that whether corrupt agents (officials or gangsters) exact money from firms depends on the balance of costs and benefits of doing so. Later studies highlight the importance of disclosure. For example, Gordon and Miyake (2001) examine corporate anti-bribery efforts by searching whether bribery is mentioned in the codes of conduct. Islam et al. (2018) find that media attention and NGO (nongovernmental organization) pressures facilitate anti-bribery disclosure. Further, studies emphasize that corruption can be reduced by improving corporate governance, such as enhancing the role of the board of directors (Sallemi et al., 2022) and inducing foreign investors (Cuervo-Cazurra, 2008). Moreover, recent studies stress that anticorruption efforts require the collaborative efforts of society as a whole. Hatak et al. (2015) use the level of corruption in a country to capture behavior uncertainty. They argue that corruption needs soil: A corrupt society would urge corrupt individuals into society. Such an atmosphere would create difficulties in doing honest business. Hence, "freedom from corruption" is crucial to improving firm performance in a context that is unstable in doing business. Importantly, studies have shown that anticorruption is related to international operations and activities. Cleveland et al. (2009) provide an excellent summary of the literature and conclude that both hard law and soft law (value and culture) are important in the battle against international bribery and corruption. The authors also reviewed the main provisions of international anti-bribery legislation, including the *Foreign Corrupt Practices Act* (FCPA), the Organization for Economic Development's

Convention on Combating Bribery of Foreign Officials in International Business Transactions, and the *United Nations Convention Against Corruption*. In addition to these legislations, D'Souza (2012) intensively studies the consequence of imposing the 1997 OECD Anti-Bribery Convention.

Exploiting the operations of U.S. firms in Africa is appropriate only if corruption is a substantial issue. We argue that this is the case for at least three reasons. First, corruption is so pervasive in Africa that no other continent would compare to it. According to Transparency International's 2018 Corruption Perceptions Index, Africa remains the most corrupt continent in the world.[7] It reveals that regional Sub-Saharan Africa is the lowest (32 out of 100). While five countries in northern Africa performed relatively better than the sub-Saharan African countries, their average score of 34.6 is still lower than any other continent in the world.[8] Further, a recently published report by Transparency International discloses that one in four people in Africa pays bribes,[9] meaning that approximately 130 million people pay bribes. The number also suggests a 73% increase in Africans who pay bribes compared to the figure in the earlier version's report.[10]

Second, the United States has increased its operations in Africa. In 2017, the United States had a $39 billion goods trade with Sub-Saharan African countries and a $10.8 billion goods trade deficit, an increase from a $4.1 billion deficit in 2016 due to an increase in oil imports. It is foreseeable that US firms will continue their participation in the African market in the future under the African Growth and Opportunity Act (AGOA). According to the Office of the United States Trade Representative, the US Congress extended the AGOA to 2025, [11] indicating an anticipated increase in trade growth between United States and Africa.

Third, the U.S. firms have extensively increased global operations, which involve countries with varying degrees of corruption. While American investors are averse to corruption in foreign

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[7] Transparency International ranks 180 countries and territories by their perceived levels of public sector corruption, which is evaluated using scores from 0 (the highest corrupt) to 100 (the lowest corruption). See https://www.transparency.org/files/content/pages/2018_CPI_Executive_Summary.pdf.

[8] The five Northern African countries (the Corruption Perceptions Index) are Morocco (43), Tunisia (43), Algeria (35), Egypt (35), and Libya (17). Transparency International reports the combined score for five Northern African countries with Middle East countries, the combined score is 39. For other regions, the average score for Eastern Europe & Central Asia is 35, for the Americas is 44, for the Asia Pacific is 44, and for Western Europe & European Union is 66. The most corrupt country is Somalia which is ranked 180 with a score of 10.

[9] https://www.transparency.org/news/pressrelease/one_in_four_people_in_africa_pay_bribes_survey_says

[10] https://www.transparency.org/news/feature/corruption_in_africa_75_million_people_pay_bribes. The title of the report is "People and Corruption: Africa Survey 2015"

[11] See http://ustr.gov/countries-regions/africa

countries (Wei, 2000), there is ample empirical evidence that corruption is substantial in the United States.[12] The recent dispute about the globalization strategy of the U.S. multinationals makes it critical to think about how globalization benefits their investors. To a certain extent, the competition depends on who is more familiar with the corrupt culture. Given that African countries are perceived as more corrupt than domestic corruption in the United States, operating in Africa gives those U.S. firms with a higher degree of corruption exposure an advantage over their U.S. peers with a lower degree of corruption exposure.[13]

2.2 The economic consequence of corruption

This section reviews empirical findings on how corruption affects corporate finance. Since the effect of corruption at the firm level is still under fervent debate, this paper proposes two competing hypotheses.

The literature documents the negative effect of corruption on economic growth at the macroeconomic level. For instance, corruption is associated with a malfunctioning government institution, which leads to adverse financial and economic consequences (Mauro, 1995; Shleifer &Vishny, 1993). In fact, any government intervention may affect the optimal allocation of resources. Given that governments play an important part in the economic world, the efficiency of their resource allocation depends on the difficulty of social monitoring. If the benefits from government intervention are lower relative to the increased costs of social monitoring, they would have incentives to seek additional rents (Acemoglu &Verdier, 2000). Further, the empirical findings concerning the effect of corruption at the micro- or firm level are not favorable. Liu (2016) reports that corrupt firms tend to engage in earnings management, accounting fraud, options backdating, and opportunistic insider trading. DeBacker et al. (2015) find that firms with great exposure to corruption culture evade more tax. Furthermore, Tirole (1996) documents that disclosed corruption affects corporate reputation, causing a firm to suffer from it long even after it is gone. Using state-level data, Butler et al. (2009) show that corruption is positively associated

[12] See, for example, Borisov et al. (2015), Butler et al. (2009), Campante and Do (2014), Dass et al. (2016), Liu (2016), Pantzalis et al. (Pantzalis et al., 2008), and Smith (2016). According to the 2018 Corruption Perceptions Index (*CPI*) of Transparency International and the 2017 Control of Corruption Index (*CCI*) of the World Bank, the United States is ranked 22nd and 24th places in the world, respectively.

[13] The ranking of African countries with the highest ranks in both *CPI* and *CCI* is below the ranking of the United States. With CPI, Seychelles has the highest score among African countries and is ranked 28th place in the world. With CCI, Botswana has the highest score among African countries and is ranked 45th place in the world.

with credit risks and bond yields. Smith (2016) finds that firms located in corrupt areas tend to hold less cash and use higher leverage. Dass et al. (2016) report that firms located in more corrupt areas have a lower value. They argue that a corrupt environment induces information asymmetry in that firms in more corrupt areas are likely to disclose less information or hide certain information. It is also likely that corrupt officials threaten firms to exact bribery. Subsequently, firms tend to shield themselves by becoming opaquer, which harms firm value. In foreign operations where firms are active in different markets, the effect of corruption can be even more prominent because, in some countries, the costs of bribery can be substantial (Pantzalis et al., 2008). Due to its illegal nature, contracts obtained through bribery are also associated with higher political risk. Based on the above literature, we have our first hypothesis as follows.

H1: A higher level of corruption exposure is associated with value reduction for firms operating in a highly corrupt region.

Companies deal with governments and obtain licenses, permits, rights, actions, or other properties controlled by the government; this is financially indifferent to them to pay the state or pay government officials personally. According to Ehrlich and Lui (1999), paying bribes to a firm serves a similar function to other investment activities. The only difference is that it is the investment in political capital instead of physical capital or human capital. They argue that corruption does not have net costs, as it only involves the transfer of monetary items from the bribe payer to the bribe receiver. To a certain extent, bribery can ameliorate the information and transaction costs associated with incomplete markets by directing scarce resources to entrepreneurs with gumption, who are usually higher bidders. Holding similar viewpoints, Huntington (2006) and Leff (2002) argue that bribery enables entrepreneurs to avoid bureaucratic delay and cumbersome rules and therefore facilitates the success of their business operations in the local market. In contrast, imposing anti-bribery only within a group of countries may harm the corporate operations in these countries. By studying the 1997 OECD Anti-Bribery Convention, D'Souza (2012) finds that OECD firms bound by the Convention have experienced a decline in exports. This suggests that the Convention in fact imposes transaction costs between low and high countries. Creating large penalties for foreign bribery increases firm operational costs.

In alignment with previous studies, other empirical studies empirically find a positive valuation effect of corruption. For instance, Borisov et al. (2015) report that corruption is entangled

with the lobby, which can contribute to firm value. Specifically, the authors argue that there are two channels through which lobbying adds value to the firm — it encourages legislators to make favorable policies and reinforces communication with policymakers. The motivation behind lobbying and bribery is to establish a political connection and to accumulate political capital. Amore and Bennedsen (2013) find that political connection increases firm value, even in a perceived low-corruption country such as Denmark. Cooper et al. (2010) also show that corporate political contribution is positively related to future stock returns. In the international setting, Zeume (2017) argues that bribes increase a firm's competitive advantage over foreign peers and facilitate doing business in foreign countries. The author finds that imposing unilateral anti-bribery regulations domestically reduces the value of the firms in the home country. Using the Panama Papers, O'Donovan et al. (2019) find that it is fairly common for publicly listed companies to use offshore vehicles to finance bribe payments and corruption activities. Hatak et al. (2015) report that in a stable and rigid business environment, building up and maintaining trust is costly. In this context, corruption provides additional business opportunities, which may otherwise be eliminated by regulatory institutions, for managers who can capitalize on these opportunities to improve firm performance. In addition, Desai et al., (2007), Hines (1995) and Kaikati and Label (1980) indicate that foreign bribery benefits outside shareholders, as it helps companies avoid governmental claims on corporate cash flows such as tax and tariff payments. In other words, a smaller bribery amount may be in exchange for a larger tax or tariff cost. In light of the above literature, we propose our second hypothesis as follows.

H2: A firm with a higher level of corruption exposure is related to value enhancement because the firm operates in a highly corrupt region.

Taken together, corruption may affect firm value in either a positive or a negative way. The issue of corruption is important, as zero corruption does not exist.[14] In this paper, we revisit this issue by focusing our attention on Africa, one of the most corrupt environments.

[14] Zero corruption suggests an absolute rational or zero-intervention of a government. The only difference in corruption across countries is that less developed countries are hard to rationalize their government intervention (Acemoglu &Verdier, 2000; Rose-Ackerman, 2013).

3 Data description

3.1 Corruption exposure index

We construct the corruption exposure index based on two data sources. The first data source is Transparency International's *CPI*, which defines corruption as "the misuse of public power for private benefit". Transparency International has published *CPI* since 1995 and ranked 176 countries by "their perceived levels of public sector corruption on a scale from 100 (very clean) to 0 (highly corrupt), as determined by expert assessments and opinion surveys."[15] The use of *CPI* as the measure of corruption is well accepted in the finance literature (DeBacker et al., 2015; Liu, 2016; O'Donovan et al., 2019; Pantzalis et al., 2008; Zeume, 2017). The second data source to construct the corruption exposure index is the World Bank's *CCI*, which captures "perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests."[16] *CCI* is one of the six components of Worldwide Governance Indicators (*WGI*), which is produced by Kaufmann et al. (Kaufmann et al., 2011).

Next, we construct measures of the overall exposure of a firm to corruption, similar to Zeume (2017), who estimates corruption exposure by the sum of the weighted country-level *CPI* as follows:

$$CEI\_CPI_{i,t} = \sum_{c \in C} [(10 - CPI_c) \times \frac{NS_{i,c,t}}{TNS_{i,t}}] \quad (1)$$

where $CEI\_CPI_{i,t}$ is the corruption exposure index constructed according to Transparency International's *CPI* of firm *i* in year *t*, CPI_c is the average Transparency International's Corruption Perceptions Index of country *c* over the sample period, $NS_{i,c,t}$ is the number of subsidiaries in

[15] See https://www.transparency.org/research/cpi/overview. After 2012, Transparency International ranges *CPI* between 100 (very clean) and 0 (highly corrupt). We adjust this range to between 10 and 0 by dividing the post-2012 *CPI* by 10. According to Transparency International, the least corrupt African country is Botswana with a *CPI* score of 5.95 and the most corrupt African country is Somalia with a *CPI* score of 1.12. The *CPI* of the United States is 7.33. The detailed *CPI* scores are reported in Appendix I.A.

[16] See https://datacatalog.worldbank.org/control-corruption-estimate-0. According to the World Bank, Somalia is the most corrupt country in the world (therefore is also the most corrupt country in Africa) with a *CCI* of -1.71. The least corrupt African country is Botswana with a *CCI* of 0.98. The *CCI* of the United States is 1.41. The detailed *CPI* scores are reported in Appendix I.B.

country *c* owned by firm *i* in year *t*, and $TNS_{i,t}$ is the total number of subsidiaries of firm *i* in year *t*.

Using the same approach, we construct an alternative measure to estimate corruption exposure by the sum of the weighted country-level *CCI* as follows:

$$CEI\_CCI_{i,t} = \sum_{c \in C} [(2.5 - CCI_c) \times \frac{NS_{i,c,t}}{TNS_{i,t}}] \quad (2)$$

where $CEI\_CCI_{i,t}$ is the corruption exposure index computed according to the World Bank's *CCI* of firm *i* in year *t*, CCI_c is the average of the World Bank's Control of Corruption Index of country *c* over the sample period, $NS_{i,c,t}$ is the number of subsidiaries in country *c* owned by firm *i* in year *t*, and $TNS_{i,t}$ is the total number of subsidiaries of firm *i* in year *t*.[17] In both corruption exposure measures, we assume that countries with a greater number of subsidiaries are more important in affecting firm value (O'Donovan et al., 2019; Zeume, 2017).

3.2 Corruption and stock data

To numerically capture the degree of corruption exposure using the above measures, we collect a sample of U.S.-listed firms from the Orbis database for the period 2004 to 2014. An important merit of the Orbis database is that it shows all foreign subsidiaries of listed firms and contains information regarding the country of incorporation for each subsidiary. This allows us to identify the corresponding degree of corruption associated with each subsidiary. We merge the Orbis dataset with the CEPII (Centre d'Etudes Prospectives et d'Informations Internationales) dataset and build a comprehensive database relating to country-level information, including the continent to which a country belongs, geographical distance between host and home countries, and the official language of the country where the foreign subsidiaries are located. In line with the literature, we exclude financial and utility firms. At the subsidiary level, we first drop observations without country information and ensure that each subsidiary is controlled by the firm.[18] After

[17] By construction, both measures are increasing firms' exposure to corruption. In terms of *CPI*, country corruption values are bounded between 0.65 and 9.15 because 10 - *CPI* is 10 – 9.35 = 0.65 for the least corrupt country (New Zealand) and is 10 – 0.85 = 9.15 for the most corrupt country (North Korea). In terms of *CCI*, country corruption values are bounded between 0.11 and 4.21 because 2.5 - *CCI* is 10 – 2.39 = 0.11 for the least corrupt country (Denmark) and is 2.5 – (-1.71) = 4.21 for the most corrupt country (Somalia).

[18] To ensure that a firm assumes control over its subsidiaries, we require that it has at least 50.01% ownership.

filtering the data, we have 727,028 observations that come from 253,479 subsidiaries of 3,865 firms. Table 1 presents the operations of the U.S.-listed firms in the world and Africa.

[Table 1]

We collect stock annual returns data from Datastream. Similar to Chui et al. (2010), we include all common stocks that are listed on the major exchanges in the United States (NYSE, NASDAQ, and AMEX) and exclude cross-listed stocks. If a stock has multiple share classes, we only include its primary class in our sample. To alleviate the survival bias in our analyses, we include stocks from the "Dead" stock list as provided by Datastream. The returns are all measured in U.S. dollars. One issue with Datastream stock data, as pointed out by Chui et al. (2010), is that a stock return of zero may be a result of no trading. To remedy this issue, we follow Chui et al. (2010) and calculate a stock's return only if the trading volume of this stock is positive in the current as well as previous months. The trading volume data are also collected from Datastream.

Table 2 reports the summary statistics for the variables included in our study. The mean (median) values for *the mean return* and *abnormal return* are 0.77 (0.66) and 0.21 (0.02), respectively.[19] The mean (median) values for *CEI_CPI* and *CEI_CCI* are 2.72 (2.65) and 1.10 (1.07), respectively. In addition to the corruption exposure index, we explore a large number of firm-level and country-level variables that may explain the variation in stock returns. A more detailed description of the variables is provided in Appendix II.

[Table 2]

4 Results

In this section, we first report the results on whether corruption exposure relates to U.S. firms' African operations and then investigate how it affects stock returns.

[19] Mean return is computed as the geometric mean of the daily return after subtracting the risk-free rate. Abnormal return is calculated as the geometric compound daily abnormal returns after matching a firm's stock return with Fama and French's (2015) five factors as well as the momentum factor (the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios).

4.1 Corruption exposure and operations in Africa

To check the validity and relevance of measures constructed using the *CPI* of Transparent International and *CCI* of the World Bank to our research, we first examine the extent to which a firm inclined to operate in Africa is related to its corruption exposure. Our motivation for these validity checks is based on both practical observation and theoretical literature. As discussed earlier, Africa to date is the most corrupt continent. The causes of corruption are complicated and usually rooted in the tradition and culture of the specific region (Treisman, 2000; You &Khagram, 2005).[20] Africa provides an excellent platform for us to observe the association of a firm's corruption exposure with the local corrupt environment. To test whether this relation holds, we conduct both subsidiary-level and firm-level analyses.

4.1.1 Subsidiary-level analysis

At the subsidiary level, to investigate the relation between corruption and operation in Africa, we follow Siegel et al. (2011) and estimate the following regression:[21]

$$\begin{aligned} AfricaSub_{j,i,t} = {} & \beta_0 + \beta_1 CEI_{i,t} + \beta_1 EgaDis_{j,i} + \beta_2 DifLaw_{j,i} + \beta_3 ComLan_{j,i} \\ & + \beta_4 ComRel_{j,i} + \beta_5 GeoDis_{j,i} + \beta_6 DifTax_{j,i} + \beta_7 MinPro_{j,i} \\ & + \beta_8 UneBen_{j,i} + \varepsilon_{j,i,t} \end{aligned} \quad (3)$$

where the subscripts *j, i,* and *t* represent country *j* where a subsidiary of firm *i* is located in year *t*. The dependent variable (*AfricaSub*) is a dummy variable that equals one if the subsidiary is located in Africa and is zero otherwise. The key interest of the independent variable is the corruption exposure index (*CEI*), measured by *CEI_CPI* and *CEI_CCI* as defined in Section 3.1. In addition to the corruption exposure index, we control for a range of country-level factors that affect cross-border activities. According to Siegel et al. (2011), the distance in the degree of

[20] For example, both New Zealand and African countries have a higher degree of ethnic diversity. The former is the least corrupt country in the world but the latter is the most corrupt region (Easterly &Levine, 1997). The purpose of our study is not to investigate the causes of corruption in Africa.

[21] Siegel et al. (2011) document that the distance in corruption between the two countries is negatively related to their bilateral activities. We have three main differences from Siegel et al. (2011). First, we investigate the operations of U.S. firms in Africa. Our study therefore focuses on one-way instead of two-way cross-border financial activities. Second, we look at the operations of foreign subsidiaries of U.S. firms, rather than cross-border activities between two independent identities. Third, we focus on Africa where all countries are ranked below the United States in terms of corruption, whereas Siegel et al. (2011) include countries either more corrupt or less corrupt than the United States. Therefore, U.S. firms with a higher degree of corruption exposure are likely more familiar with corruption culture; in other words, more corrupt firms have a shorter corruption distance from Africa, and therefore they are expected to be more likely to operate in Africa.

egalitarianism between two countries significantly and negatively affects cross-border activities between the two countries, and we follow their study and include the egalitarianism distance (*EgaDis*) from Schwartz (2014) to measure a country's degree of egalitarianism. Further, differences in law, language, and religion, as well as geographical distance, could be barriers impeding cross-border transactions (Demirgüç-Kunt &Maksimovic, 1998; Grinblatt &Keloharju, 2001; Hilary &Hui, 2009; LaPorta et al., 1998; Spolaore &Wacziarg, 2016; Stulz &Williamson, 2003). We therefore follow Siegel et al. (2011) and control these effects by constructing the following variables: Different law systems (*DifLaw*), common language (*ComLan*), and common religion (*ComRel*). We obtain language data from CEPII and law and religion data from Djankov et al. (2007). Geographic distance (*GeoDis*) is captured by calculating a thousand kilometers between the largest cities in two countries. The data for *GeoDis* are obtained from CEPII. While it is intuitive that geographical distance obstructs cross-border activities, other institutional factors can matter even more for financial development and activities (Rodrik et al., 2004). We therefore follow Siegel et al. (2011) and include corporate tax rate difference (*DifTax*), minority investor protection (*MinPro*), and unemployment benefits (*UneBen*) to control institutional effects. Tax data are obtained from the World Bank, data on minority investor protection are from the Doing Business project developed by the World Bank, and unemployment benefits are from Botero et al. (2004). We estimate a probit regression of whether a subsidiary is located in Africa. Since this is essentially the country-level analysis, we cluster the residuals on the country to compute the *t*-statistics for the estimated coefficients.

Panel A in Table 3 reports the regression results. The estimated coefficients of *CEI_CPI* and *CEI_CCI* are positive and significant throughout all regressions at the 5% level or better, which is consistent with the idea that firms with a higher degree of corruption exposure tend to have operations in Africa. This result holds when we control only for the GDP of the local country (columns 1 and 5), when we further control for egalitarianism distance (columns 2 and 6), when we further control for differences in law, language, religion and geographical distance (columns 3 and 7), and when we further control for differences in tax rates, minority shareholder protections and unemployment benefits between the United States and host countries (columns 4 and 8). In addition, the results also show that egalitarianism distance is negatively related to the possibility of operations in Africa, which is consistent with the findings of Siegel et al. (2011). Moreover, common language and religion are positively related to the possibility of operations in Africa,

whereas the differences in tax rate and minority investor protections are negatively related to the possibility of operations in Africa.

[Table 3]

4.1.2 Firm-level analysis

At the firm level, we examine how corruption exposure affects the degree of operations in Africa as measured by the percentage of a firm's subsidiaries in Africa to the firm's total number of subsidiaries. To ensure that the firm-level test is unbiased, we first need to determine whether the firm has operations in Africa and then, if so, the degree of the operations. We therefore run a Tobit regression with controlling firm-level variables such as those in Zeume (2017),[22] in addition to the country-level variables as above but aggregated to the firm level.

These results are reported in Panel B of Table 3, where *CEI_CPI* is used as the measure of corruption exposure from columns (1) to (4) and *CEI_CCI* is used in columns (5) to (8). In columns (1) and (5), we control only for firm size; in columns (2) and (6), we further control for other firm characteristics; in columns (3), (4), (7), and (8), we further control for country-level characteristics. Throughout all regressions, the coefficients on corruption exposure are significantly positive at the 5% level or better, suggesting that the higher the corruption exposure is, the greater the degree of African operations.

We conduct a set of robustness checks for the positive relation between corruption exposure and the possibility of operation in Africa. First, we use different models for the tests. For example, we use a logit model instead of the probit model at the subsidiary level. We use the Heckman selection model at the firm level. Second, we use alternative measures of African operations. For example, we use the count of African subsidiaries instead of the percentage measures. Further, we use the dummy variable at the firm level that equals one if the firm has operations in Africa and zero otherwise. Finally, we use alternative control variables. For example, we use GDP per capita in the subsidiary-level tests and replace total assets with total capitalization in the firm-level tests. Throughout all of these tests, the positive relation between corruption and African operations consistently holds.

[22] The Tobit approach is suitable in this research context because it incorporates the effect of two-step decision-making. First, whether a firm has operation(s) in Africa. Second, if the firm has, then what is the degree of the operation.

4.2 Corruption, African operations and stock returns

This section reports how stock returns are associated with corruption and African operations. For each firm, we identify its degree of corruption exposure and whether it operates in Africa.

4.2.1 Univariate test

First, we employ univariate analysis to see how the annual stock return is related to African operations and corruption exposure. For a given year, we obtain the annual return by taking the geometric average of the stock's daily excess returns. Table 4 presents return results for subsamples defined by corruption exposure and African operation status, where Panel A reports the results using *CPI* and Panel B reports the results using *CCI* as the measure of corruption. These results overall show that African operations with higher degrees of corruption are associated with significantly larger returns than non-African operations with lower degrees of corruption.

[Table 4]

While the stock returns for the firms with African operations in general are larger than for the firms without African operations, the results are only significant for firms with a higher degree of corruption exposure. In Panel A of Table 4, where *CPI* is used as the measure of corruption, the difference for firms with a higher degree of corruption exposure is 0.0240 (*t-statistics* = 3.42). In Panel B of Table 4, where using *CCI* as the measure of corruption, the difference for firms with a higher degree of corruption exposure is 0.0247 (*t-statistics* = 3.49). Both results are significantly different from zero at the 1% level. For firms with a lower degree of corruption exposure, the difference between firms with and without African operations is 0.0011 in Panel A (*CPI* measure) and 0.0006 in Panel B (*CCI* measure). However, these results are not significant.

Table 4 also shows that for firms with African operations, the stock returns of firms with high corruption exposure are higher than those of firms with low corruption exposure. For firms without African operations, however, the stock returns of firms with high corruption exposure are lower than those of firms with low corruption exposure, although these results are not statistically significant. Importantly, we find that firms with high corruption exposure and operating in Africa exhibit significantly higher returns than firms with low corruption exposure and without African operations. This is associated with a 0.0208 difference in annual return with a 1% significance level, using both *CPI* and *CCI* as measures of corruption. In fact, only the subsample with firm-years with high corruption exposure and with African operations demonstrates positive returns

among four subsamples (firm-years with low corruption exposure and without African operations, firm-years with high corruption exposure and without African operations, firm-years with low corruption exposure and with African operations, and firm-years with high corruption exposure and with African operations).

Overall, these findings suggest the possibility of some interaction effects between corruption exposures and operations in Africa. However, they do not tell us whether these returns are abnormal or control any risk factors that may affect stock returns. In the following section, we use portfolio analysis to address these issues.

4.2.2 Portfolio analysis

In this section, we create corruption exposure-weighted portfolios. We form the portfolios by weighing each firm by its relative value of a given corruption exposure index. Thus, firms with a higher value in the corruption exposure index are given a larger weight in a portfolio. Specifically, the weight given to stock *i* in the portfolio is

$$W_{i,t}^{p} = {CEI_{i,t}^{p}}\Big/{\sum_{i=1}^{N} CEI_{i,t}^{p}} \quad (4)$$

where *p* equals the portfolio for a particular corruption exposure index (*CEI_CPI* or *CEI_CCI*) and $CEI_{i,t}^{p}$ is the corruption exposure index value for firm *i* in year *t*. The portfolios are rebalanced each year, and accordingly, the weight changes once a year.

After forming the portfolios, we obtain a time series of daily returns for each portfolio. We then regress the time series of portfolio returns in excess of the risk-free rate on the *CAPM* model (excess value of market returns, or *MKT*), the Fama and French's (1992, 1993) three-factor (*MKT*, *SMB*, and *HML*) model, the four-factor (*MKT, SMB, HML*, and *MOM*) model (i.e., Fama and French's (1992, 1993) three factors plus the momentum factor), Fama and French's (2015) five-factor (*MKT, SMB*, *HML*, *RMW*, and *CMA*) model, and the six-factor (*MKT, SMB*, *HML*, *RMW*, *CMA*, and *MOM*) model (i.e., Fama and French's (2015) five factors plus the momentum factor) and report the intercepts in Table 5.

[Table 5]

We find that without African operations, the corruption exposure portfolios earn significantly negative abnormal returns relative to the asset pricing models we consider. In contrast, with

African operations, the corruption exposure portfolios earn positive abnormal returns, and the evidence of abnormal returns is robust to both *CEI_CPI* (reported in Panel A) and *CEI_CCI* (reported in Panel B). Across the five asset pricing models, the alphas from corruption exposure weighted portfolios are consistently 0.3 basis points (bps) for firms without African operations and range between 0.4 and 0.5 basis points (bps) for firms with African operations. In addition, all other pricing factors are statistically significant, except for *MOM* in the four-factor model and *CMA* in the six-factor model for firms with African operations.

Overall, these results suggest that while corruption negatively affects firm value, the effect could reverse if the firm has operations in Africa. These results, however, are just indicative, as there could be systematic differences in various characteristics of the firms comprising the four subsamples. Provided that other characteristics may be correlated with stock returns, it is important to consider these factors in a multivariate framework.

4.2.3 Regression analysis

In this section, we investigate how abnormal returns are related to high corruption exposure by performing regression analyses using geographically compounded daily returns based on six factors (*MKT, SMB, HML, RMW, CMA*, and *MOM*). We then regress annual abnormal returns on corruption exposure and other potential determinants.

$$AR_{i,t} = \beta_0 + \beta_1 High\_CEI_{i,t-1} + \beta_2 High\_CEI\ with\ African\ Sub_{i,t-1} + \beta_3 Firm_{i,t-1} + \beta_4 Country_{i,t-1} + \varepsilon_i \quad (5)$$

where $AR_{i,t}$ is the abnormal return of firm i at the end of year t, $High\_CEI_{i,t-1}$ is a dummy variable if corruption exposure is above the median and otherwise zero, $High\_CEI\ with\ African\ Sub_{i,t-1}$ is a dummy variable if firm i has a high corruption exposure and is operating in Africa,[23] $Firm_{i,t-1}$ is a vector of firm-level variables and $Country_{i,t-1}$ is a vector of country-level variables, respectively,[24] and ε_i is the error term. Obviously, firms need to make decisions and choose whether to operate in Africa. This choice introduces a possible self-selection bias into our observed sample. To control for potential selection bias, we use a two-stage

[23] We introduce these variables because our focus is on the effect of high corruption exposure in African operations. When we only use *CEI*, however, the estimation results are consistent, suggesting that the relation between corruption exposure and abnormal returns is associated with African operations. The results will be discussed in detail in the following sections.

[24] Appendix II provides detailed information about these explanatory variables.

model. In the first stage, we estimate a probit regression of whether a firm has a subsidiary in Africa by considering corruption exposure and a range of determinants of African operation in the context of each model. The probit regression is estimated annually. This identifies the likelihood of a firm participating in African operations. We calculate the inverse Mills ratio (*MIR*) each year in the first-stage regression and include *MIR* in our return regressions at the second stage. This helps control the likelihood of self-selection in the group of firms with African operations. In the second stage, we use Fama and MacBeth's (1973) procedure to estimate equation (5). The *t*-statistics of the average of the time-series estimates are adjusted for heteroscedasticity and autocorrelation using Newey and West's (1987) method.

4.2.3.1 A classic model

This section describes classic cross-sectional determinants and examines the extent to which these characteristics explain abnormal returns. Prior studies suggest that firm size (Fama &French, 1992; Keim, 1983; Perez-Quiros &Timmermann, 2000), book-to-market ratio (Fama &French, 1992, 1995; Griffin &Lemmon, 2002; Jiang, 2010; Loughran, 1997), trading volume (Ajinkya & Jain, 1989; Barclay et al., 1990; Campbell et al., 1993; Chae, 2005; Chordia & Swaminathan, 2002), and stock volatility (Baillie &DeGennaro, 1990; French et al., 1987; Zhang, 2006) are important predictors. Following this literature, we measure *Ln(Assets)* (the natural logarithm of total assets) to measure firm size, use *Ln(BM)* (the natural logarithm of book-to-market ratio) for book-to-market equity, use *Trading volume* (the number of shares traded in thousands) to measure trading volume, and use *Price volatility* (stock price volatility) to measure stock volatility. We include these variables along with the corruption exposure index in the first-stage probit model. After obtaining the *MIR* from the first stage, we estimate Fama and MacBeth's (1973) procedure in the second stage by including *MIR* with all other variables.

[Table 6]

The first-stage probit results suggest that corruption exposure, as measured by both *CEI_CPI* and *CEI_CCI*, and *Ln(TA)* are significantly and positively associated with the possibility of having operations in Africa, whereas the association on *Ln(BM)* is significantly negative. The coefficients on *Trading volume* and *Price volatility* are insignificant.[25] The results from the second-stage Fama

[25] The first-stage results are unreported in the main text due to the limit of the space but are available upon request.

and MacBeth (1973) regressions are reported in the first column of Table 6, where Panel A reports the results with *CEI_CPI* and Panel B reports the results with *CEI_CCI* as the measures of corruption exposure. These results show that the coefficients on *High_CEI* and *High_CEI with African Sub* are both positive and quite significant after controlling for these classic determinants of stock returns. Apart from *High_CEI* and *High_CEI with African Sub,* other explanatory variables show significant results. In line with prior studies, abnormal returns are negatively related to *Ln(TA)* and are positively related to *Ln(BM), trading volume* and *price volatility*. Based on *F tests*, which are 9.35 for the *CEI_CPI* regression and 9.45 for the *CEI_CCI* regression, we conclude that the joint effect accounting for corruption exposure and African operations significantly determines stock abnormal returns.

4.2.3.2 Firm-level characteristics

the prior study that discusses corruption on firm value, such as Borisov et al. (2015), show that the value of a firm can be related to its characteristics and structures. In particular, multinational operations have been found to be closely associated with knowledge transfers across countries through research and development (R&D) activities and intangible asset investments, which in turn affect the value of multinationals (Allen &Pantzalis, 1996; Gao &Chou, 2015; Gerybadze &Reger, 1999; L.Gu, 2016; Morck &Yeung, 1991). Furthermore, not only international diversification but also business diversification significantly affects firm value (Berger &Ofek, 1995; Choi et al., 2014; Denis et al., 2002; Lang &Stulz, 1994; Markides &Ittner, 1994). In addition, the idea that cash flow uncertainty affects stock returns has been examined by several studies, such as Almeida et al. (2004), Irvine and Pontiff (2009), Jensen (1986), and Zhang (2006). Following these studies, we include *Ln(Intangible/Assets)* (the natural logarithm of intangibles to assets ratio), *Ln(R&D/Expenditure)* (R&D to expenditure ratio), *Ln(Diversification)* (the natural logarithm of the number of business segments), and *CF volatility* (the three-year standard deviation of operating cash flow to capture the effect of cash flow volatility) in firm-level regressions.

The first-stage probit results indicate that corruption exposure remains significantly and positively associated with the possibility of having operations in Africa. Furthermore, the coefficients on *Ln(Intangible/Assets)* and *Ln(Diversification)* are also significant and positive, but they are insignificant on *Ln(R&D/Expenditure)* and *CF volatility*. The results from the second-stage Fama and MacBeth (1973) regressions are reported in the second column of Table 6, where Panel A reports the results with *CEI_CPI* and Panel B reports the results with *CEI_CCI* as the

measures of corruption exposure. The results reveal that while still positive, the coefficient on *High_CEI* becomes insignificant after we control for a range of firm-level characteristics. However, the coefficient on *High_CEI with African Sub* remains positive and significant at the 5% level. In addition, abnormal return is significantly associated with R&D, intangible, and operating cash flow. It is in particular worth noting that business diversification negatively affects firm value; these results are in line with Berger and Ofek (1995), Denis et al. (Denis et al., 2002), and Lang and Stulz (1994). Overall, these results reject the first hypothesis (H1) and support the second hypothesis (H2).

4.2.3.3 Country-level factors

As discussed by Siegel et al. (2011), the firm value associated with foreign investments can be partially determined by the egalitarianism distance. It has also been well documented that law, language, religion, and geographic distance can affect firm value (Callen & Fang, 2015; Demirgüç-Kunt & Maksimovic, 1998; El Ghoul et al., 2012; Grinblatt & Keloharju, 2001). Further, studies suggest that firm values are higher for firms operating in a better institutional environment (Fama &French, 1998; Harford et al., 2017; McLean et al., 2012). To incorporate these effects, we follow Siegel et al. (2011) to use Schwartz's (2014) to measure the *egalitarianism distance* between home and host countries, including *different law families* (weighted average of subsidiaries in countries that do not adopt the common law system), *common language* (English is the official language), *common religion* (protestant is the dominant religion), *geographic distance* (a thousand kilometers of largest cities of host countries from the United States), *log of host country GDP*, *corporate tax rate difference*, *minority investor protection*, and *unemployment benefits*. All these measures are weighted averages where the weight is the percentage of subsidiaries in the given country to the total number of subsidiaries of the firm.

The first-stage probit results, which serve the purpose of correcting self-selection bias for the effect on stock returns, show that the estimated coefficients on *Different law family, Common religion, Geographic distance,* and *Minority investor protection* are significant and positive. These results suggest that a firm's operation involves a higher proportion of countries with different legal systems, with protestant religions, with greater geographical distances, and with better minority investor protections would be more likely to have operations in Africa. More importantly for our purpose, the results from the second-stage Fama and MacBeth (1973) regressions reported in the third column of Table 6 suggest that when these variables are included in our regressions, the

estimated coefficient on *High_CEI with African Sub* remains significantly positive. However, the estimated coefficient on the *High_CEI* is insignificant. In addition, *common language* is negatively related to abnormal returns, whereas *common religion*, *corporate tax rate difference*, and *minority investor protection* are positively related to abnormal returns. Again, the results reject the first hypothesis (H1) and support the second hypothesis (H2).

4.2.3.4 The degree of the foreign operation

It is important to ensure that our measure of corruption exposure is not a proxy of or influenced by the degree of foreign operations. A higher degree of foreign operation may indicate a great chance to deal with foreign governments, which may be likely to increase the source of corruption. However, it may also be a proxy for the experience or the learning effect of a firm in foreign markets (Benito &Gripsrud, 1992; Zeng et al., 2013). This learning effect, however, is not necessarily only related to the corrupt culture. Since there is no consensus on the measure of the degree of foreign operations, we use four alternative measures: the number of foreign to total subsidiaries (*FNTN*), foreign assets to total assets (*FATA*), foreign sales to total sales (*FSTS*), and foreign operating income to total operating income (*FITI*), to ensure that our results are unbiased.

The first-stage probit results indicate that all measures of the degree of foreign operations, except for *FATA*, are positive and significant, suggesting that firms with a higher degree of foreign operations are more likely to have African subsidiaries as well. The second-stage Fama and MacBeth's (1973) regressions, reported in the last four columns of Table 6, show that only foreign sales to total sales (*FSTS*) are consistently and significantly positive at the 10% level in both Panel A and Panel B of Table 6. However, importantly, it shows that the coefficient estimates on *High_CEI with African Sub* are all positive and significant. The results suggest that corruption exposure has a standalone and significant effect on abnormal returns, rather than a proxy of and/or influence by the degree of foreign operations. In short, these results confirm H2 that a firm with a higher level of corruption exposure would benefit if the firm operates in a highly corrupt region.

4.2.4 Robustness Identification

The previous regression analyses may lack power because firms are subject to the influence of factors and conditions in the United States, which may affect both firm foreign operation decisions and stock returns. Thus, endogeneity arising from omitted variables can be an important issue that weakens the test power of our analyses. A convenient "natural reference" to address this

concern is Chinese firms, as they are also significantly involved in African operations (Campbell, 2008; Chen et al., 2016). [26] First, U.S. domestic factors and conditions do not affect Chinese firms' African operation decisions, which are exogenous regarding our tests. Second, both China and the United States have been significantly involved in operations in Africa. Third, the corruption scores of China are not affected by the United States [27] Fourth, the stock returns of Chinese firms that operate in Africa are also affected by foreign country exposures. Finally, as U.S. firms that are operating in Africa may have both high and low corruption exposures, the results after matching identify and reflect the effect of corruption exposure.

We use the propensity score match approach to address this endogeneity issue (Roberts &Whited, 2013). Because the disclosure of foreign operations of Chinese firms is significantly limited, even for publicly listed Chinese firms, we reliably identify the firms that have African operations using public announcements on their agreements and contracts with African firms or governments. A list of these Chinese firms and their business descriptions is given in Appendix III. We then match them with U.S. firms that have African operations by the market (*Beta, trading volume,* and *stock price volatility*) and corporate characteristics (*firm size, the book-to-market equity ratio, intangibles to total assets, business diversification, tax ratio*[28] and *cash flow volatility*). The data used to construct these variables are obtained from Datastream.[29] For our purpose, we match firms with high and low corruption exposures.

[Table 7]

To ensure unbiased results, we employ four alternative techniques: ATET (average treatment effect on the treated) nearest neighbor, ATET radius matching, ATET kernel matching, and ATET stratification matching. In Panel A of Table 7, we report the results for all U.S. firms, which consist of firms with both high and low corruption exposure, after matching the market and firm characteristics of Chinese firms by propensity score. The results based on the four techniques are

[26] For the topic regarding Chinese operations in Africa, see also relevant research from the International Monetary Fund (IMF) (such as https://www.imf.org/~/media/Files/Publications/DP/2017/44711-afrdp.ashx) and the World Bank, (such as https://openknowledge.worldbank.org/handle/10986/21788).
[27] As shown in Appendix 1.A and Appendix 1.B, the average *CPI* and *CCI* of China over the sample period are 3.56 and -0.50, respectively.
[28] The ratio of tax to EBIT.
[29] Even though there is a data limitation in constructing some variables for Chinese firms, data for constructing these variables are sufficiently available in Datastream.

consistent — the U.S.-listed firms with African operations have nearly 10% higher abnormal returns than the Chinese-listed firms with African operations. All results are significant at the 1% level. In Panel B, we separately look at the firms with high and low corruption exposure, which is based on *CPI*. The results show a distinctive pattern: U.S. Firms with high corruption exposure tend to have a larger abnormal return than those with low corruption exposure for their African operations. Moreover, the results are insignificant for the U.S. firms with low corruption exposure when using ATET nearest neighbor and ATET stratification matching. However, the results for firms with high corruption exposure are consistently significant and positive. In Panel C, we use *CCI* as a corruption measure to look at abnormal returns of firms with high and low corruption exposure. Except for ATET nearest neighbor matching, which does not find the Chinese matching peers for U.S. firms, all other results are consistent with those in Panel B. Taken together, with matching Chinese firms with African operations, the evidence suggests that endogeneity does not appear to drive the positive effect of corruption exposure on stock returns.

4.2.5 Further robustness

We perform a number of further robustness tests (due to space limitations, these results are presented in the Online Appendix). To explore whether our main results are driven by the global financial crisis, we estimate regressions of three subsample periods: 2004-2006, 2007-2009 and 2010-2014 (i.e., the periods before, during, and after the crisis). The results show that the positive effect of African operations and corruption exposure is statistically significant before and after the financial crisis but insignificant during the crisis period. This result is consistent with the assumption that the global financial crisis disrupted the market, suggesting that the positive effect of African operations and corruption exposure on stock returns is more likely to take place during the "normal" time.

Further, we control for firm age. Newly listed firms may have extra cash on hand from their initial public offerings. The extra cash may be used for corruption purposes and for participating in corrupt activities. This may result in a stronger effect of African operations and corruption exposure on stock returns. We re-estimate our regressions of Table 6 by including firm age from the year of initial public offerings as an independent variable. The result suggests that the coefficient on age is positive and significant. Meanwhile, while the co-effect of African operation and corruption exposure on stock returns is relatively unchanged, the coefficient on the interaction

of corruption exposure and African operation is 0.122 for *CEI_CPI* and 0.131 for *CEI_CCI*. Both coefficients are statistically significant at the 5% level.

Since smaller firms tend to generate higher returns, the positive relation between stock returns and corruption exposure may be driven by smaller firms operating in Africa. To investigate this possibility, we remove all stocks with a market capitalization less than the 5th percentile (US$36.7 million) from our sample. This forces us to reduce the number of observations (435 observations). Based on this reduced sample, we find that the abnormal returns (t-statistics) are very close to the results reported in Table 6. We also examine a sample that excludes the largest stocks, since these stocks may be influenced by the trades of foreign institutions and thus may be less influenced by corruption cultures. Specifically, we remove stocks larger than the 95th percentile (US$26.6 billion, 436 observations) from our sample. Similar findings are obtained. Hence, the positive effect of African operation and corruption exposure on stock returns is not driven by either small or large firms in our sample.

We also examine whether the results would change if we looked at different African countries. While Africa is the most corrupt continent as a whole, the degree of corruption varies across African countries. If foreign bribery payments facilitate U.S. firms to do business in African countries with a relatively higher degree of corruption, then firms with low corruption exposure that would not be so valuable would still contribute to firm value and thus be positively related to stock returns. To test whether or not this is the case, we carry out the subsidiary-level analysis by focusing on those firms with subsidiaries in Africa. We control for corruption distance between the United States and each of the African countries that host our sample subsidiaries along with other differences in country-level factors. The results show that although corruption distance is negatively related to stock returns, there is a consistently significant and positive effect of corruption exposure on firm value. Therefore, our firm-level results are not driven by differences across African countries.

The empirical tests on corruption exposure might be subject to the measure of corruption. We therefore consider alternative measures of corruption that are validated by Wilhelm (2002) — the index of the overabundance of regulation or unnecessary restriction of business (*Excess Regulation*) activity and the index of black market activity (*Blank Market*). Notably, the results of these two alternative corruption measures are highly consistent with the findings that we have documented.

Furthermore, one might suspect that our measure of corruption exposure is just a proxy for state-level corruption, which is shown to have a significant effect on financial outcomes and activities in the literature (Butler et al., 2009; Dass et al., 2016; Smith, 2016). Nevertheless, we find that state-level corruption does not proxy for foreign corruption, and in fact, the coeffect of state-level corruption and African operations negatively affects firm value.

Finally, we adopt alternative measures of firm performance. If firms with higher degrees of corruption exposure benefit economically by participating in African operations, these benefits should be reflected in firm fundamentals, such as increases in profitability. We therefore estimate yearly regressions of changes in earnings return (*ROC (t) – ROC (t-1)*, where the return on capital (*ROC*) is equal to earnings before extraordinary items scaled by the book value of total capital). After controlling for potential sample selection bias in terms of which firms operate in Africa by including *IMR* from the first-stage probit model, we find a positive and significant effect of African operation and corruption exposure on the change in earning returns. This is consistent with our previous analyses where the stock return is the dependent variable. The result holds when we use *ROA* (return on assets) instead of *ROC* as the measure of earnings returns, as well as when we use level *ROC* instead of changes in *ROC*. The finding that corruption exposure has a standalone positive effect on the earnings of multinational firms is in line with the literature (Henisz, 2000; Hines Jr, 1995; Huntington, 2006; Leff, 2002; Wei, 2000), suggesting that corruption exposure contributes to firm profitability in the setting of international operations.

5 Conclusion

This paper explores how corruption exposure affects firm value. Using Africa as an experimental field, we form corruption exposure weighted portfolios and find that the portfolios without African operations have negative abnormal returns, whereas the portfolios with African operations offset the negative effect and earn positive abnormal returns. For example, a portfolio of firms without African operations weighted by either *CPI* or *CCI* has a negative and statistically significant Fama and French's (2015) five-factor-plus-momentum-model abnormal daily return. Comparatively, a portfolio of firms with African operations earns a positive abnormal daily return. Furthermore, multivariate analysis reveals that after controlling for other market-, firm-, country-level variables and institutional factors that potentially affect firm value, the interaction of high corruption exposure with African operations is associated with a significant positive abnormal

return. This indicates that corruption exposure is linked to doing business in Africa, which is in turn associated with an increase in firm value.

The study has several implications. Corrupt culture represents an unwritten rule that determines the real costs of public services, including tips for bribery (DeBacker et al., 2015; Liu, 2016; Zingales, 2015). In these corrupt countries, local companies are accustomed to paying bribes for doing business. Foreign companies, however, need to fit into the local environment to do business in these regions. Familiarity with corruption culture, measured by country-level corruption exposure, would enhance a firm's ability to adapt to the corrupt environment better and therefore gain benefits to shareholders. The findings in this paper also provide a novel angle to look at the effect of multinational operations and are especially meaningful for those in Africa.

Overall, the results of this paper suggest that it benefits a firm if the level of corruption exposure of the firm matches the corruption culture of its destination markets. Using Africa as an experimental field, this paper finds that higher corruption exposure contributes positively to the value of U.S. multinational firms. Future research is expected to extrapolate from the findings in this paper beyond the case of investing in Africa, particularly to identify channels through which corruption takes effect.

Reference

Acemoglu, D., &Verdier, T. (2000). The choice between market failures and corruption. *American Economic Review*, *90*(1), 194–211.

Ades, A., &DiTella, R. (1999). Rents, competition, and corruption. *American Economic Review*, *89*(4), 982–993.

Ajinkya, B. B., &Jain, P. C. (1989). The behavior of daily stock market trading volume. *Journal of Accounting and Economics*, *11*(4), 331–359. https://doi.org/10.1016/0165-4101(89)90018-9

Allen, L., &Pantzalis, C. (1996). Valuation of the operating flexibility of multinational corporations. *Journal of International Business Studies*, *27*(4), 633–653.

Almeida, H., Campello, M., &Weisbach, M. S. (2004). The cash flow sensitivity of cash. *The Journal of Finance*, *59*(4), 1777–1804.

Amore, M. D., &Bennedsen, M. (2013). The value of local political connections in a low-corruption environment. *Journal of Financial Economics*, *110*(2), 387–402.

Arezki, R., &Gylfason, T. (2013). Resource rents, democracy, corruption and conflict: Evidence from Sub-Saharan Africa. *Journal of African Economies*, *22*(4), 552–569.

Azmat, F., &Samaratunge, R. (2009). Responsible entrepreneurship in developing countries: Understanding the realities and complexities. *Journal of Business Ethics*, *90*(3), 437–452.

Baillie, R. T., &DeGennaro, R. P. (1990). Stock returns and volatility. *Journal of Financial and Quantitative Analysis*, *25*(2), 203–214.

Barbopoulos, L., Marshall, A., MacInnes, C., &McColgan, P. (2014). Foreign direct investment in emerging markets and acquirers' value gains. *International Business Review*, *23*(3), 604–619. https://doi.org/https://doi.org/10.1016/j.ibusrev.2013.10.003

Barclay, M. J., Litzenberger, R. H., &Warner, J. B. (1990). Private information, trading volume, and stock-return variances. *The Review of Financial Studies*, *3*(2), 233–253.

Benito, G. R. G., &Gripsrud, G. (1992). The expansion of foreign direct investments: discrete rational location choices or a cultural learning process? *Journal of International Business Studies*, 461–476.

Berger, P. G., &Ofek, E. (1995). Diversification's effect on firm value. *Journal of Financial Economics*, *37*(1), 39–65.

Bliss, C., &Tella, R.Di. (1997). Does competition kill corruption? *Journal of Political Economy*, *105*(5), 1001–1023.

Bobonis, G. J., Cámara Fuertes, L. R., &Schwabe, R. (2016). Monitoring corruptible politicians. *American Economic Review*, *106*(8), 2371–2405.

Borisov, A., Goldman, E., &Gupta, N. (2015). The corporate value of (corrupt) lobbying. *The Review of Financial Studies*, *29*(4), 1039–1071.

Botero, J. C., Djankov, S., Porta, R.La, Lopez-de-Silanes, F., &Shleifer, A. (2004). The regulation of labor. *The Quarterly Journal of Economics*, *119*(4), 1339–1382.

Butler, A. W., Fauver, L., &Mortal, S. (2009). Corruption, political connections, and municipal finance. *The Review of Financial Studies*, *22*(7), 2873–2905.

Calhoun, M. A. (2002). Unpacking liability of foreignness: identifying culturally driven external and internal sources of liability for the foreign subsidiary. *Journal of International Management*, *8*(3), 301–321.

Callen, J. L., &Fang, X. (2015). Religion and stock price crash risk. *Journal of Financial and Quantitative Analysis*, *50*(1–2), 169–195.

Callen, M., &Long, J. D. (2015). Institutional corruption and election fraud: Evidence from a field experiment in Afghanistan. *American Economic Review*, *105*(1), 354–381.

Campante, F. R., &Do, Q.-A. (2014). Isolated capital cities, accountability, and corruption: Evidence from US states. *American Economic Review*, *104*(8), 2456–2481.

Campbell, H. (2008). China in Africa: Challenging US global hegemony. *Third World Quarterly*, *29*(1), 89–105.

Campbell, J. Y., Grossman, S. J., &Wang, J. (1993). Trading volume and serial correlation in stock returns. *The Quarterly Journal of Economics*, *108*(4), 905–939.
Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of Finance*, *52*(1), 57–82.
Chae, J. (2005). Trading volume, information asymmetry, and timing information. *Journal of Finance*, *60*(1), 413–442. https://doi.org/10.1111/j.1540-6261.2005.00734.x
Chen, W., Dollar, D., &Tang, H. (2016). Why is China investing in Africa? Evidence from the firm level. *The World Bank Economic Review*, *32*(3), 610–632.
Choi, J. J., Hiraki, T., &Landi, J. A. (2014). The value of multinationality and business group for Japanese firms. *Journal of Corporate Finance*, *29*, 88–110.
Chordia, T., &Swaminathan, B. (2002). Trading volume and cross-autocorrelations in stock returns. *Journal of Finance*, *55*(2), 913–935. https://doi.org/10.1111/0022-1082.00231
Chui, A. C. W., Titman, S., &Wei, K. C. J. (2010). Individualism and momentum around the world. *Journal of Finance*, *65*(1), 361–392.
Cleveland, M., Favo, C. M., Frecka, T. J., &Owens, C. L. (2009). Trends in the international fight against bribery and corruption. *Journal of Business Ethics*, *90*(2), 199–244. https://doi.org/10.1007/s10551-010-0383-7
Cooper, M. J., Gulen, H., &Ovtchinnikov, A.V. (2010). Corporate political contributions and stock returns. *The Journal of Finance*, *65*(2), 687–724.
Cuervo-Cazurra, A. (2008). The effectiveness of laws against bribery abroad. *Journal of International Business Studies*, *39*(4), 634–651. https://doi.org/10.1057/palgrave.jibs.8400372
D'Aoust, O., &Sterck, O. (2016). Who benefits from customary justice? Rent-seeking, bribery and criminality in sub-Saharan Africa. *Journal of African Economies*, *25*(3), 439–467.
D'Souza, A. (2012). The OECD Anti-Bribery Convention: Changing the currents of trade. *Journal of Development Economics*, *97*(1), 73–87. https://doi.org/https://doi.org/10.1016/j.jdeveco.2011.01.002
Dass, N., Nanda, V., &Xiao, S. C. (2016). Public corruption in the United States: Implications for local firms. *The Review of Corporate Finance Studies*, *5*(1), 102–138.
DeBacker, J., Heim, B. T., &Tran, A. (2015). Importing corruption culture from overseas: Evidence from corporate tax evasion in the United States. *Journal of Financial Economics*, *117*(1), 122–138.
Delavallade, C. (2012). What drives corruption? Evidence from North African firms. *Journal of African Economies*, *21*(4), 499–547.
Demirgüç-Kunt, A., &Maksimovic, V. (1998). Law, finance, and firm growth. *Journal of Finance*, 2107–2137.
Denis, D. J., Denis, D. K., &Yost, K. (2002). Global diversification, industrial diversification, and firm value. *The Journal of Finance*, *57*(5), 1951–1979.
Denk, N., Kaufmann, L., &Roesch, J.-F. (2012). Liabilities of foreignness revisited: A review of contemporary studies and recommendations for future research. *Journal of International Management*, *18*(4), 322–334.
Desai, M. A., Dyck, A., &Zingales, L. (2007). Theft and taxes. *Journal of Financial Economics*, *84*(3), 591–623.
Desai, M. A., Foley, F. C., &Hines, J. J. R. (2008). Capital structure with risky foreign investment. *Journal of Financial Economics*, *88*(3), 534–553.
Djankov, S., McLiesh, C., &Shleifer, A. (2007). Private credit in 129 countries. *Journal of Financial Economics*, *84*(2), 299–329.
Duggan, M., &Levitt, S. D. (2002). Winning isn't everything: Corruption in sumo wrestling. *American Economic Review*, *92*(5), 1594–1605.
Durnev, A., Morck, R., &Yeung, B. (2004). Value-enhancing capital budgeting and firm-specific stock return variation. *The Journal of Finance*, *59*(1), 65–105. https://doi.org/10.1111/j.1540-6261.2004.00627.x
Easterly, W., &Levine, R. (1997). Africa's growth tragedy: Policies and ethnic divisions. *The Quarterly Journal of Economics*, *112*(4), 1203–1250.

Ehrlich, I., &Lui, F. T. (1999). Bureaucratic corruption and endogenous economic growth. *Journal of Political Economy*, *107*(S6), S270–S293.
ElGhoul, S., Guedhami, O., Ni, Y., Pittman, J., &Saadi, S. (2012). Does religion matter to equity pricing? *Journal of Business Ethics*, *111*(4), 491–518.
Fama, E. F., &French, K. R. (1992). The cross-section of expected stock returns. *The Journal of Finance*, *47*(2), 427–465.
Fama, E. F., &French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, *33*(1), 3–56.
Fama, E. F., &French, K. R. (1995). Size and book-to-market factors in earnings and returns. *The Journal of Finance*, *50*(1), 131–155.
Fama, E. F., &French, K. R. (1998). Taxes, financing decisions, and firm value. *The Journal of Finance*, *53*(3), 819–843.
Fama, E. F., &French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, *116*(1), 1–22.
Fama, E. F., &MacBeth, J. D. (1973). Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy*, *81*(3), 607–636. https://doi.org/10.1086/260061
Ferraz, C., &Finan, F. (2011). Electoral accountability and corruption: Evidence from the audits of local governments. *American Economic Review*, *101*(4), 1274–1311.
Forde, K. (2019, June 19). US ups investment in Africa to counter China's influence. *Al Jazeera*.
French, K. R., Schwert, G. W., &Stambaugh, R. F. (1987). Expected stock returns and volatility. *Journal of Financial Economics*, *19*(1), 3–29.
Gao, W., &Chou, J. (2015). Innovation efficiency, global diversification, and firm value. *Journal of Corporate Finance*, *30*, 278–298.
Gaviria, A. (2002). Assessing the effects of corruption and crime on firm performance: Evidence from Latin America. *Emerging Markets Review*, *3*(3), 245–268.
Gerybadze, A., &Reger, G. (1999). Globalization of R&D: recent changes in the management of innovation in transnational corporations. *Research Policy*, *28*(2–3), 251–274.
Gompers, P., Ishii, J., &Metrick, A. (2003). Corporate governance and equity prices. *The Quarterly Journal of Economics*, *118*(1), 107–156. http://dx.doi.org/10.1162/00335530360535162
Gordon, K., &Miyake, M. (2001). Business approaches to combating bribery: A study of codes of conduct. *Journal of Business Ethics*, *34*(3), 161–173. https://doi.org/10.1023/A:1012517622479
Griffin, J. M., &Lemmon, M. L. (2002). Book-to-market equity, distress risk, and stock returns. *The Journal of Finance*, *57*(5), 2317–2336.
Grinblatt, M., &Keloharju, M. (2001). How distance, language, and culture influence stockholdings and trades. *Journal of Finance*, *56*(3), 1053–1073.
Gu, L. (2016). Product market competition, R&D investment, and stock returns. *Journal of Financial Economics*, *119*(2), 441–455.
Gu, T. (2017). U.S. multinationals and cash holdings. *Journal of Financial Economics*, *125*(2), 344–368.
Hanlon, M., Lester, R., &Verdi, R. (2015). The effect of repatriation tax costs on U.S. multinational investment. *Journal of Financial Economics*, *116*(1), 179–196.
Harford, J., Wang, C., &Zhang, K. (2017). Foreign cash: Taxes, internal capital markets, and agency problems. *Review of Financial Studies*, *30*(5), 1490–1538.
Hatak, I., Fink, M., &Frank, H. (2015). Business freedom, corruption and the performance of trusting cooperation partners: Empirical findings from six European countries. *Review of Managerial Science*, *9*(3), 523–547.
Henisz, W. J. (2000). The institutional environment for multinational investment. *The Journal of Law, Economics, and Organization*, *16*(2), 334–364.
Hilary, G., &Hui, K. W. (2009). Does religion matter in corporate decision making in America? *Journal of Financial Economics*, *93*(3), 455–473.
Hines Jr, J. R. (1995). *Forbidden payment: Foreign bribery and American business after 1977*. National Bureau of Economic Research.

Hofstede, G. H., Hofstede, G. J., &Minkov, M. (2010). *Cultures and organizations: Software of the mind: Intercultural cooperation and its importance for survival*. McGraw-Hill.
Huizinga, H., Laeven, L., &Nicodeme, G. (2008). Capital structure and international debt shifting. *Journal of Financial Economics*, *88*(1), 80–118.
Huntington, S. P. (2006). *Political order in changing societies*. Yale University Press.
Irvine, P. J., &Pontiff, J. (2009). Idiosyncratic Return Volatility, Cash Flows, and Product Market Competition. *The Review of Financial Studies*, *22*(3), 1149–1177.
Islam, M. A., Dissanayake, T., Dellaportas, S., &Haque, S. (2018). Anti-bribery disclosures: A response to networked governance. *Accounting Forum*, *42*(1), 3–16. https://doi.org/https://doi.org/10.1016/j.accfor.2016.03.002
Jensen, M. C. (1986). Agency cost of free cash flow, corporate finance, and takeovers. *Corporate Finance, and Takeovers. American Economic Review*, *76*(2).
Jiang, H. (2010). Institutional investors, intangible information, and the book-to-market effect. *Journal of Financial Economics*, *96*(1), 98–126.
Johnson, S., &Mitton, T. (2003). Cronyism and capital controls: evidence from Malaysia. *Journal of Financial Economics*, *67*(2), 351–382.
Kaikati, J. G., &Label, W. A. (1980). American bribery legislation: An obstacle to international marketing. *Journal of Marketing*, *44*(4), 38–43.
Karpoff, J. M., Lee, D. S., &Martin, G. S. (2017). Foreign bribery: Incentives and enforcement. *Available at SSRN 1573222*.
Kaufmann, D., Kraay, A., &Mastruzzi, M. (2011). The Worldwide Governance Indicators: Methodology and analytical issues. *Hague Journal on the Rule of Law*, *3*(2), 220–246.
Keim, D. B. (1983). Size-related anomalies and stock return seasonality: Further empirical evidence. *Journal of Financial Economics*, *12*(1), 13–32.
Krüger, P. (2015). Corporate goodness and shareholder wealth. *Journal of Financial Economics*, *115*(2), 304–329.
LaPorta, R., Lopez-de-Silanes, F., Shleifer, A., &Vishny, R. (1999). The quality of government. *Journal of Law, Economics, & Organization*, *15*(1), 222–279.
LaPorta, R., Lopez-de-Silanes, F., Shleifer, A., &Vishny, R. W. (1998). Law and finance. *Journal of Political Economy*, *106*(6), 1113–1155.
Lang, L. H. P., &Stulz, R. M. (1994). Tobin's Q, corporate diversification, and firm performance. *Journal of Political Economy*, *102*(6), 1248–1280.
Leff, N. H. (2002). Economic development through bureaucratic corruption. *Political Corruption: Concepts and Contexts*, 309–322.
Lemmon, M. L., &Lins, K.V. (2003). Ownership structure, corporate governance, and firm value: Evidence from the East Asian financial crisis. *Journal of Finance*, *58*(4), 1445–1468.
Liu, X. (2016). Corruption culture and corporate misconduct. *Journal of Financial Economics*, *122*(2), 307–327.
Loughran, T. (1997). Book-to-market across firm size, exchange, and seasonality: Is there an effect? *Journal of Financial and Quantitative Analysis*, *32*(03), 249–268.
Markides, C. C., &Ittner, C. D. (1994). Shareholder benefits from corporate international diversification: Evidence from U.S. international acquisitions. *Journal of International Business Studies*, *25*(2), 343–366.
Mauro, P. (1995). Corruption and growth. *The Quarterly Journal of Economics*, *110*(3), 681–712.
McLean, D. R., Zhang, T., &Zhao, M. (2012). Why does the law matter? Investor protection and its effects on investment, finance, and growth. *The Journal of Finance*, *67*(1), 313–350.
Mironov, M. (2015). Should one hire a corrupt CEO in a corrupt country? *Journal of Financial Economics*, *117*(1), 29–42.
Morck, R., &Yeung, B. (1991). Why investors value multinationality. *The Journal of Business*, *64*(2), 165–187.

N'Guessan, T. (2004). Poverty, bureaucratic behaviour and health policy. *Journal of African Economies*, *13*(suppl_1), i183–i198. https://doi.org/10.1093/jae/ejh021

Newey, W. K., &West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica*, *55*(3), 703–708.

O'Donovan, J., Wagner, H. F., &Zeume, S. (2019). The value of offshore secrets: Evidence from the Panama Papers. *The Review of Financial Studies*, *32*(11), 4117–4155.

Oliva, P. (2015). Environmental regulations and corruption: Automobile emissions in Mexico City. *Journal of Political Economy*, *123*(3), 686–724.

Olken, B. A. (2007). Monitoring corruption: Evidence from a field experiment in Indonesia. *Journal of Political Economy*, *115*(2), 200–249.

Pantzalis, C., Park, J. C., &Sutton, N. (2008). Corruption and valuation of multinational corporations. *Journal of Empirical Finance*, *15*(3), 387–417.

Perez-Quiros, G., &Timmermann, A. (2000). Firm size and cyclical variations in stock returns. *The Journal of Finance*, *55*(3), 1229–1262.

Pinkowitz, L., Stulz, R. M., &Williamson, R. (2012). *Multinationals and the high cash holdings puzzle*. National Bureau of Economic Research.

Piotroski, J. D., DeSimone, L., &Tomy, R. E. (2018). Repatriation taxes and foreign cash holdings: The impact of anticipated tax reform. *The Review of Financial Studies*.

Rapp, M. S., Schellong, D., Schmidt, M., &Wolff, M. (2011). Considering the shareholder perspective: value-based management systems and stock market performance. *Review of Managerial Science*, *5*(2), 171–194. https://doi.org/10.1007/s11846-010-0056-z

Roberts, M. R., &Whited, T. M. (2013). Chapter 7 - Endogeneity in Empirical Corporate Finance. In M. H.George M. Constantinides &M. S.Rene (Eds.), *Handbook of the Economics of Finance: Vol. Volume 2*,. University of Rochester.

Rodrik, D., Subramanian, A., &Trebbi, F. (2004). Institutions rule: The primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*, *9*(2), 131–165.

Rose-Ackerman, S. (2013). *Corruption: A study in political economy*. Academic Press.

Sallemi, M., BenHamad, S., &Ould Daoud Ellili, N. (2022). Impact of board of directors on insolvency risk: which role of the corruption control? Evidence from OECD banks. *Review of Managerial Science*. https://doi.org/10.1007/s11846-022-00605-w

Schwartz, S. H. (2014). National culture as value orientations: Consequences of value differences and cultural distance. In V.Ginsburgh &D.Throsby (Eds.), *Handbook of the economics of art and culture* (2nd ed., pp. 547–586). Elsevier/North-Holland. https://doi.org/10.1016/b978-0-444-53776-8.00020-9

Sequeira, S. (2016). Corruption, trade costs, and gains from tariff liberalization: Evidence from Southern Africa. *American Economic Review*, *106*(10), 3029–3063.

Shleifer, A., &Vishny, R. W. (1993). Corruption. *The Quarterly Journal of Economics*, *108*(3), 599–617.

Siegel, J. I., Licht, A. N., &Schwartz, S. H. (2011). Egalitarianism and international investment. *Journal of Financial Economics*, *102*(3), 621–642.

Slangen, A. H. L., &Beugelsdijk, S. (2010). The impact of institutional hazards on foreign multinational activity: A contingency perspective. *Journal of International Business Studies*, *41*(6), 980–995.

Smith, J. D. (2016). US political corruption and firm financial policies. *Journal of Financial Economics*, *121*(2), 350–367.

Spolaore, E., &Wacziarg, R. (2016). Ancestry, language and culture. In VictorGinsburgh &S.Weber (Eds.), *The Palgrave Handbook of Economics and Language* (pp. 174–211). Palgrave Macmillan UK.

Stulz, R. M., &Williamson, R. (2003). Culture, openness, and finance. *Journal of Financial Economics*, *70*(3), 313–349.

Svensson, J. (2003). Who must pay bribes and how much? Evidence from a cross section of firms. *The Quarterly Journal of Economics*, *118*(1), 207–230.

Tirole, J. (1996). A theory of collective reputations (with applications to the persistence of corruption and to firm quality). *The Review of Economic Studies*, *63*(1), 1–22.

Treisman, D. (2000). The causes of corruption: a cross-national study. *Journal of Public Economics*, *76*(3), 399–457.
Voors, M. J., Bulte, È. H., &Damania, R. (2011). Income shocks and corruption in Africa: Does a virtuous cycle exist? *Journal of African Economies*, *20*(3), 395–418.
Wang, Y., &You, J. (2012). Corruption and firm growth: Evidence from China. *China Economic Review*, *23*(2), 415–433. https://doi.org/https://doi.org/10.1016/j.chieco.2012.03.003
Webster, A., &Piesse, J. (2018). Are foreign-owned firms more likely to pay bribes than domestic ones? Evidence from emerging markets. *World Development*, *101*, 142–161. https://doi.org/https://doi.org/10.1016/j.worlddev.2017.08.007
Wei, S.-J. (2000). How taxing is corruption on international investors? *The Review of Economics and Statistics*, *82*(1), 1–11.
Wilhelm, P. G. (2002). International validation of the Corruption Perceptions Index: Implications for business ethics and entrepreneurship education. *Journal of Business Ethics*, *35*(3), 177–189.
Xu, D., &Shenkar, O. (2002). Institutional distance and the multinational enterprise. *The Academy of Management Review*, *27*(4), 608–618.
You, J.-S., &Khagram, S. (2005). A comparative study of inequality and corruption. *American Sociological Review*, *70*(1), 136–157.
Zaheer, S. (1995). Overcoming the liability of foreignness. *Academy of Management Journal*, *38*(2), 341–363.
Zeng, Y., Shenkar, O., Lee, S., &Song, S. (2013). Cultural differences, MNE learning abilities, and the effect of experience on subsidiary mortality in a dissimilar culture: Evidence from Korean MNEs. *Journal of International Business Studies*, *44*(1), 42–65.
Zeume, S. (2017). Bribes and firm value. *The Review of Financial Studies*, *30*(5), 1457–1489.
Zhang, X. F. (2006). Information uncertainty and stock returns. *The Journal of Finance*, *61*(1), 105–137.
Zingales, L. (2015). The "cultural revolution" in finance. *Journal of Financial Economics*, *117*(1), 1–4.

Table 1: The operations of U.S. listed firms in the world and in Africa

	Number of Subsidiaries	Percent (%)
Panel A: Operations in the world		
America	496,696	68.35
Europe	150,101	20.66
Asia	58,872	8.10
Pacific	13,359	1.84
Africa	7,635	1.05
Total	726,663	100.00
Panel B: Operations in Africa		
South Africa	2,773	36.32
Mauritius	1,123	14.71
Egypt	750	9.82
Nigeria	475	6.22
Morocco	348	4.56
Liberia	314	4.11
Kenya	258	3.38
Tunisia	199	2.61
Zimbabwe	178	2.33
Botswana	113	1.48
Ghana	108	1.41
Algeria	96	1.26
Tanzania	90	1.18
Namibia	75	0.98
Zambia	74	0.97
Uganda	73	0.96
Angola	66	0.86
Malawi	57	0.75
Cameroon	49	0.64
Equatorial Guinea	49	0.64
Senegal	48	0.63
Mozambique	40	0.52
Congo-Brazzaville (Republic)	29	0.38
Swaziland	22	0.29
CÃ´te d'Ivoire	21	0.28
Gabon	20	0.26
Lesotho	19	0.25
Madagascar	18	0.24
Congo-Kinshasa (DR)	17	0.22
Mali	17	0.22
Guinea	15	0.20
Burkina Faso	14	0.18
Seychelles	14	0.18
Niger	13	0.17
Mauritania	10	0.13
Reunion	10	0.13
Chad	7	0.09
Ethiopia	7	0.09
Sierra Leone	7	0.09
Benin	5	0.07
Libya	5	0.07
Togo	3	0.04
Central African	2	0.03
Djibouti	1	0.01
Rwanda	1	0.01
Somalia	1	0.01
Sudan	1	0.01
Total	7,635	100.00

Table 2: Summary statistics

This table presents U.S. data. listed companies on the New York Stock Exchange (NYSE), NASDAQ, and AMEX over a period from 2004 to 2014. All variables are estimated based on firm-year observations. *The mean return* is computed as the geometric mean of the daily return after subtracting the risk-free rate. *Abnormal return* is calculated as the geometric compound of the daily abnormal returns after matching a firm's stock return with Fama and French's (2015) five factors as well as momentum (the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios). *CEI_CPI* is a corruption exposure index constructed according to Transparency International's Corruption Perceptions Index. *CEI_CCI* is a corruption exposure index constructed based on the World Banks' Control of Corruption Index. The data used to construct firm-level control variables, including abnormal returns, are from DataStream, and the data used to construct country-level variables and for robustness checks are from various sources. The descriptions and sources of all variables are detailed in Appendix II.

Variable	N	Mean	Median	Std. Dev.	Min	Max
Mean return	8,853	0.77	0.66	3.27	-10.27	10.19
Abnormal return	8,848	0.21	0.02	1.55	-1.13	15.17
CEI_CPI	8,858	2.72	2.65	0.61	0.65	7.44
CEI_CCI	8,858	1.10	1.07	0.28	0.11	3.44
LnTA	8,720	13.78	13.71	1.91	6.50	20.50
LnBTM	8,452	-0.83	-0.78	0.77	-3.22	4.23
Share traded (in million)	8,858	2.13	0.49	7.92	0.00	311.43
Price volatility	8,189	35.65	34.40	12.38	11.37	81.13
Ln(Intangible/Assets)	7,796	2.53	2.87	1.37	-4.71	4.52
Ln(RD/Expense)	5,279	1.69	1.94	1.43	-5.10	4.29
Diversification	8,769	3.67	3.00	2.00	1.00	8.00
CF volatility	2,503	0.47	0.28	0.82	0.00	23.84
Egalitarianism distance	8,833	0.12	0.11	0.10	0.00	0.59
Difference in law (%)	8,833	22.18	14.29	24.55	0.00	100.00
Common language (%)	8,833	77.82	85.71	24.55	0.00	100.00
Common religion (%)	8,833	75.01	79.31	23.11	0.00	100.00
Geographic distance (mkm)	8,833	2.60	2.26	2.27	0.00	16.01
Log of host country GDP	8,832	29.74	29.90	0.59	25.71	30.33
Corporate tax rate	8,833	39.60	40.13	4.38	12.50	45.20
Minor investors protection	8,833	66.13	65.62	2.91	45.67	81.67
Underemployment benefits	8,833	0.30	0.27	0.13	0.15	1.00
FNTN (%)	8,858	46.20	47.06	29.58	0.00	100.00
FATA (%)	6,945	14.80	5.91	20.71	0.00	92.37
FSTS (%)	7,855	33.42	30.91	26.44	0.00	99.00
FITI (%)	6,161	27.60	15.40	72.08	-252.26	375.28
Excess regulation	8,858	2.27	2.19	0.33	1.00	4.00
Black market	8,858	1.23	1.04	0.37	1.00	5.00
Conviction Butler(2009)	2,949	2.95	2.73	1.10	0.73	4.95
Conviction Dass(2016)	2,949	2.98	2.60	1.04	0.93	5.68
Conviction Smith(2016)	2,949	3.18	2.56	1.53	0.89	7.49

Table 3: Corruption exposure and the possibility of operations in Africa

This table reports the regression of the occurrence of African operation on corruption exposures controlling for other relevant factors. Panel A conducts subsidiary-level analysis with a probit model, where the dependent variable is a dummy variable that equals one if the subsidiary is in Africa and zero otherwise. Panel B conducts firm-level analysis with a Tobit model, where the dependent variable is the percentage of the firm's subsidiaries in Africa. All other independent variables are defined in Appendix II. The standard errors in Panel A are clustered on the country and in Panel B are clustered on the firm; the *t-statistics* are reported in parentheses. ***, **, and * represent significance levels of 10%, 5%, and 1%, respectively.

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Panel A: Subsidiary-level analysis				
Log of host country GDP	-0.552***	-0.517***	-0.530**	-0.146	-0.553***	-0.518***	-0.532**	-0.147
	(-6.20)	(-4.38)	(-2.39)	(-0.30)	(-6.21)	(-4.40)	(-2.40)	(-0.31)
CEI_CPI	0.286***	0.147**	0.209***	0.204**				
	(5.29)	(2.28)	(4.96)	(2.57)				
CEI_CCI					0.628***	0.312**	0.453***	0.444**
					(5.05)	(2.20)	(4.87)	(2.24)
Egalitarianism distance		-2.530***	-6.781***	-8.614**		-2.531***	-6.782***	-8.615**
		(-4.12)	(-2.89)	(-2.55)		(-4.12)	(-2.89)	(-2.54)
Different law family			2.208*	1.617			2.206	1.611
			(1.86)	(0.90)			(1.42)	(0.80)
Common language			3.041***	2.869***			3.040***	2.861*
			(2.65)	(3.34)			(5.24)	(1.82)
Common religion			2.597**	2.794***			2.599**	2.798***
			(2.44)	(2.58)			(2.44)	(2.58)
Geographic distance			-0.002	-0.015			-0.003	-0.015
			(-0.03)	(-0.13)			(-0.03)	(-0.13)
Corporate tax rate difference				-0.091*				-0.091*
				(-1.71)				(-1.71)
Minority investor protection				-0.116**				-0.116**
				(-2.02)				(-2.01)
Unemployment benefits				0.279				0.263
				(0.13)				(0.12)
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PseudoR^2	0.35	0.45	0.68	0.70	0.35	0.45	0.68	0.70
Observations	654,342	652,826	229,137	229,137	654,341	652,825	229,136	229,136

Continue to Table 3

Panel B: Firm-level analysis								
Log of total assets	0.433***	0.458***	0.489***	0.482***	0.431***	0.459***	0.490***	0.483***
	(16.04)	(12.98)	(11.22)	(11.05)	(16.07)	(13.00)	(11.23)	(11.04)
CEI_CPI	0.793***	0.868***	1.155***	1.341***				
	(13.06)	(10.65)	(9.53)	(10.25)				
CEI_CCI					1.629***	1.806***	2.474***	2.887***
					(12.30)	(10.08)	(9.31)	(10.07)
Intangible assets/Total assets		0.117**	0.089	0.087		0.114**	0.092*	0.091
		(2.45)	(1.63)	(1.54)		(2.40)	(1.67)	(1.60)
R&D/Operating expenditure		-0.055	-0.127*	-0.126*		-0.05	-0.125*	-0.124*
		(-0.97)	(-1.87)	(-1.84)		(-0.89)	(-1.84)	(-1.81)
Business diversification		0.047	0.12	0.099		0.043	0.117	0.094
		(0.43)	(1.02)	(0.84)		(0.40)	(1.00)	(0.80)
Egalitarianism distance			-5.709**	-7.113***			-5.979**	-7.672***
			(-2.47)	(-2.71)			(-2.55)	(-2.90)
Different law family			0.530***	0.166			0.551***	0.202
			(3.39)	(0.95)			(3.51)	(1.17)
Common language			0.785**	0.756			0.730**	0.608
			(2.29)	(1.64)			(2.14)	(1.34)
Common religion			1.826***	2.102***			1.830***	2.131***
			(7.15)	(7.83)			(7.09)	(7.89)
Geographic distance			0.402***	0.382***			0.395***	0.372***
			(6.39)	(5.22)			(6.20)	(5.05)
Log of host country GDP			-1.245***	-0.53			-1.319***	-0.607
			(-4.13)	(-1.43)			(-4.29)	(-1.64)
Corporate tax rate difference				-3.259**				-3.300**
				(-2.21)				(-2.24)
Minority investor protection				-0.171				0.569
				(-0.06)				(0.21)
Unemployment benefits				1.723***				1.695***
				(3.82)				(3.71)
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PseudoR^2	0.36	0.41	0.48	0.49	0.35	0.40	0.48	0.49
Observations	11,751	6,474	4,866	4,866	11,755	6,474	4,866	4,866

Table 4: Univariate analysis

This table reports the results of univariate analysis for annual returns of U.S. listed firms with low and high corruption exposure and with and without African operation. Firms with low and high corruption exposure are determined by the median of the degree of corruption exposure. Panel A measures corruption by Transparency International's Corruption Perceptions Index (*CPI*), and Panel B measures corruption by the World Banks' Control of Corruption Index (*CCI*). A firm has African operations if it has at least one subsidiary in Africa. *The mean return* is computed as the geometric mean of the daily return after subtracting the risk-free rate. The test for the difference of the means is measured using a standard two-tailed t test, and the t-statistics are reported in parentheses. ***, **, and * represent significance levels of 10%, 5%, and 1%, respectively.

	High corruption exposure (High)	Low corruption exposure (Low)	High minus Low (t-statistics)
Panel A: Using CPI as the measure of Corruption			
With African operation (With)	0.0031	-0.0162	0.0193 (1.21)
Without Africa operation (Without)	-0.0209	-0.0151	-0.0058 (1.17)
With minus Without	0.0240***	0.0011	0.0208***
(t-statistics)	(3.42)	(0.03)	(3.12)
Panel B: Using CCI as the measure of Corruption			
With African operation (With)	0.0032	-0.0141	0.0173 (1.15)
Without Africa operation (Without)	-0.0215	-0.0147	-0.0068 (1.40)
With minus Without	0.0247***	0.0006	0.0208***
(t-statistics)	(3.49)	(0.03)	(3.10)

Table 5: Abnormal return for firms according to corruption portfolio

This table reports the portfolio analysis of daily abnormal returns for firms *without* and *with* operations in Africa. A firm has African operations if it has at least one subsidiary in Africa. Portfolios are formed by weighting each firm by its relative value of a given lagged corruption exposure. Panel A measures corruption by Transparency International's Corruption Perceptions Index (*CPI*), and Panel B measures corruption by the World Banks' Control of Corruption Index (*CCI*). The portfolio is rebalanced once a year. The weight given to stock *i* in the portfolio is

$$W_{i,t}^{p} = {CEI_{i,t}^{p}}\Big/{\sum_{i=1}^{N} CEI_{i,t}^{p}}$$

where *p* equals the portfolio for a particular corruption exposure index (*CEI_CPI* or *CEI_CCI*) and $CEI_{i,t}^{p}$ is the corruption exposure index value for firm *i* in year *t*. We form a time series of daily returns to each portfolio from 2004 to 2014. We regress the time series of portfolio returns in the excess of the risk-free rate on the market risk premium from the market model (*CAPM*), Fama and French (1992, 1993) model (*Three-factor*), Fama and French's (1992, 1993) model plus Carhart's (1997) momentum factor (*Four-factor*), Fama and French's (2015) five-factor model (*Five-factor*), and Fama and French's (2015) five-factor model plus Carhart's (1997) momentum factor (*Six-factor*) for each portfolio. Returns are in decimal form, that is, 0.01 is 1%. *T*-statistics are in parentheses. ***, **, and * represent significance levels of 10%, 5%, and 1%, respectively.

Model	Africa operation	Alpha	MKT	SMB	HML	MOM	RMW	CMA
Panel A: CEI_CPI weighted portfolios								
CAPM	Without	***-0.00003******	0.00072***					
		(-16.45)	(716.99)					
	With	***0.00005***	0.00115***					
		(0.92)	(34.62)					
Three-factor	Without	***-0.00003******	0.00068***	0.00054***	0.00005***			
		(-19.23)	(584.40)	(225.59)	(22.71)			
	With	***0.00004***	0.00119***	0.00027***	-0.00024***			
		(0.84)	(30.68)	(3.42)	(-3.34)			
Four-factor	Without	***-0.00003******	0.00068***	0.00054***	0.00005***	0.00000		
		(-19.24)	(567.38)	(224.46)	(18.72)	(-1.51)		
	With	***0.00004***	0.00121***	0.00026***	-0.00018**	0.00008		
		(0.85)	(30.25)	(3.23)	(-2.10)	(1.51)		
Five-factor	Without	***-0.00003******	0.00066***	0.00053***	-0.00010***		-0.00021***	0.00004***
		(-16.66)	(551.82)	(211.79)	(-40.27)		(-43.61)	(7.71)
	With	***0.00005***	0.00119***	0.00021**	-0.00038***		-0.00032**	0.00024
		(0.96)	(29.36)	(2.53)	(-4.66)		(-1.99)	(1.42)
Six factor	Without	***-0.00003******	0.00066***	0.00053***	-0.00009***	0.00001***	-0.00021***	0.00003***
		(-16.59)	(543.55)	(210.67)	(-33.24)	(4.18)	(-43.80)	(6.63)
	With	***0.00005***	0.00120***	0.00020**	-0.00032***	0.00008	-0.00033**	0.00018
		(0.99)	(29.20)	(2.41)	(-3.37)	(1.40)	(-2.07)	(1.05)
Panel B: CEI_CCI weighted portfolios								
CAPM	Without	***-0.00003******	0.00072***					
		(-16.28)	(710.75)					
	With	***0.00005***	0.00116***					
		(0.91)	(34.98)					
Three-factor	Without	***-0.00003******	0.00067***	0.00053***	0.00005***			
		(-19.03)	(579.00)	(223.13)	(23.03)			
	With	***0.00004***	0.00121***	0.00028***	-0.00024***			
		(0.83)	(30.98)	(3.47)	(-3.34)			
Four-factor	Without	***-0.00003******	0.00067***	0.00053***	0.00005***	0.00000		
		(-19.03)	(562.18)	(221.99)	(19.10)	(-1.29)		
	With	***0.00004***	0.00122***	0.00026***	-0.00018**	0.00008		
		(0.84)	(30.54)	(3.28)	(-2.10)	(1.52)		
Five-factor	Without	***-0.00003******	0.00066***	0.00052***	-0.00009***		-0.00020***	0.00004***
		(-16.52)	(546.81)	(209.58)	(-39.03)		(-42.51)	(7.59)
	With	***0.00005***	0.00120***	0.00022***	-0.00038***		-0.00032**	0.00024
		(0.95)	(29.65)	(2.59)	(-4.67)		(-1.98)	(1.41)
Six factor	Without	***-0.00003******	0.00066***	0.00052***	-0.00009***	0.00001***	-0.00020***	0.00003***
		(-16.46)	(538.64)	(208.46)	(-32.09)	(4.31)	(-42.72)	(6.49)
	With	***0.00005***	0.00121***	0.00021**	-0.00032***	0.00008	-0.00033**	0.00018
		(0.98)	(29.48)	(2.46)	(-3.37)	(1.41)	(-2.06)	(1.03)

Table 6: Determinants of abnormal returns: Results from the two-stage panel regressions for African operations and corruption profits

This table presents regressions of annual abnormal returns, calculated from Fama and French's (2015) five-factor model plus Carhart's (1997) momentum factor, on lagged corruption exposure, control variables, and the inverse Mills ratio (IMR). *High_CEI* is the degree of corruption exposure above the median. Panel A measures corruption by Transparency International's Corruption Perceptions Index (CPI). Panel B measures corruption by the World Bank's Control of Corruption Index (CCI). *High_CEI with African Sub* is firms that have African operations and high corruption exposure. We control for market-related variables (*Ln(Assets), Ln(BM), Trading volume*, and *Price volatility*), firm-level variables (*Ln(Intangible/Assets), Ln(R&D/Expenditure), Ln(Diversification)*, and *CF volatility*), country-level variables (*Egalitarianism distance, Different law family, Common language, Common religion, Geographic distance, Log of host country GDP, Corporate tax rate difference, Minority investor protection*, and *Unemployment benefits*), and four different measures of the degree of foreign operations (*FNTN, FATA, FSTS, FITI*). Details on the description and construction of these variables are provided in Appendix II. *T*-statistics based on White-corrected robust standard errors clustered on the firm are in parentheses. ***, **, and * represent significance levels of 10%, 5%, and 1%, respectively.

Model	Classic	Firm	Country	Foreign operation			
Panel A: Using CPI as the measure of Corruption							
Intercept	24.306***	1.814***	-37.715*	-35.973*	-53.212**	-34.470*	-32.400*
	(3.95)	(6.86)	(-2.26)	(-2.19)	(-3.07)	(-2.19)	(-2.06)
IMR	-3.747**	-0.521**	-0.339**	-0.365**	-0.330**	-0.322**	-0.396***
	(-3.37)	(-2.72)	(-2.78)	(-2.95)	(-2.65)	(-2.78)	(-4.15)
High_CEI	***2.967****	***0.012***	***-0.054***	***-0.077***	***-0.004***	***-0.037***	***-0.095***
	(2.45)	***(0.20)***	***(-0.71)***	***(-0.95)***	***(-0.03)***	***(-0.49)***	***(-1.06)***
High_CEI with African Sub	***6.091****	***1.049****	***0.812****	***0.821****	***0.800****	***0.781****	***0.897****
	(3.15)	***(2.55)***	***(2.58)***	***(2.74)***	***(2.51)***	***(2.55)***	***(2.77)***
Ln(Assets)	-2.198***	-0.095***	-0.044	-0.048	-0.03	-0.034	-0.055
	(-3.80)	(-4.61)	(-1.34)	(-1.48)	(-0.90)	(-0.91)	(-1.58)
Ln(BM)	5.492**	0.612**	0.458**	0.452**	0.561**	0.435*	0.524**
	(2.55)	(2.74)	(2.49)	(2.49)	(2.74)	(2.43)	(2.64)
Trading volume	0.111**	-0.006	-0.005	-0.005	-0.004	-0.007	-0.003
	(2.61)	(-1.27)	(-1.07)	(-0.95)	(-1.01)	(-1.23)	(-1.07)
Price volatility	0.406**	0.094***	0.088***	0.088***	0.085***	0.090***	0.088***
	(3.23)	(5.48)	(5.52)	(5.47)	(5.64)	(5.36)	(5.48)
Ln(Intangible/Assets)		-0.197***	-0.166**	-0.164**	-0.086***	-0.156**	-0.199***
		(-3.88)	(-3.39)	(-3.45)	(-4.19)	(-3.30)	(-4.39)
Ln(R&D/Expenditure)		-0.221***	-0.185***	-0.188***	-0.188***	-0.197***	-0.200***
		(-4.92)	(-5.39)	(-5.40)	(-5.11)	(-4.94)	(-4.59)
Ln(Diversification)		-0.115**	-0.144**	-0.164**	-0.114**	-0.112**	-0.150**
		(-2.90)	(-3.12)	(-3.35)	(-2.55)	(-2.98)	(-2.59)
CF volatility		0.262**	0.166*	0.165*	0.150*	0.172**	0.174**
		(3.52)	(2.36)	(2.35)	(2.08)	(2.59)	(2.62)
Egalitarianism distance			2.762	2.97	2.663	2.44	3.924
			(1.23)	(1.21)	(0.94)	(0.99)	(1.35)
Different law family			-0.298	-0.318	-0.447	-0.302	-0.335**
			(-1.59)	(-1.65)	(-1.81)	(-1.54)	(-2.57)
Common language			-1.668**	-1.619**	-2.150**	-1.471**	-1.513**
			(-3.25)	(-3.25)	(-3.50)	(-3.50)	(-3.31)
Common religion			0.897**	0.839**	0.698**	0.898**	0.874**
			(2.63)	(2.57)	(2.68)	(2.75)	(3.17)
Geographic distance			0.037	0.028	0.051**	0.035	0.042
			(1.23)	(0.99)	(3.27)	(1.23)	(1.52)
Log of host country GDP			0.487	0.514	0.619	0.379	0.429
			(1.15)	(1.19)	(1.48)	(0.90)	(1.46)
Corporate tax rate difference			1.199***	1.285***	1.026**	1.499***	1.332
			(3.81)	(4.12)	(2.91)	(3.75)	(1.63)
Minority investor protection			4.414**	3.724**	7.074***	4.097**	3.481
			(2.92)	(2.60)	(3.93)	(3.12)	(1.63)
Unemployment benefits			-0.171	-0.176	-0.332	-0.035	-0.175
			(-0.52)	(-0.55)	(-1.41)	(-0.10)	(-0.61)
FNTN				0.108			
				(0.70)			
FATA					0.002		
					(1.83)		
FSTS						0.004*	
						(2.41)	
FITI							0.00
							(-1.19)
F value	9.35	12.22	7.90	7.74	8.32	7.50	7.36
Avg.R^2	0.191	0.513	0.561	0.561	0.579	0.565	0.572
Number of observations	7,907	1,269	1,128	1,128	993	1,110	928

Continue to Table 6

Panel B: Using CCI as the measure of Corruption							
Intercept	24.513***	1.849***	-36.505*	-33.977*	-52.059**	-33.574*	-29.284*
	(3.98)	(6.24)	(-2.16)	(-2.07)	(-2.95)	(-2.12)	(-1.98)
IMR	-3.883**	-0.501**	-0.323***	-0.347***	-0.309**	-0.306**	-0.396***
	(-3.29)	(-3.03)	(-3.77)	(-3.88)	(-3.59)	(-3.68)	(-4.15)
High_CEI	***2.302****	***0.019***	***-0.037***	***-0.054***	***0.003***	***-0.026***	***-0.066***
	(2.45)	***(0.36)***	***(-0.57)***	***(-0.75)***	***(0.03)***	***(-0.40)***	***(-1.00)***
High_CEI with African Sub	***6.640****	***1.037****	***0.813****	***0.820****	***0.793****	***0.782****	***0.901****
	(3.28)	***(2.85)***	***(3.12)***	***(3.32)***	***(3.07)***	***(3.05)***	***(3.30)***
Ln(Assets)	-2.197***	-0.096***	-0.049	-0.052	-0.035	-0.039	-0.066
	(-3.79)	(-4.55)	(-1.35)	(-1.44)	(-0.97)	(-0.95)	(-1.75)
Ln(BM)	5.476**	0.612**	0.460**	0.454**	0.558**	0.437**	0.527**
	(2.55)	(2.80)	(2.54)	(2.54)	(2.81)	(2.49)	(2.70)
Trading volume	0.111**	-0.006	-0.005	-0.004	-0.003	-0.006	-0.003
	(2.61)	(-1.23)	(-0.93)	(-0.80)	(-0.84)	(-1.13)	(-0.78)
Price volatility	0.408**	0.094***	0.088***	0.088***	0.085***	0.090***	0.088***
	(3.24)	(5.42)	(5.43)	(5.37)	(5.49)	(5.30)	(5.35)
Ln(Intangible/Assets)		-0.202***	-0.170**	-0.168**	-0.088***	-0.159**	-0.209***
		(-3.94)	(-3.55)	(-3.60)	(-4.71)	(-3.47)	(-4.44)
Ln(R&D/Expenditure)		-0.222***	-0.187***	-0.189***	-0.190***	-0.198***	-0.204***
		(-4.82)	(-5.04)	(-5.05)	(-4.85)	(-4.60)	(-4.36)
Ln(Diversification)		-0.113**	-0.143**	-0.163**	-0.113**	-0.111**	-0.150**
		(-2.99)	(-3.17)	(-3.49)	(-2.85)	(-3.07)	(-2.62)
CF volatility		0.263**	0.169*	0.168*	0.153*	0.175**	0.176**
		(3.67)	(2.43)	(2.43)	(2.16)	(2.67)	(2.73)
Egalitarianism distance			3.277	3.603	3.336	2.983	4.685
			(1.41)	(1.40)	(1.12)	(1.17)	(1.57)
Different law family			-0.305	-0.323	-0.452	-0.308	-0.343**
			(-1.69)	(-1.71)	(-1.89)	(-1.62)	(-2.88)
Common language			-1.619**	-1.549**	-2.087**	-1.422**	-1.418**
			(-3.21)	(-3.18)	(-3.45)	(-3.47)	(-3.31)
Common religion			0.929**	0.875**	0.740**	0.925**	0.915**
			(2.64)	(2.60)	(2.67)	(2.75)	(3.14)
Geographic distance			0.029	0.02	0.046**	0.03	0.027
			(0.89)	(0.67)	(2.48)	(0.97)	(0.97)
Log of host country GDP			0.461	0.475	0.596	0.359	0.389
			(1.09)	(1.10)	(1.39)	(0.85)	(1.35)
Corporate tax rate difference			1.340***	1.420***	1.214**	1.656***	1.422
			(3.89)	(4.06)	(3.20)	(3.77)	(1.70)
Minority investor protection			4.203**	3.422**	6.805***	3.902**	2.987
			(2.99)	(2.66)	(4.07)	(3.32)	(1.58)
Unemployment benefits			-0.159	-0.165	-0.327	-0.028	-0.162
			(-0.48)	(-0.50)	(-1.34)	(-0.08)	(-0.56)
FNTN				0.072			
				(0.36)			
FATA					0.002*		
					(1.96)		
FSTS						0.004*	
						(2.19)	
FITI							0.00
							(-1.31)
F value	9.45	12.55	8.27	8.02	8.80	7.83	7.79
Avg.R^2	0.191	0.513	0.56	0.562	0.579	0.564	0.572
Number of observations	7,907	1,269	1,128	1,128	993	1,110	928

Table 7: Propensity score match of African operations

This table reports the results of propensity score matches for African operations of U.S. listed firms with African operations of Chinese listed firms. Panel A reports the results for all U.S. firms. Panels B and C report the results for firms with high and low corruption exposures, respectively. In Panel B, corruption is measured by Transparency International's Corruption Perceptions Index (CPI), and in Panel C, corruption is measured by the World Banks' Control of Corruption Index (CCI). We match the U.S. and Chinese listed firms that have African operations with the market (Beta, trading volume, and stock price volatility) and corporate characteristics (firm size, the book to market equity ratio, the tax to EBIT artio, intangibles to total assets, business diversification, and cash flow volatility). Details on the description and construction of these variables are provided in Appendix II. We use four different propensity score matching techniques: ATET nearest neighbor is the average effect of the treatment on the treated based on nearest neighbor matching. ATET radius matching is the average effect of the treatment on the treated based on the radius matching technique. ATET kernel match is the average effect of the treatment on the treated by matching with kernel weighting. ATET stratification matching is the average effect of the treatment on the treated by matching with stratification technique. The sample covers the listed U.S. multinationals from 2004 to 2014. The results are obtained from bootstrapping 5 times. Numbers in parentheses report t-statistics based on White-corrected robust standard errors clustered on the firm. *, **, and *** stand for the 10%, 5%, and 1% significance levels, respectively.

	Dependent variable: Abnormal Return				
	Panel A	Panel B: CPI measuring corruption		Panel C: CCI measuring corruption	
	All U.S. firm with African operation	High CEI U.S. firm with African operation	Low CEI U.S. firm with African operation	High CEI U.S. firm with African operation	Low CEI U.S. firm with African operation
ATET nearest neighbor	9.930***	34.580***	0.805	7.033*	--
	(15.17)	(12.82)	(0.31)	(1.72)	--
ATET radius matching	9.951***	39.115***	4.316***	32.236***	5.789***
	(18.86)	(2.59)	(2.59)	(2.78)	(2.90)
ATET kernel matching	9.945***	4.423***	1.901***	4.451***	1.959***
	(10.98)	(4.33)	(10.29)	(3.23)	(17.84)
ATET stratification matching	9.532***	4.425***	1.915	4.450***	1.958**
	(10.06)	(4.80)	(1.09)	(3.54)	(2.24)

Appendix I. A: The Corruption Perception Index (CPI), 2004 - 2014

Country/Territory	Area	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	***CPI***
Botswana	AF	6.00	5.90	5.60	5.40	5.80	5.60	5.80	6.10	6.50	6.40	6.30	***5.95***
Cape Verde	AF				4.90	5.10	5.10	5.10	5.50	6.00	5.80	5.70	***5.40***
Mauritius	AF	4.10	4.20	5.10	4.70	5.50	5.40	5.40	5.10	5.70	5.20	5.40	***5.07***
Seychelles	AF	4.40	4.00	3.60	4.50	4.80	4.80	4.80	4.80	5.20	5.40	5.50	***4.71***
South Africa	AF	4.60	4.50	4.60	5.10	4.90	4.70	4.50	4.10	4.30	4.20	4.40	***4.54***
Namibia	AF	4.10	4.30	4.10	4.50	4.50	4.50	4.40	4.40	4.80	4.80	4.90	***4.48***
Ghana	AF	3.60	3.50	3.30	3.70	3.90	3.90	4.10	3.90	4.50	4.60	4.80	***3.98***
Rwanda	AF		3.10	2.50	2.80	3.00	3.30	4.00	5.00	5.30	5.30	4.90	***3.92***
Lesotho	AF		3.40	3.20	3.30	3.20	3.30	3.50	3.50	4.50	4.90	4.90	***3.77***
Burkina Faso	AF		3.40	3.20	2.90	3.50	3.60	3.10	3.00	3.80	3.80	3.80	***3.41***
Senegal	AF	3.00	3.20	3.30	3.60	3.40	3.00	2.90	2.90	3.60	4.10	4.30	***3.39***
Swaziland	AF		2.70	2.50	3.30	3.60	3.60	3.20	3.10	3.70	3.90	4.30	***3.39***
Sao Tome and Principe	AF				2.70	2.70	2.80	3.00	3.00	4.20	4.20	4.20	***3.35***
Djibouti	AF				2.90	3.00	2.80	3.20	3.00	3.60	3.60	3.40	***3.19***
Gabon	AF	3.30	2.90	3.00	3.30	3.10	2.90	2.80	3.00	3.50	3.40	3.70	***3.17***
Benin	AF	3.20	2.90	2.50	2.70	3.10	2.90	2.80	3.00	3.60	3.60	3.90	***3.11***
Malawi	AF	2.80	2.80	2.70	2.70	2.80	3.30	3.40	3.00	3.70	3.70	3.30	***3.11***
Liberia	AF		2.20		2.10	2.40	3.10	3.30	3.20	4.10	3.80	3.70	***3.10***
Zambia	AF	2.60	2.60	2.60	2.60	2.80	3.00	3.00	3.20	3.70	3.80	3.80	***3.06***
Madagascar	AF	3.10	2.80	3.10	3.20	3.40	3.00	2.60	3.00	3.20	2.80	2.80	***3.00***
Tanzania	AF	2.80	2.90	2.90	3.20	3.00	2.60	2.70	3.00	3.50	3.30	3.10	***3.00***
Mali	AF	3.20	2.90	2.80	2.70	3.10	2.80	2.70	2.80	3.40	2.80	3.20	***2.95***
Gambia	AF	2.80	2.70	2.50	2.30	1.90	2.90	3.20	3.50	3.40	2.80	2.90	***2.81***
Mozambique	AF	2.80	2.80	2.80	2.80	2.60	2.50	2.70	2.70	3.10	3.00	3.10	***2.81***
Niger	AF	2.20	2.40	2.30	2.60	2.80	2.90	2.60	2.50	3.30	3.40	3.50	***2.77***
Mauritania	AF			3.10	2.60	2.80	2.50	2.30	2.40	3.10	3.00	3.00	***2.76***
Ethiopia	AF	2.30	2.20	2.40	2.40	2.60	2.70	2.70	2.70	3.30	3.30	3.30	***2.72***
Togo	AF			2.40	2.30	2.70	2.80	2.40	2.40	3.00	2.90	2.90	***2.64***
Uganda	AF	2.60	2.50	2.70	2.80	2.60	2.50	2.50	2.40	2.90	2.60	2.60	***2.61***
Comoros	AF				2.60	2.50	2.30	2.10	2.40	2.80	2.80	2.60	***2.51***
Eritrea	AF	2.60	2.60	2.90	2.80	2.60	2.60	2.60	2.50	2.50	2.00	1.80	***2.50***
Sierra Leone	AF	2.30	2.40	2.20	2.10	1.90	2.20	2.40	2.50	3.10	3.00	3.10	***2.47***
Cameroon	AF	2.10	2.20	2.30	2.40	2.30	2.20	2.20	2.50	2.60	2.50	2.70	***2.36***
Nigeria	AF	1.60	1.90	2.20	2.20	2.70	2.50	2.40	2.40	2.70	2.50	2.70	***2.35***
Côte d´Ivoire	AF	2.00	1.90	2.10	2.10	2.00	2.10	2.20	2.20	2.90	2.70	3.20	***2.31***
Kenya	AF	2.10	2.10	2.20	2.10	2.10	2.20	2.10	2.20	2.70	2.70	2.50	***2.27***
Central African Republic	AF			2.40	2.00	2.00	2.00	2.10	2.20	2.60	2.50	2.40	***2.24***
Zimbabwe	AF	2.30	2.60	2.40	2.10	1.80	2.20	2.40	2.20	2.00	2.10	2.10	***2.20***
Congo Republic	AF	2.30	2.30	2.20	2.10	1.90	1.90	2.10	2.20	2.60	2.20	2.30	***2.19***
Guinea-Bissau	AF				2.20	1.90	1.90	2.10	2.20	2.50	1.90	1.90	***2.08***
Guinea	AF			1.90	1.90	1.60	1.80	2.00	2.10	2.40	2.40	2.50	***2.07***
Burundi	AF		2.30	2.40	2.50	1.90	1.80	1.80	1.90	1.90	2.10	2.00	***2.06***
Angola	AF	2.00	2.00	2.20	2.20	1.90	1.90	1.90	2.00	2.20	2.30	1.90	***2.05***
Democratic Republic of the Congo	AF	2.00	2.10	2.00	1.90	1.70	1.90	2.00	2.00	2.10	2.20	2.20	***2.01***
Equatorial Guinea	AF		1.90	2.10	1.90	1.70	1.80	1.90	1.90	2.00	1.90		***1.90***
Chad	AF	1.70	1.70	2.00	1.80	1.60	1.60	1.70	2.00	1.90	1.90	2.20	***1.83***
South Sudan	AF										1.40	1.50	***1.45***
Somalia	AF		2.10		1.40	1.00	1.10	1.10	1.00	0.80	0.80	0.80	***1.12***
Canada	AM	8.50	8.40	8.50	8.70	8.70	8.70	8.90	8.70	8.40	8.10	8.10	***8.52***
United States	AM	7.50	7.60	7.30	7.20		7.50	7.10	7.10	7.30	7.30	7.40	***7.33***
Barbados	AM	7.30	6.90	6.70	6.90	7.00	7.40	7.80	7.80	7.60	7.50	7.40	***7.30***
Bahamas	AM								7.30	7.10	7.10	7.10	***7.15***
Chile	AM	7.40	7.30	7.30	7.00	6.90	6.70	7.20	7.20	7.20	7.10	7.30	***7.15***
Saint Lucia	AM				6.80	7.10	7.00		7.00	7.10	7.10	7.10	***7.03***
Uruguay	AM	6.20	5.90	6.40	6.70	6.90	6.70	6.90	7.00	7.20	7.30	7.30	***6.77***
Saint Vincent and the Grenadines	AM				6.10	6.50	6.40		5.80	6.20	6.20	6.20	***6.20***
Puerto Rico	AM					5.80	5.80	5.80	5.60	6.30	6.20	6.30	***5.97***
Dominica	AM			4.50	5.60	6.00	5.90	5.20	5.20	5.80	5.80	5.80	***5.53***
Costa Rica	AM	4.90	4.20	4.10	5.00	5.10	5.30	5.30	4.80	5.40	5.30	5.40	***4.98***
Cuba	AM	3.70	3.80	3.50	4.20	4.30	4.40	3.70	4.20	4.80	4.60	4.60	***4.16***
El Salvador	AM	4.20	4.20	4.00	4.00	3.90	3.40	3.60	3.40	3.80	3.80	3.90	***3.84***
Brazil	AM	3.90	3.70	3.30	3.50	3.50	3.70	3.70	3.80	4.30	4.20	4.30	***3.81***
Colombia	AM	3.80	4.00	3.90	3.80	3.80	3.70	3.50	3.40	3.60	3.60	3.70	***3.71***
Trinidad and Tobago	AM	4.20	3.80	3.20	3.40	3.60	3.60	3.60	3.20	3.90	3.80	3.80	***3.65***
Peru	AM	3.50	3.50	3.30	3.50	3.60	3.70	3.50	3.40	3.80	3.80	3.80	***3.58***
Suriname	AM	4.30	3.20	3.00	3.50	3.60	3.70		3.00	3.70	3.60	3.60	***3.52***
Panama	AM	3.70	3.50	3.10	3.20	3.40	3.40	3.60	3.30	3.80	3.50	3.70	***3.47***
Jamaica	AM	3.30	3.60	3.70	3.30	3.10	3.00	3.30	3.30	3.80	3.80	3.80	***3.45***
Grenada	AM			3.50	3.40								***3.45***
Mexico	AM	3.60	3.50	3.30	3.50	3.60	3.30	3.10	3.00	3.40	3.40	3.50	***3.38***
Belize	AM	3.80	3.70	3.50	3.00	2.90							***3.38***
Argentina	AM	2.50	2.80	2.90	2.90	2.90	2.90	2.90	3.00	3.50	3.40	3.40	***3.01***
Dominican Republic	AM	2.90	3.00	2.80	3.00	3.00	3.00	3.00	2.60	3.20	2.90	3.20	***2.96***
Bolivia	AM	2.20	2.50	2.70	2.90	3.00	2.70	2.80	2.80	3.40	3.40	3.50	***2.90***

Guatemala	AM	2.20	2.50	2.60	2.80	3.10	3.40	3.20	2.70	3.30	2.90	3.20	***2.90***
Guyana	AM		2.50	2.50	2.60	2.60	2.60	2.70	2.50	2.80	2.70	3.00	***2.65***
Nicaragua	AM	2.70	2.60	2.60	2.60	2.50	2.50	2.50	2.50	2.90	2.80	2.80	***2.64***
Ecuador	AM	2.40	2.50	2.30	2.10	2.00	2.20	2.50	2.70	3.20	3.50	3.30	***2.61***
Honduras	AM	2.30	2.60	2.50	2.50	2.60	2.50	2.40	2.60	2.80	2.60	2.90	***2.57***
Paraguay	AM	1.90	2.10	2.60	2.40	2.40	2.10	2.20	2.20	2.50	2.40	2.40	***2.29***
Venezuela	AM	2.30	2.30	2.30	2.00	1.90	1.90	2.00	1.90	1.90	2.00	1.90	***2.04***
Haiti	AM	1.50	1.80	1.80	1.60	1.40	1.80	2.20	1.80	1.90	1.90	1.90	***1.78***
New Zealand	AP	9.60	9.60	9.60	9.40	9.30	9.40	9.30	9.50	9.00	9.10	9.10	***9.35***
Singapore	AP	9.30	9.40	9.40	9.30	9.20	9.20	9.30	9.20	8.70	8.60	8.40	***9.09***
Australia	AP	8.80	8.80	8.70	8.60	8.70	8.70	8.70	8.80	8.50	8.10	8.00	***8.58***
Hong Kong	AP	8.00	8.30	8.30	8.30	8.10	8.20	8.40	8.40	7.70	7.50	7.40	***8.05***
Japan	AP	6.90	7.30	7.60	7.50	7.30	7.70	7.80	8.00	7.40	7.40	7.60	***7.50***
Taiwan	AP	5.60	5.90	5.90	5.70	5.70	5.60	5.80	6.10	6.10	6.10	6.10	***5.87***
Bhutan	AP			6.00	5.00	5.20	5.00	5.70	5.70	6.30	6.30	6.50	***5.74***
Brunei Darussalam	AP						5.50	5.50	5.20	5.50	6.00		***5.54***
Macau	AP			6.60	5.70	5.40	5.30	5.00	5.10				***5.52***
Korea (South)	AP		4.50	5.00	5.10		5.50	5.40	5.40	5.60	5.50	5.50	***5.28***
Malaysia	AP	5.00	5.10	5.00	5.10	5.10	4.50	4.40	4.30	4.90	5.00	5.20	***4.87***
Samoa	AP				4.50	4.40	4.50	4.10	3.90				***4.28***
Fiji	AP		4.00										***4.00***
China	AP	3.40	3.20	3.30	3.50	3.60	3.60	3.50	3.60	3.90	4.00	3.60	***3.56***
Thailand	AP	3.60	3.80	3.60	3.30	3.50	3.40	3.50	3.40	3.70	3.50	3.80	***3.55***
Sri Lanka	AP	3.50	3.20	3.10	3.20	3.20	3.10	3.20	3.30	4.00	3.70	3.80	***3.39***
India	AP	2.80	2.90	3.30	3.50	3.40	3.40	3.30	3.10	3.60	3.60	3.80	***3.34***
Vanuatu	AP				3.10	2.90	3.20	3.60	3.50				***3.26***
Mongolia	AP	3.00	3.00	2.80	3.00	3.00	2.70	2.70	2.70	3.60	3.80	3.90	***3.11***
Kiribati	AP				3.30	3.10	2.80	3.20	3.10				***3.10***
Solomon Islands	AP				2.80	2.90	2.80	2.80	2.70				***2.80***
Vietnam	AP	2.60	2.60	2.60	2.60	2.70	2.70	2.70	2.90	3.10	3.10	3.10	***2.79***
Philippines	AP	2.60	2.50	2.50	2.50	2.30	2.40	2.40	2.60	3.40	3.60	3.80	***2.78***
Indonesia	AP	2.00	2.20	2.40	2.30	2.60	2.80	2.80	3.00	3.20	3.20	3.40	***2.72***
Maldives	AP				3.30	2.80	2.50	2.30	2.50				***2.68***
Tonga	AP				1.70	2.40	3.00	3.00	3.10				***2.64***
Timor-Leste	AP			2.60	2.60	2.20	2.20	2.50	2.40	3.30	3.00	2.80	***2.62***
Nepal	AP	2.80	2.50	2.50	2.50	2.70	2.30	2.20	2.20	2.70	3.10	2.90	***2.58***
Pakistan	AP	2.10	2.10	2.20	2.40	2.50	2.40	2.30	2.50	2.70	2.80	2.90	***2.45***
Laos	AP		3.30	2.60	1.90	2.00	2.00	2.10	2.20	2.10	2.60	2.50	***2.33***
Papua New Guinea	AP	2.60	2.30	2.40	2.00	2.00	2.10	2.10	2.20	2.50	2.50	2.50	***2.29***
Bangladesh	AP	1.50	1.70	2.00	2.00	2.10	2.40	2.40	2.70	2.60	2.70	2.50	***2.24***
Cambodia	AP		2.30	2.10	2.00	1.80	2.00	2.10	2.10	2.20	2.00	2.10	***2.07***
Myanmar	AP	1.70	1.80	1.90	1.40	1.30	1.40	1.40	1.50	1.50	2.10	2.10	***1.65***
Afghanistan	AP		2.50		1.80	1.50	1.30	1.40	1.50	0.80	0.80	1.20	***1.42***
Korea (North)	AP								1.00	0.80	0.80	0.80	***0.85***
Turkey	EE	3.20	3.50	3.80	4.10	4.60	4.40	4.40	4.20	4.90	5.00	4.50	***4.24***
Georgia	EE	2.00	2.30	2.80	3.40	3.90	4.10	3.80	4.10	5.20	4.90	5.20	***3.79***
Montenegro	EE	2.70	2.80		3.30	3.40	3.90	3.70	4.00	4.10	4.40	4.20	***3.65***
Serbia	EE	2.70	2.80	3.00	3.40	3.40	3.50	3.50	3.30	3.90	4.20	4.10	***3.44***
Bosnia and Herzegovina	EE	3.10	2.90	2.90	3.30	3.20	3.00	3.20	3.20	4.20	4.20	3.90	***3.37***
Macedonia	EE	2.70	2.70	2.70	3.30	3.60	3.80					4.50	***3.33***
Kosovo	EE							2.80	2.90	3.40	3.30	3.30	***3.14***
Moldova	EE	2.30	2.90	3.20	2.80	2.90	3.30	2.90	2.90	3.60	3.50	3.50	***3.07***
Armenia	EE	3.10	2.90	2.90	3.00	2.90	2.70	2.60	2.60	3.40	3.60	3.70	***3.04***
Albania	EE	2.50	2.40	2.60	2.90	3.40	3.20	3.30	3.10	3.30	3.10	3.30	***3.01***
Belarus	EE	3.30	2.60	2.10	2.10	2.00	2.40	2.50	2.40	3.10	2.90	3.10	***2.59***
Kazakhstan	EE	2.20	2.60	2.60	2.10	2.20	2.70	2.90	2.70	2.80	2.60	2.90	***2.57***
Ukraine	EE	2.20	2.60	2.80	2.70	2.50	2.20	2.40	2.30	2.60	2.50	2.60	***2.49***
Russia	EE	2.80	2.40	2.50	2.30	2.10	2.20	2.10	2.40	2.80	2.80	2.70	***2.46***
Azerbaijan	EE	1.90	2.20	2.40	2.10	1.90	2.30	2.40	2.40	2.70	2.80	2.90	***2.36***
Kyrgyzstan	EE	2.20	2.30	2.20	2.10	1.80	1.90	2.00	2.10	2.40	2.40	2.70	***2.19***
Tajikistan	EE	2.00	2.10	2.20	2.10	2.00	2.00	2.10	2.30	2.20	2.20	2.30	***2.14***
Uzbekistan	EE	2.30	2.20	2.10	1.70	1.80	1.70	1.60	1.60	1.70	1.70	1.80	***1.84***
Turkmenistan	EE	2.00	1.80	2.20	2.00	1.80	1.80	1.60	1.60	1.70	1.70	1.70	***1.81***
Denmark	EU	9.50	9.50	9.50	9.40	9.30	9.30	9.30	9.40	9.00	9.10	9.20	***9.32***
Finland	EU	9.70	9.60	9.60	9.40	9.00	8.90	9.20	9.40	9.00	8.90	8.90	***9.24***
Sweden	EU	9.20	9.20	9.20	9.30	9.30	9.20	9.20	9.30	8.80	8.90	8.70	***9.12***
Switzerland	EU	9.10	9.10	9.10	9.00	9.00	9.00	8.70	8.80	8.60	8.50	8.60	***8.86***
Iceland	EU	9.50	9.70	9.60	9.20	8.90	8.70	8.50	8.30	8.20	7.80	7.90	***8.75***
Netherlands	EU	8.70	8.60	8.70	9.00	8.90	8.90	8.80	8.90	8.40	8.30	8.30	***8.68***
Norway	EU	8.90	8.90	8.80	8.70	7.90	8.60	8.60	9.00	8.50	8.60	8.60	***8.65***
Luxembourg	EU	8.40	8.50	8.60	8.40	8.30	8.20	8.50	8.50	8.00	8.00	8.20	***8.33***
United Kingdom	EU	8.60	8.60	8.60	8.40	7.70	7.70	7.60	7.80	7.40	7.60	7.80	***7.98***
Germany	EU	8.20	8.20	8.00	7.80	7.90	8.00	7.90	8.00	7.90	7.80	7.90	***7.96***
Austria	EU	8.40	8.70	8.60	8.10	8.10	7.90	7.90	7.80	6.90	6.90	7.20	***7.86***
Ireland	EU	7.50	7.40	7.40	7.50	7.70	8.00	8.00	7.50	6.90	7.20	7.40	***7.50***
Belgium	EU	7.50	7.40	7.30	7.10	7.30	7.10	7.10	7.50	7.50	7.50	7.60	***7.35***
France	EU	7.10	7.50	7.40	7.30	6.90	6.90	6.80	7.00	7.10	7.10	6.90	***7.09***

Estonia	EU	6.00	6.40	6.70	6.50	6.60	6.60	6.50	6.40	6.40	6.80	6.90	***6.53***
Spain	EU	7.10	7.00	6.80	6.70	6.50	6.10	6.10	6.20	6.50	5.90	6.00	***6.45***
Portugal	EU	6.30	6.50	6.60	6.50	6.10	5.80	6.00	6.10	6.30	6.20	6.30	***6.25***
Slovenia	EU	6.00	6.10	6.40	6.60	6.70	6.60	6.40	5.90	6.10	5.70	5.80	***6.21***
Cyprus	EU	5.40	5.70	5.60	5.30	6.40	6.60	6.30	6.30	6.60	6.30	6.30	***6.07***
Malta	EU	6.80	6.60	6.40	5.80	5.80	5.20	5.60	5.60	5.70	5.60	5.50	***5.87***
Hungary	EU	4.80	5.00	5.20	5.30	5.10	5.10	4.70	4.60	5.50	5.40	5.40	***5.10***
Lithuania	EU	4.60	4.80	4.80	4.80	4.60	4.90	5.00	4.80	5.40	5.70	5.80	***5.02***
Poland	EU	3.50	3.40	3.70	4.20	4.60	5.00	5.30	5.50	5.80	6.00	6.10	***4.83***
Czech Republic	EU	4.20	4.30	4.80	5.20	5.20	4.90	4.60	4.40	4.90	4.80	5.10	***4.76***
Latvia	EU	4.00	4.20	4.70	4.80	5.00	4.50	4.30	4.20	4.90	5.30	5.50	***4.67***
Slovakia	EU	4.00	4.30	4.70	4.90	5.00	4.50	4.30	4.00	4.60	4.70	5.00	***4.55***
Italy	EU	4.80	5.00	4.90	5.20	4.80	4.30	3.90	3.90	4.20	4.30	4.30	***4.51***
Croatia	EU	3.50	3.40	3.40	4.10	4.40	4.10	4.10	4.00	4.60	4.80	4.80	***4.11***
Greece	EU	4.30	4.30	4.40	4.60	4.70	3.80	3.50	3.40	3.60	4.00	4.30	***4.08***
Bulgaria	EU	4.10	4.00	4.00	4.10	3.60	3.80	3.60	3.30	4.10	4.10	4.30	***3.91***
Romania	EU	2.90	3.00	3.10	3.70	3.80	3.80	3.70	3.60	4.40	4.30	4.30	***3.69***
Qatar	ME	5.20	5.90	6.00	6.00	6.50	7.00	7.70	7.20	6.80	6.80	6.90	***6.55***
United Arab Emirates	ME	6.10	6.20	6.20	5.70	5.90	6.50	6.30	6.80	6.80	6.90	7.00	***6.40***
Israel	ME	6.40	6.30	5.90	6.10	6.00	6.10	6.10	5.80	6.00	6.10	6.00	***6.07***
Bahrain	ME	5.80	5.80	5.70	5.00	5.40	5.10	4.90	5.10	5.10	4.80	4.90	***5.24***
Oman	ME	6.10	6.30	5.40	4.70	5.50	5.50	5.30	4.80	4.70	4.70	4.50	***5.23***
Jordan	ME	5.30	5.70	5.30	4.70	5.10	5.00	4.70	4.50	4.80	4.50	4.90	***4.95***
Kuwait	ME	4.60	4.70	4.80	4.30	4.30	4.10	4.50	4.60	4.40	4.30	4.40	***4.45***
Tunisia	ME	5.00	4.90	4.60	4.20	4.40	4.20	4.30	3.80	4.10	4.10	4.00	***4.33***
Saudi Arabia	ME	3.40	3.40	3.30	3.40	3.50	4.30	4.70	4.40	4.40	4.60	4.90	***4.03***
Morocco	ME	3.20	3.20	3.20	3.50	3.50	3.30	3.40	3.40	3.70	3.70	3.90	***3.45***
Egypt	ME	3.20	3.40	3.30	2.90	2.80	2.80	3.10	2.90	3.20	3.20	3.70	***3.14***
Algeria	ME	2.70	2.80	3.10	3.00	3.20	2.80	2.90	2.90	3.40	3.60	3.60	***3.09***
Lebanon	ME	2.70	3.10	3.60	3.00	3.00	2.50	2.50	2.50	3.00	2.80	2.70	***2.85***
Syria	ME	3.40	3.40	2.90	2.40	2.10	2.60	2.50	2.60	2.60	1.70	2.00	***2.56***
Palestine	ME	2.50	2.60										***2.55***
Iran	ME	2.90	2.90	2.70	2.50	2.30	1.80	2.20	2.70	2.80	2.50	2.70	***2.55***
Libya	ME	2.50	2.50	2.70	2.50	2.60	2.50	2.20	2.00	2.10	1.50	1.80	***2.26***
Yemen	ME	2.40	2.70	2.60	2.50	2.30	2.10	2.20	2.10	2.30	1.80	1.90	***2.26***
Iraq	ME	2.10	2.20	1.90	1.50	1.30	1.50	1.50	1.80	1.80	1.60	1.60	***1.71***
Sudan	ME	2.20	2.10	2.00	1.80	1.60	1.50	1.60	1.60	1.30	1.10	1.10	***1.63***

This table reports the scores of the Corruption Perceptions Index (*CPI*) over the 2004-2014 period published annually by Transparency International. For scores in 2012, 2013, and 2014, the original scores range between 0 and 100; we divide these scores by 10 to be consistent with the values in the previous years that range between 0 and 10. The "Area" column reports the regions to which each country or territory belongs as classified by Transparency International. "AF" stands for Africa, "AM" stands for America, "AP" stands for Asian Pacific, "EE" stands for Eastern Europe, "EU" stands for European Union, and "ME" stands for the Middle East. The last column reports the average value of *CPI* over the period and the values used in this study.

Appendix I. B: The Control of Corruption Index (CPI), 2004 - 2014

Country/Territory	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	***CCI***
Denmark	2.43	2.29	2.47	2.45	2.39	2.45	2.36	2.40	2.38	2.40	2.25	***2.39***
New Zealand	2.38	2.20	2.33	2.33	2.31	2.39	2.34	2.30	2.32	2.34	2.25	***2.32***
Finland	2.44	2.33	2.46	2.40	2.34	2.25	2.16	2.20	2.24	2.20	2.17	***2.29***
Sweden	2.16	2.02	2.20	2.24	2.23	2.25	2.27	2.20	2.31	2.29	2.15	***2.21***
Singapore	2.33	2.17	2.19	2.24	2.25	2.22	2.18	2.11	2.12	2.08	2.07	***2.18***
Switzerland	2.01	2.02	2.09	2.15	2.12	2.07	2.07	2.04	2.15	2.13	2.15	***2.09***
Norway	1.94	2.01	2.13	1.99	1.91	1.99	2.09	2.15	2.26	2.29	2.23	***2.09***
Netherlands	2.00	1.97	2.05	2.17	2.12	2.13	2.14	2.12	2.12	2.05	1.99	***2.08***
Iceland	2.19	2.31	2.18	2.21	2.34	2.04	1.94	1.94	1.89	1.91	1.83	***2.07***
Luxembourg	1.84	1.66	1.88	1.97	1.97	1.97	2.05	2.16	2.12	2.12	2.07	***1.98***
Australia	2.03	1.95	1.96	2.01	2.04	2.05	2.03	2.04	1.99	1.79	1.85	***1.98***
Canada	1.83	1.88	1.96	2.00	2.00	2.06	2.07	1.98	1.93	1.89	1.84	***1.95***
Hong Kong SAR, China	1.87	1.78	1.87	1.92	1.90	1.89	1.96	1.85	1.74	1.64	1.62	***1.82***
Germany	1.86	1.89	1.80	1.74	1.76	1.76	1.78	1.74	1.83	1.81	1.84	***1.80***
United Kingdom	1.93	1.90	1.79	1.74	1.68	1.63	1.60	1.62	1.67	1.70	1.74	***1.73***
Austria	2.05	1.92	1.91	2.01	1.84	1.70	1.59	1.43	1.39	1.55	1.47	***1.72***
Ireland	1.29	1.59	1.71	1.75	1.75	1.76	1.69	1.56	1.46	1.54	1.60	***1.61***
Liechtenstein	1.37	1.28	1.26	1.09	1.19	1.69	1.85	1.81	1.80	1.84	2.08	***1.57***
Belgium	1.38	1.39	1.31	1.36	1.37	1.46	1.53	1.58	1.61	1.67	1.57	***1.47***
Chile	1.37	1.47	1.46	1.40	1.38	1.38	1.50	1.53	1.58	1.54	1.49	***1.46***
Barbados	1.43	1.42	1.33	1.41	1.37	1.38	1.48	1.72	1.66	1.62	1.14	***1.45***
Japan	1.22	1.22	1.33	1.24	1.34	1.38	1.56	1.56	1.63	1.66	1.69	***1.44***
France	1.33	1.37	1.46	1.46	1.41	1.44	1.47	1.53	1.46	1.33	1.31	***1.42***
United States	1.83	1.55	1.35	1.39	1.45	1.29	1.27	1.27	1.41	1.31	1.38	***1.41***
Bahamas, The	1.43	1.34	1.35	1.34	1.34	1.37	1.35	1.35	1.32	1.34	1.31	***1.35***
Bermuda	1.33	1.28	1.26	1.27	1.29	1.33	1.31	1.28	1.27	1.26	1.23	***1.28***
Andorra	1.14	1.28	1.26	1.27	1.29	1.33	1.31	1.28	1.27	1.26	1.23	***1.26***
Anguilla	0.86	1.28	1.26	1.27	1.29	1.33	1.31	1.28	1.27	1.26	1.23	***1.24***
Uruguay	0.90	1.07	1.11	1.24	1.31	1.24	1.28	1.28	1.36	1.38	1.38	***1.23***
Jersey, Channel Islands	..	..	..	..	..	..	..	1.23	1.22	1.24	1.21	***1.23***
Greenland	..	..	..	..	..	1.19	1.22	1.23	1.22	1.24	1.21	***1.22***
Cayman Islands	1.28	1.28	1.26	1.27	0.81	1.12	1.13	1.35	1.35	1.36	1.02	***1.20***
Aruba	1.18	1.28	1.26	1.27	1.29	1.12	1.13	1.11	1.10	1.13	1.02	***1.17***
Antigua and Barbuda	0.86	0.75	1.13	1.15	1.29	1.33	1.31	1.28	1.27	1.26	0.64	***1.11***
Spain	1.36	1.34	1.19	1.09	1.19	1.06	1.08	1.10	1.13	0.90	0.63	***1.10***
Estonia	0.98	1.03	1.02	1.00	0.99	1.01	1.00	1.05	1.10	1.19	1.30	***1.06***
United Arab Emirates	1.06	1.00	0.89	1.01	1.08	0.91	0.90	1.08	1.16	1.28	1.20	***1.05***
Cyprus	0.89	0.91	1.09	1.08	1.20	0.91	0.97	0.87	1.25	1.25	1.08	***1.05***
Portugal	1.14	1.07	1.02	1.04	1.07	1.09	1.09	1.11	0.96	0.95	0.95	***1.04***
Qatar	0.52	0.71	0.93	0.68	0.94	1.57	1.41	1.01	1.06	1.11	0.99	***0.99***
St. Lucia	0.31	1.12	1.05	1.06	1.16	1.22	1.20	1.21	1.01	1.04	0.41	***0.98***
Botswana	0.90	1.16	0.97	1.00	1.04	0.96	1.03	1.00	0.93	0.92	0.85	***0.98***
Netherlands Antilles	0.62	1.28	1.26	1.27	1.29	0.84	0.82	0.80	0.79	0.79	..	***0.97***
French Guiana	0.81	0.80	0.78	0.79	0.81	1.12	1.13	1.11	1.10	1.13	1.02	***0.96***
Slovenia	1.03	0.91	1.03	1.01	0.98	1.06	0.92	0.95	0.84	0.73	0.73	***0.93***
Bhutan	0.80	0.82	0.82	0.88	0.86	0.91	0.91	0.84	0.94	0.90	1.28	***0.90***
Malta	0.85	0.82	1.01	1.02	1.00	0.77	0.79	0.77	0.94	0.98	0.85	***0.89***
St. Vincent and the Grenadines	0.31	0.98	0.88	0.89	0.98	1.04	1.01	1.02	0.94	0.94	0.62	***0.87***
Israel	0.93	0.83	1.01	0.85	0.90	0.81	0.76	0.80	0.91	0.91	0.87	***0.87***
Martinique	0.90	0.80	0.78	0.79	0.81	0.84	0.82	0.80	0.79	0.79	1.23	***0.85***
St. Kitts and Nevis	0.26	0.98	0.88	0.89	0.98	1.04	1.01	1.02	0.94	0.94	0.25	***0.83***
Cabo Verde	0.46	0.56	0.81	0.89	0.87	0.87	0.86	0.90	0.87	0.84	0.94	***0.81***
Reunion	1.00	0.80	0.78	0.79	0.81	0.84	0.82	0.80	0.79	0.79	0.64	***0.80***
Guam	0.38	0.80	0.78	0.79	0.81	0.84	0.82	0.80	0.79	0.79	1.23	***0.80***
Virgin Islands (U.S.)	0.67	0.80	0.78	0.79	0.81	0.84	0.82	0.80	0.79	0.79	0.64	***0.77***
Taiwan, China	0.83	0.75	0.53	0.53	0.52	0.62	0.74	0.87	0.72	0.68	0.81	***0.69***
Dominica	0.61	0.66	0.62	0.62	0.68	0.73	0.71	0.71	0.66	0.67	0.62	***0.66***
Puerto Rico	1.28	1.28	0.51	0.41	0.42	0.49	0.48	0.44	0.54	0.47	0.46	***0.62***
Costa Rica	0.42	0.48	0.44	0.52	0.55	0.75	0.71	0.65	0.62	0.63	0.76	***0.59***
Macao SAR, China	1.42	0.52	0.35	0.45	0.44	0.16	0.42	0.44	0.43	0.55	0.85	***0.55***
Brunei Darussalam	0.41	0.25	0.21	0.21	0.49	0.99	0.86	0.86	0.55	0.65	0.53	***0.55***
Korea, Rep.	0.39	0.62	0.35	0.60	0.47	0.54	0.47	0.53	0.54	0.61	0.55	***0.51***
American Samoa	0.81	0.80	0.31	0.31	0.33	0.35	0.33	0.32	0.31	0.31	1.23	***0.49***
Hungary	0.69	0.65	0.66	0.62	0.47	0.43	0.37	0.40	0.36	0.32	0.16	***0.47***
Grenada	0.61	0.66	0.63	0.38	0.32	0.36	0.43	0.42	0.42	0.42	0.25	***0.44***
Poland	0.14	0.27	0.27	0.30	0.46	0.45	0.50	0.56	0.66	0.60	0.64	***0.44***
Mauritius	0.25	0.32	0.35	0.44	0.52	0.54	0.56	0.54	0.30	0.29	0.35	***0.40***
Czech Republic	0.44	0.49	0.36	0.30	0.36	0.39	0.33	0.34	0.27	0.23	0.37	***0.35***
Seychelles	0.27	0.23	0.12	0.19	0.39	0.43	0.45	0.42	0.42	0.44	0.44	***0.35***
Oman	0.67	0.39	0.35	0.35	0.52	0.33	0.32	0.14	0.18	0.16	0.31	***0.34***
Lithuania	0.43	0.33	0.16	0.13	0.14	0.23	0.38	0.33	0.39	0.43	0.56	***0.32***
Namibia	0.16	0.20	0.24	0.32	0.61	0.30	0.34	0.31	0.34	0.33	0.29	***0.31***
Latvia	0.18	0.38	0.37	0.35	0.25	0.23	0.23	0.29	0.25	0.33	0.42	***0.30***
Slovak Republic	0.39	0.49	0.42	0.35	0.36	0.27	0.29	0.28	0.10	0.08	0.16	***0.29***

Bahrain	0.45	0.39	0.19	0.18	0.19	0.19	0.18	0.22	0.37	0.43	0.28	***0.28***
Cuba	0.23	0.28	0.26	0.31	0.27	0.28	0.31	0.27	0.24	0.12	0.07	***0.24***
Kuwait	0.79	0.51	0.43	0.37	0.42	0.31	0.30	0.09	-0.19	-0.19	-0.24	***0.24***
Vanuatu	-0.32	0.24	0.17	0.23	0.29	0.30	0.29	0.30	0.34	0.29	0.46	***0.23***
Italy	0.38	0.41	0.48	0.34	0.27	0.20	0.13	0.18	0.07	0.05	-0.03	***0.22***
South Africa	0.46	0.57	0.45	0.25	0.21	0.18	0.13	0.06	-0.12	-0.07	-0.06	***0.19***
Malaysia	0.34	0.20	0.23	0.19	-0.05	-0.06	0.09	0.03	0.24	0.35	0.41	***0.18***
Jordan	0.26	0.26	0.26	0.26	0.36	0.16	0.04	0.10	0.07	0.07	0.14	***0.18***
Samoa	0.13	0.18	0.24	0.25	0.21	0.12	0.12	0.10	0.11	0.15	0.30	***0.17***
Rwanda	-0.44	-0.62	-0.21	0.00	0.10	0.09	0.35	0.36	0.56	0.63	0.76	***0.14***
Greece	0.46	0.36	0.36	0.27	0.13	0.07	-0.06	-0.10	-0.19	-0.05	-0.12	***0.10***
Croatia	0.26	0.17	0.08	0.09	-0.01	-0.05	0.06	0.06	0.01	0.12	0.22	***0.09***
Cook Islands	0.11	0.57	0.60	1.05	..	-0.58	-0.25	-0.23	-0.22	-0.22	..	***0.09***
Lesotho	-0.10	0.02	0.00	-0.07	0.05	0.16	0.17	0.15	0.12	0.28	0.19	***0.09***
Georgia	-0.47	-0.22	0.04	-0.13	-0.11	-0.12	0.01	0.12	0.40	0.47	0.79	***0.07***
Kiribati	0.32	0.20	0.05	0.10	-0.03	-0.16	-0.08	0.09	0.01	-0.04	0.25	***0.07***
Turkey	-0.18	-0.03	0.03	0.11	0.11	0.09	0.03	0.04	0.16	0.09	-0.15	***0.03***
Brazil	0.02	-0.14	-0.11	-0.08	0.01	-0.07	0.05	0.17	-0.04	-0.08	-0.34	***-0.06***
Saudi Arabia	-0.29	-0.10	-0.19	-0.17	-0.01	-0.02	0.04	-0.31	-0.04	-0.02	0.09	***-0.09***
Ghana	-0.25	-0.37	-0.02	0.04	-0.07	-0.01	0.01	-0.03	-0.13	-0.10	-0.19	***-0.10***
Fiji	0.16	-0.30	0.01	-0.05	-0.05	-0.34	-0.46	-0.13	-0.11	-0.12	0.18	***-0.11***
Trinidad and Tobago	-0.03	0.02	-0.11	-0.04	-0.06	-0.04	-0.17	-0.11	-0.16	-0.22	-0.41	***-0.12***
Micronesia, Fed. Sts.	-0.04	-0.24	-0.25	-0.34	-0.31	-0.13	-0.15	-0.34	-0.15	-0.20	0.77	***-0.13***
Suriname	0.28	0.22	-0.10	-0.01	-0.02	-0.26	-0.33	-0.28	-0.33	-0.28	-0.44	***-0.14***
Tunisia	0.08	-0.26	-0.19	-0.25	-0.30	-0.22	-0.26	-0.06	-0.06	-0.07	-0.04	***-0.15***
Bulgaria	0.11	0.06	-0.07	-0.18	-0.25	-0.21	-0.19	-0.22	-0.23	-0.27	-0.25	***-0.15***
Tuvalu	0.64	-0.11	-0.10	-0.24	-0.21	-0.22	-0.26	-0.53	-0.35	-0.40	-0.01	***-0.16***
Macedonia, FYR	-0.50	-0.45	-0.37	-0.36	-0.19	-0.13	-0.08	-0.09	-0.04	-0.05	-0.02	***-0.21***
Romania	-0.30	-0.24	-0.16	-0.18	-0.14	-0.26	-0.23	-0.21	-0.26	-0.19	-0.11	***-0.21***
Belize	-0.29	-0.30	-0.36	-0.37	-0.34	-0.05	-0.11	-0.33	-0.14	-0.10	-0.20	***-0.23***
Sao Tome and Principe	-0.36	-0.54	-0.29	-0.30	-0.30	-0.20	-0.25	-0.18	-0.18	-0.18	0.00	***-0.25***
West Bank and Gaza	-0.01	-0.49	-0.30	-0.11	-0.44	-0.10	-0.11	-0.45	-0.25	-0.25	-0.28	***-0.25***
Montenegro	-0.46	-0.35	-0.40	-0.33	-0.21	-0.20	-0.23	-0.20	-0.11	-0.25	-0.06	***-0.25***
Colombia	-0.13	-0.13	-0.12	-0.22	-0.24	-0.31	-0.39	-0.29	-0.39	-0.41	-0.37	***-0.27***
Jamaica	-0.35	-0.31	-0.26	-0.30	-0.30	-0.28	-0.23	-0.16	-0.26	-0.28	-0.30	***-0.27***
Nauru	..	..	..	-0.35	-0.32	-0.40	0.01	-0.04	-0.02	-0.64	-0.47	***-0.28***
Sri Lanka	-0.15	-0.34	-0.20	-0.15	-0.23	-0.40	-0.42	-0.39	-0.24	-0.21	-0.34	***-0.28***
Panama	-0.27	-0.35	-0.32	-0.30	-0.09	-0.30	-0.32	-0.32	-0.36	-0.35	-0.34	***-0.30***
Solomon Islands	-0.37	0.04	-0.22	-0.39	-0.37	-0.29	-0.35	-0.34	-0.36	-0.40	-0.28	***-0.30***
Peru	-0.32	-0.33	-0.20	-0.25	-0.19	-0.31	-0.23	-0.22	-0.37	-0.42	-0.56	***-0.31***
Senegal	-0.05	-0.05	-0.37	-0.51	-0.50	-0.49	-0.64	-0.50	-0.26	-0.19	0.06	***-0.32***
Bosnia and Herzegovina	-0.34	-0.24	-0.30	-0.38	-0.36	-0.38	-0.34	-0.32	-0.30	-0.24	-0.31	***-0.32***
Morocco	-0.14	-0.31	-0.41	-0.34	-0.38	-0.33	-0.20	-0.40	-0.44	-0.37	-0.27	***-0.33***
Serbia	-0.50	-0.41	-0.29	-0.35	-0.31	-0.31	-0.29	-0.27	-0.33	-0.30	-0.23	***-0.33***
Thailand	-0.23	-0.19	-0.38	-0.37	-0.41	-0.31	-0.33	-0.32	-0.37	-0.34	-0.45	***-0.34***
Burkina Faso	-0.14	-0.13	-0.31	-0.33	-0.30	-0.34	-0.35	-0.37	-0.48	-0.52	-0.46	***-0.34***
Eswatini	-0.53	-0.47	-0.22	-0.24	-0.22	-0.23	-0.23	-0.35	-0.41	-0.41	-0.43	***-0.34***
El Salvador	-0.42	-0.45	-0.30	-0.37	-0.36	-0.25	-0.28	-0.26	-0.41	-0.35	-0.38	***-0.35***
Mexico	-0.30	-0.27	-0.26	-0.27	-0.24	-0.30	-0.36	-0.40	-0.41	-0.51	-0.76	***-0.37***
Marshall Islands	-0.57	-0.46	-0.55	-0.61	-0.57	-0.34	-0.33	-0.33	-0.26	-0.04	-0.11	***-0.38***
Madagascar	-0.28	-0.07	-0.19	-0.19	-0.27	-0.34	-0.43	-0.48	-0.67	-0.75	-0.84	***-0.41***
Argentina	-0.42	-0.39	-0.34	-0.34	-0.44	-0.44	-0.36	-0.37	-0.44	-0.43	-0.54	***-0.41***
India	-0.41	-0.36	-0.28	-0.40	-0.34	-0.45	-0.47	-0.54	-0.51	-0.52	-0.43	***-0.43***
Zambia	-0.59	-0.59	-0.55	-0.41	-0.39	-0.46	-0.51	-0.40	-0.28	-0.31	-0.34	***-0.44***
Niue	..	..	..	..	..	-0.58	-0.46	-0.44	-0.44	-0.42	..	***-0.47***
Palau	..	..	..	..	-0.32	-0.40	-0.50	-0.53	-0.43	-0.64	-0.47	***-0.47***
China	-0.56	-0.61	-0.51	-0.59	-0.52	-0.51	-0.56	-0.51	-0.44	-0.36	-0.34	***-0.50***
Djibouti	-0.58	-0.71	-0.66	-0.54	-0.33	-0.37	-0.40	-0.41	-0.46	-0.54	-0.60	***-0.51***
Mozambique	-0.60	-0.53	-0.62	-0.52	-0.49	-0.44	-0.45	-0.49	-0.57	-0.60	-0.67	***-0.54***
Tanzania	-0.56	-0.60	-0.23	-0.34	-0.42	-0.45	-0.54	-0.59	-0.76	-0.77	-0.75	***-0.55***
Eritrea	-0.22	-0.36	-0.35	-0.44	-0.39	-0.49	-0.56	-0.63	-0.78	-0.90	-0.89	***-0.55***
Algeria	-0.68	-0.48	-0.52	-0.56	-0.59	-0.58	-0.52	-0.54	-0.50	-0.47	-0.60	***-0.55***
Malawi	-0.77	-0.71	-0.55	-0.51	-0.45	-0.40	-0.49	-0.42	-0.47	-0.61	-0.75	***-0.56***
Kosovo	-0.29	-0.52	-0.51	-0.73	-0.63	-0.58	-0.62	-0.61	-0.65	-0.65	-0.49	***-0.57***
Bolivia	-0.78	-0.74	-0.43	-0.40	-0.52	-0.63	-0.47	-0.57	-0.73	-0.59	-0.63	***-0.59***
Mongolia	-0.40	-0.61	-0.58	-0.61	-0.66	-0.76	-0.74	-0.69	-0.54	-0.48	-0.47	***-0.59***
Guyana	-0.45	-0.56	-0.58	-0.59	-0.56	-0.54	-0.56	-0.61	-0.75	-0.65	-0.74	***-0.60***
Maldives	-0.35	-0.44	-0.60	-0.86	-0.82	-0.67	-0.55	-0.55	-0.70	-0.75	-0.38	***-0.61***
Belarus	-0.80	-0.75	-0.62	-0.66	-0.63	-0.63	-0.69	-0.68	-0.52	-0.47	-0.30	***-0.61***
Vietnam	-0.73	-0.72	-0.75	-0.63	-0.71	-0.54	-0.62	-0.61	-0.53	-0.48	-0.44	***-0.61***
Mali	-0.59	-0.50	-0.48	-0.43	-0.53	-0.67	-0.68	-0.64	-0.83	-0.79	-0.75	***-0.62***
Benin	-0.46	-0.85	-0.59	-0.46	-0.50	-0.62	-0.66	-0.59	-0.86	-0.74	-0.67	***-0.64***
Armenia	-0.61	-0.67	-0.67	-0.74	-0.71	-0.62	-0.70	-0.66	-0.59	-0.53	-0.52	***-0.64***
Ethiopia	-0.73	-0.77	-0.65	-0.63	-0.66	-0.70	-0.69	-0.66	-0.60	-0.49	-0.44	***-0.64***
Tonga	-0.43	-1.33	-1.34	-1.04	-0.66	-0.68	-0.33	-0.33	-0.32	-0.28	-0.31	***-0.64***
Timor-Leste	-0.30	-0.56	-0.60	-0.65	-0.65	-0.80	-0.76	-0.81	-0.74	-0.68	-0.53	***-0.64***
Guatemala	-0.61	-0.67	-0.81	-0.74	-0.65	-0.53	-0.53	-0.53	-0.66	-0.62	-0.74	***-0.64***

Philippines	-0.65	-0.62	-0.83	-0.72	-0.76	-0.77	-0.76	-0.67	-0.56	-0.38	-0.44	***-0.65***
Gambia, The	-0.61	-0.71	-0.72	-0.73	-0.74	-0.57	-0.59	-0.51	-0.64	-0.70	-0.69	***-0.66***
Egypt, Arab Rep.	-0.65	-0.62	-0.75	-0.76	-0.78	-0.52	-0.63	-0.70	-0.60	-0.63	-0.62	***-0.66***
Albania	-0.70	-0.79	-0.80	-0.69	-0.59	-0.54	-0.53	-0.68	-0.73	-0.70	-0.55	***-0.66***
Iran, Islamic Rep.	-0.39	-0.48	-0.48	-0.55	-0.78	-0.84	-0.95	-0.87	-0.79	-0.69	-0.62	***-0.68***
Mauritania	-0.53	-0.56	-0.74	-0.58	-0.79	-0.61	-0.72	-0.63	-0.78	-0.83	-0.93	***-0.70***
Niger	-0.82	-0.72	-0.85	-0.75	-0.72	-0.61	-0.66	-0.64	-0.64	-0.61	-0.69	***-0.70***
Moldova	-0.98	-0.67	-0.64	-0.66	-0.63	-0.70	-0.67	-0.62	-0.61	-0.75	-0.85	***-0.71***
Nicaragua	-0.40	-0.61	-0.67	-0.77	-0.76	-0.72	-0.75	-0.73	-0.77	-0.74	-0.89	***-0.71***
Ecuador	-0.70	-0.71	-0.75	-0.77	-0.69	-0.80	-0.77	-0.71	-0.58	-0.57	-0.75	***-0.71***
Indonesia	-0.93	-0.88	-0.84	-0.62	-0.59	-0.84	-0.75	-0.70	-0.64	-0.61	-0.56	***-0.72***
Nepal	-0.87	-0.74	-0.69	-0.79	-0.81	-0.70	-0.69	-0.78	-0.81	-0.69	-0.59	***-0.74***
Liberia	-1.32	-1.20	-0.72	-0.46	-0.74	-0.59	-0.56	-0.67	-0.60	-0.71	-0.77	***-0.76***
Dominican Republic	-0.59	-0.69	-0.70	-0.75	-0.73	-0.78	-0.84	-0.81	-0.86	-0.87	-0.82	***-0.77***
Comoros	-0.90	-0.88	-0.70	-0.71	-0.79	-0.83	-0.81	-0.79	-0.78	-0.74	-0.61	***-0.78***
Lebanon	-0.66	-0.53	-0.94	-0.89	-0.82	-0.83	-0.88	-0.90	-0.87	-0.92	-1.04	***-0.84***
Gabon	-0.85	-0.67	-0.97	-1.06	-1.08	-1.00	-0.87	-0.89	-0.70	-0.66	-0.69	***-0.86***
Honduras	-0.89	-0.81	-0.83	-0.79	-0.90	-0.90	-0.89	-0.83	-0.95	-0.95	-0.79	***-0.87***
Uganda	-0.78	-0.82	-0.79	-0.82	-0.83	-0.90	-0.92	-0.92	-0.99	-1.04	-1.09	***-0.90***
Sierra Leone	-0.91	-1.07	-1.02	-0.91	-0.97	-0.93	-0.77	-0.84	-0.95	-0.91	-0.94	***-0.93***
Ukraine	-0.93	-0.72	-0.75	-0.80	-0.84	-1.04	-1.03	-1.05	-1.08	-1.13	-0.99	***-0.94***
Kazakhstan	-1.10	-1.01	-0.99	-0.99	-0.98	-0.93	-1.00	-0.99	-0.92	-0.93	-0.83	***-0.97***
Togo	-0.96	-0.87	-1.04	-0.99	-0.97	-1.02	-0.96	-1.01	-1.00	-1.03	-0.89	***-0.98***
Pakistan	-1.08	-1.05	-0.81	-0.82	-0.90	-1.07	-1.09	-1.08	-1.06	-0.96	-0.83	***-0.98***
Kenya	-0.86	-1.00	-0.93	-0.97	-1.06	-1.06	-0.91	-0.95	-1.09	-1.03	-0.93	***-0.98***
Russian Federation	-0.80	-0.82	-0.91	-1.01	-1.11	-1.13	-1.09	-1.07	-1.04	-1.01	-0.92	***-0.99***
Cote d'Ivoire	-1.21	-1.24	-1.20	-1.09	-1.11	-1.10	-1.16	-1.01	-0.83	-0.74	-0.42	***-1.01***
Paraguay	-1.37	-1.32	-1.14	-1.18	-0.98	-0.80	-0.73	-0.72	-0.86	-1.04	-0.97	***-1.01***
Papua New Guinea	-0.96	-1.13	-1.14	-1.11	-1.15	-1.23	-1.04	-1.02	-0.94	-0.96	-0.91	***-1.05***
Yemen, Rep.	-1.08	-0.89	-0.79	-0.79	-0.79	-1.07	-1.19	-1.23	-1.25	-1.25	-1.56	***-1.08***
Guinea	-0.92	-1.05	-1.12	-1.28	-1.20	-1.08	-1.20	-1.10	-1.04	-1.04	-1.06	***-1.10***
Bangladesh	-1.50	-1.39	-1.43	-1.06	-1.03	-1.07	-1.06	-1.09	-0.85	-0.89	-0.89	***-1.11***
Cameroon	-1.11	-1.18	-1.09	-1.02	-1.02	-1.00	-1.06	-1.15	-1.26	-1.21	-1.16	***-1.11***
Central African Republic	-1.39	-1.28	-1.21	-1.19	-1.12	-0.98	-0.93	-0.95	-0.99	-1.09	-1.16	***-1.12***
Azerbaijan	-1.16	-1.04	-1.09	-1.12	-1.15	-1.19	-1.24	-1.18	-1.13	-0.97	-1.02	***-1.12***
Syrian Arab Republic	-0.82	-0.85	-1.06	-1.10	-1.15	-1.13	-1.13	-1.09	-1.21	-1.26	-1.55	***-1.12***
Congo, Rep.	-0.93	-1.04	-1.10	-1.15	-1.18	-1.20	-1.15	-1.12	-1.21	-1.15	-1.18	***-1.13***
Nigeria	-1.34	-1.16	-1.12	-1.05	-0.89	-1.03	-1.05	-1.17	-1.17	-1.22	-1.27	***-1.14***
Lao PDR	-1.24	-1.30	-1.31	-1.27	-1.20	-1.24	-1.19	-1.18	-1.02	-0.93	-0.85	***-1.16***
Burundi	-0.89	-0.93	-1.10	-1.16	-1.09	-1.13	-1.17	-1.19	-1.45	-1.41	-1.26	***-1.16***
Cambodia	-1.06	-1.21	-1.25	-1.15	-1.23	-1.17	-1.24	-1.24	-1.07	-1.05	-1.14	***-1.17***
Venezuela, RB	-0.98	-1.03	-1.04	-1.11	-1.17	-1.19	-1.23	-1.17	-1.27	-1.31	-1.40	***-1.17***
Tajikistan	-1.29	-1.17	-1.03	-1.04	-1.18	-1.21	-1.29	-1.22	-1.28	-1.28	-1.13	***-1.19***
Uzbekistan	-1.13	-1.23	-1.00	-1.03	-1.06	-1.27	-1.30	-1.37	-1.30	-1.26	-1.19	***-1.20***
Libya	-0.91	-0.96	-1.08	-1.05	-0.95	-1.21	-1.29	-1.30	-1.36	-1.48	-1.56	***-1.20***
Kyrgyz Republic	-1.10	-1.25	-1.32	-1.32	-1.22	-1.31	-1.17	-1.22	-1.15	-1.16	-1.13	***-1.21***
Guinea-Bissau	-1.22	-1.15	-1.09	-1.19	-1.18	-1.20	-1.16	-1.16	-1.28	-1.33	-1.54	***-1.23***
Haiti	-1.47	-1.37	-1.31	-1.28	-1.21	-1.09	-1.19	-1.22	-1.24	-1.13	-1.23	***-1.25***
South Sudan	..	..	..	..	..	..	-0.82	-1.40	-1.28	-1.38	-1.59	***-1.29***
Sudan	-1.28	-1.37	-1.18	-1.32	-1.42	-1.15	-1.19	-1.18	-1.49	-1.47	-1.45	***-1.32***
Angola	-1.31	-1.30	-1.22	-1.29	-1.28	-1.40	-1.33	-1.34	-1.27	-1.31	-1.44	***-1.32***
Iraq	-1.48	-1.37	-1.45	-1.46	-1.46	-1.33	-1.26	-1.17	-1.22	-1.28	-1.33	***-1.35***
Korea, Dem. People's Rep.	-1.38	-1.28	-1.44	-1.54	-1.52	-1.29	-1.28	-1.31	-1.28	-1.28	-1.30	***-1.36***
Zimbabwe	-1.33	-1.31	-1.36	-1.40	-1.36	-1.36	-1.37	-1.40	-1.37	-1.40	-1.39	***-1.37***
Congo, Dem. Rep.	-1.45	-1.42	-1.53	-1.36	-1.24	-1.39	-1.44	-1.43	-1.31	-1.32	-1.30	***-1.38***
Chad	-1.38	-1.51	-1.35	-1.38	-1.52	-1.40	-1.38	-1.33	-1.31	-1.35	-1.32	***-1.39***
Myanmar	-1.65	-1.54	-1.66	-1.63	-1.62	-1.66	-1.67	-1.59	-1.06	-1.00	-0.88	***-1.45***
Turkmenistan	-1.47	-1.46	-1.52	-1.52	-1.50	-1.53	-1.53	-1.54	-1.43	-1.41	-1.31	***-1.48***
Afghanistan	-1.35	-1.44	-1.43	-1.59	-1.64	-1.53	-1.64	-1.58	-1.42	-1.44	-1.35	***-1.49***
Equatorial Guinea	-1.66	-1.61	-1.59	-1.50	-1.47	-1.47	-1.47	-1.46	-1.52	-1.59	-1.77	***-1.56***
Somalia	-1.79	-1.68	-1.73	-1.76	-1.87	-1.72	-1.74	-1.71	-1.59	-1.58	-1.66	***-1.71***

This table reports the scores of the Control of Corruption Index (*CCI*) over the 2004-2014 period published annually by The World Bank. The last column reports the average value of *CCI* over the period and the values used in this study.

Appendix II: Variable description

Variable	Description	Data source
	Measures of stock returns	
Mean returns	The geometric mean of daily returns after subtracting the risk-free rate	Datastream
Abnormal returns	The geometric compound the daily abnormal returns after matching a firm's stock return with Fama and French's (2015) five factors as well as momentum (the average return on the two high prior return portfolios minus the average return on the two low prior return portfolios).	Datastream
	Measures of corruption exposure	
CEI_CPI	The corruption exposure index constructed using the corruption perceptions index of Transparency International by a similar approach to Zeume (2017) as follows, $$CEI\_CPI_{i,t} = \sum_{c \in C}[(10 - CPI_c) \times \frac{NS_{i,c,t}}{TNS_{i,t}}]$$ where $CEI\_CPI_{i,t}$ is the corruption exposure index computed according to the CPI of firm *i* in year *t*, CPI_c is the average Transparency International's corruption perceptions index of country *c* over the sample period, $NS_{i,c,t}$ is the number of subsidiaries in country *c* owned by firm *i* in year *t*, $TNS_{i,t}$ is the total number of subsidiaries of firm *i* in year *t*.	Transparency International
CEI_CCI	The corruption exposure index constructed using the control of corruption index of the World Bank by a similar approach to Zeume (2017) as follows, $$CEI\_CCI_{i,t} = \sum_{c \in C}[(2.5 - CCI_c) \times \frac{NS_{i,c,t}}{TNS_{i,t}}]$$ where and $CEI\_CCI_{i,t}$ is the corruption exposure index computed according to the CCI of firm *i* in year *t*, CCI_c is the average the World Bank's Control of Corruption Index of country *c* over the sample period, $NS_{i,c,t}$ is the number of subsidiaries in country *c* owned by firm *i* in year *t*, $TNS_{i,t}$ is the total number of subsidiaries of firm *i* in year *t*.	World Bank
	Measures of Africa exposure	
Has African subsidiary	A dummy variable equal to 1 if a firm has at least one subsidiary headquartered in Africa.	Orbis
ANTN	The ratio of the number of subsidiaries in Africa to the total number of subsidiaries of a firm.	Orbis
	Country-level characteristics	
Egalitarianism distance	The distance in the degree of egalitarianism between two countries is calculated using the same approach of Siegel et al. (2011), where egalitarianism scores are from Schwartz (2014).	Schwartz (2014)
Difference in law (%)	The percentage of a firm's subsidiaries operating in the countries that have different law system from which of the United States (Common law).	Djankov et al. (2007)
Common language (%)	The percentage of a firm's subsidiaries operating in the countries that have the same language with which of the United States (English).	CEPII (Centre d'Etudes Prospectives et d'Informations Internationales)
Common religion (%)	The percentage of a firm's subsidiaries operating in the countries that have the same religion with which of the United States (Protestant).	Djankov et al. (2007)
Geographical distance (in million km)	The weighted average of geographical distances between the largest city of the United States (New York) and the largest city of each country where a firm has subsidiaries. The weight is the percentage of the number of subsidiaries in the given country to the total number of subsidiaries of the firm.	CEPII (Centre d'Etudes Prospectives et d'Informations Internationales)
Log of host country GDP	The average of the natural logarithm of country-level GDP.	World Bank
Corporate tax rate	The weighted average of corporate tax rates of countries where a firm has subsidiaries. The weight is the percentage of the number of subsidiaries in the given country to the total number of subsidiaries of the firm.	World Bank
Minor investors protection	The weighted average of the protecting minority investors scores, which measure the legal protection of minority shareholders against expropriation by corporate insiders. The weight is the percentage of the number of subsidiaries in the given country to the total number of subsidiaries of the firm.	Doing Business project of the World Bank
Underemployment benefits	The weighted average of scores of unemployment benefits, which account for the following four normalized variables: (1) the number of months of contributions or employment needed to qualify for unemployment benefits by law; (2) the percentage of the worker's monthly salary deducted by law to cover unemployment benefits; (3) the waiting period for unemployment benefits; and (4) the percentage of the net salary covered by the net unemployment benefits in case of a one-year unemployment spell. The weight is the percentage of the number of subsidiaries in the given country to the total number of subsidiaries of the firm.	Botero et al. (2004)
	Firm-level characteristics	
LnTA	The natural logarithm of total assets at the beginning of the calendar year.	Datastream
LnBTM	The natural logarithm of the book to market equity ratio at the beginning of the calendar year.	Datastream
Trading volume	The average daily number of shares traded in million.	Datastream
Price volatility	A measure of a stock's average annual price movement to a high and low from a mean price for each year.	Datastream

Ln(Intangible/Assets)	Book value of a firm's intangible assets scaled by the book value of its total assets.	Datastream
Ln(RD/Expense)	The natural logarithm of a fraction of a firm's R&D expenditures to its total expenses. Total expenses are defined as the sum of advertising expenses, interest expense, R&D expense, and selling, general, and administrative expense.	Datastream
Diversification	The number of business segments for a firm-year.	Datastream
CF volatility	Three-year standard deviation of operation cash flow	Datastream
Degree of foreign operations		
FNTN (%)	The ratio of the number of foreign subsidiaries to the total number of subsidiaries of a firm.	Orbis
FATA (%)	The ratio of foreign assets to the total assets of a firm.	Datastream
FSTS (%)	The ratio of foreign sales to the total sales of a firm.	Datastream
FITI (%)	The ratio of foreign operating income to the total operating income of a firm.	Datastream
Alternative corruption measures		
Excess regulation	The index of the overabundance of regulation or unnecessary restriction of business activity, which covers 85 major countries in the world and score range from one to five.	Wilhelm (Wilhelm, 2002)
Black market	The index of black market activity, which covers 85 major countries in the world and score range from one to five.	Wilhelm (Wilhelm, 2002)
State-level corruption		
Conviction Butler(2009)	the average number of corruption-related convictions per million population according to the number reported in Butler et al. (2009).	Butler et al. (2009)
Conviction Dass(2016)	the average number of corruption-related convictions per million population according to the number reported in Dass et al. (2016).	Dass et al. (2016)
Conviction Smith(2016)	The average number of corruption-related convictions per million population according to the number reported in Smith (2016), who originally uses district-level data. We aggregate this data into the state-level according to the firm-year observations offered by the author.	Smith (2016)

Appendix III: Chinese firms with African operations for matching

Company Name	Business Description
Guizhou Changzhen Tianzheng Holding	Guizhou changzheng tiancheng holding co.,ltd. Mainly operates through three segments, including electrical equipment manufacture segment, financial segment and mineral resource development segment. Electrical equipment manufacture segment is involved in the manufacture and distribution of high-voltage and medium-voltage electrical equipment. Financial segment provides financial services for small and micro merchants. Mineral resource development segment is engaged in the exploration, processing, refining and import and export trading of mineral resources, with zirconium and ilmenite concentrate as its main products. The company distributes its products in domestic market and to overseas markets.
Kunming Pharmaceutical Corporation	Kpc pharmaceuticals, inc. Is a China-based company principally engaged in the research and development, manufacturing and sales of pharmaceuticals. The company's main products include natural herbal medicines, traditional chinese medicines and chemical synthetic drugs, such as central nervous system drugs, cardiovascular and cerebrovascular drugs, anti-parasitic drugs, antimicrobial drugs, anti-gout drugs, hormones and endocrine drugs, hemorrhoids medicines and anti-inflammatory drugs, among others. The company is also engaged in the production of health products and provision of medical services.
Henan Rebecca Hair Products	Henan rebecca hair products co., Ltd. is a China-based company principally engaged in the manufacture and distribution of hair products. The company's principal products are synthetic hairpieces, chemical fiber hairpieces, chemical fiber wigs, human hair, wigs, artificial heads, and fire-retardant fibers. The company offers its products under the brand named rebecca. It distributes its products in domestic and overseas markets, including the americas, europe, africa, asia and oceania.
Keda Clean Energy Company Limited	Keda clean energy co ltd. Keda clean energy co., ltd. Is a China-based company principally engaged in the manufacture and sales of building material machineries. The company's main products include building ceramic machineries, wall material machineries, stone machineries, hydraulic pumps, compressors, blowers and materials of lithium batteries. The company is also involved in the provision of rental services and the clean energy environmental protection businesses, including the clean coal gasification and flue gas treatment businesses.
Sumec Corporation Limited	Sumec corporation limited is a China-based company mainly engaged in trading business. The company's main business is the import of bulk commodities and mechanical and electrical equipment, garden machinery, gasoline and diesel power generation equipment, auto parts, high-speed rail parts and other mechanical and electrical products and textile and apparel products research and development, production, trade, and new energy projects, ships engineering, environmental engineering, etc. The company distributes its products in domestic market and to overseas markets.
Chengtun Mining Group Company Limited	Chengtun mining group co.ltd is a China-based company, principally engaged in the trading and mining-dressing of nonferrous metal products. The company is engaged in the mining of copper, tin, tungsten, zinc, lead, gold and silver, as well as minerals and nonferrous metals integrated trading business. The company is also engaged in industrial value-added services business, including geological exploration, evaluation of resources value and inventory management, among others.
Sinoma International Engineering Company Limited	Sinoma international engineering co., Ltd. is a China-based company, principally engaged in engineering construction business, including cement engineering contracting business and diversified engineering business. The company is also engaged in equipment manufacturing business, environmental protection business and production operation management business. The company's equipment includes crushing equipment, grinding equipment, firing equipment, energy-saving equipment, among others. The company distributes its products within domestic markets and to overseas markets.
China National Chemical Engineering Company Limited	China national chemical engineering co., Ltd. is principally engaged in engineering construction and design. The company operates its businesses through engineering construction, as well as survey, design and related services. The company's businesses are primarily applied in industries such as chemical, petrochemical, coal chemical, electrical power, construction and environmental protection, among others. It operates its businesses in domestic and overseas markets.
China Railway Construction Corporation Limited	China railway construction corporation limited is a China-based company principally engaged in the engineering contracting businesses. The company's engineering contracting businesses mainly include the construction of railways, highways, urban tracks, water conservancy and hydropower projects, buildings, municipal projects, bridges, tunnels, airports and marine ports, among others. The company is also engaged in the industrial manufacturing, the real estate development, the logistics and materials trading businesses, as well as the provision of survey, design and consulting services. The company mainly operates its businesses in domestic and overseas markets.
Baiyin Non-Ferrous Group	Baiyin nonferrous group co., ltd. Is a China-based company principally engaged in the mining, smelting, processing and trading of nonferrous metals, including copper, lead, zinc, gold and silver. The company's main products include cathode copper, zinc ingots, electric silver, electric lead, gold and others. The company is also engaged in the provision of nonferrous metal processing services. The company distributes its products within domestic market and to overseas markets.
China Railway Group Limited	China railway group limited is a China-based company principally engaged in infrastructure construction business. The company is also engaged in survey, design and consulting services business, the manufacture of engineering equipment and components, and real estate development. Its infrastructure construction business includes railway construction, highway construction and urban engineering construction. Its survey, design and consulting services business includes the provision of survey, design and consulting services for railway, bridge, road and tunnel projects. The company conducts its businesses within in China and overseas markets.
China State Construction Engineering Corporation Limited	China state construction engineering corporation. China state construction engineering corporation limited is a China-based company principally engaged in the engineering contracting businesses. The company's main businesses include the construction contracting of buildings, infrastructure construction and investment, real estate development and investment, electricity, energy exploitation, survey and design, as well the municipal utility design services. The company mainly operates its businesses in domestic and overseas markets.
Power Construction Corporation Of China	Power construction corporation of China ltd. Power construction corporation of China, ltd. Is a China-based company principally engaged in the contracting, survey and design of water conservancy and hydropower projects. The company's principal businesses include the construction contracting, electric investment and operations, real estate development, equipment manufacturing and leasing, among others. The company is also engaged in the commodity trading, the sales of materials and the construction of highways and bridges through its subsidiaries. The company mainly operates its businesses in the domestic and overseas markets.
Petrochina Company Limited	Petrochina company limited is a China-based company principally engaged in the production and distribution of oil and gas. The company mainly operates through four business segments. The exploration and production segment is principally engaged in the exploration, development, production and sales of crude oil and natural gas. The refining and chemical products segment is principally engaged in the refining of crude oil and petroleum products, as well as the production and sales of basic petrochemical products, derivative petrochemical products and other chemical products. The sales segment is principally engaged in the sales of refined petroleum products. The natural gas and pipeline segment is engaged in the transportation and sales of natural gas, crude oil and refined petroleum products.

Zijin Mining Group Company Limited	Zijin mining group company limited is a China-based company principally engaged in the exploration, mining, smelting and sales of gold and other metal minerals. The company's main products include gold products, copper products, lead and zinc products, iron products, silver products, among others. Its gold products mainly include the mineral gold, standard gold bullions, gold ingots and gold concentrates, among others. The company is also involved in the geographic survey businesses through its subsidiaries.
Loncin Motor Company Limited	Loncin motor co ltd. Loncin motor co., ltd. Is a China-based company principally engaged in the manufacturing of various kinds of machineries. The company's primary businesses include the development, production and sales of engines (including road engines and off-road engines), motorcycles, generators (such as small household generators and large commercial generators), microelectric vehicles, unmanned aerial vehicles and automotive parts, among others. The company mainly operates its businesses in domestic and overseas markets.
Jiayou International Logistics Company Limited	Jiayou international logistics co ltd. Jiayou international logistics co., ltd. Is a China-based company principally engaged in the formulation of cross-border integrated logistics solutions based on customer personalized needs. The company mainly has four business segments. The cross-border multimodal transport segment mainly includes international project logistics and international multimodal transport business. The bulk mineral logistics segment mainly provides full standardization of logistics services. The intelligent storage segment mainly provides intelligent warehousing business services through customs bonded warehouses and customs supervision places at gan qimao port. The supply chain services segment mainly provides the overall market transaction information, customer price feedbacks, logistics solutions, warehousing, settlement and other services.
Jchx Mining Management Company Limited	Jchx mining management co., ltd. Is principally engaged in mine construction engineering and mining operations management businesses. Mine construction engineering business involves in mine capital phase construction engineering, mine production phase reconstruction construction engineering and other single technical improvement measures engineering, among others. The company also involves in design and consulting of mine engineering.
China International Marine Containers (Group)	China international marine containers (group) co., ltd. Is a China-based company principally engaged in the manufacture and distribution of road transport vehicles and containers. The company's main businesses include container manufacturing business; road transport vehicle business; energy, chemical and liquid food equipment business; ocean engineering business; logistics service business; heavy duty truck business; airport equipment business; real estate development business; financial business and others. The company's container products include dry cargo containers, standard reefer containers and specific cargo containers, among others. The company distributes its products in domestic market and to overseas markets.
Norinco International Cooperation Limited	Norinco international cooperation ltd. Is a China-based principally engaged in international engineering contracting business. The company is also involved in various other businesses, including domestic construction engineering, real estates, heavy equipment export trading, logistics services, logistics automation system integration services, solar energy product trading and new energy project development, as well as the manufacture and distribution of metal packaging containers. The company operates its businesses in domestic market and overseas markets.
China National Complete Plant	China national complete plant import & export corporation limited is a China-based company principally engaged in set equipment exporting and project contracting businesses. The company operates through set equipment exporting and project contracting segment, general merchandise trading segment and industrial investment and operation segment. Set equipment exporting and project contracting segment operates its business in various industries, including industrial, electric power, transportation, infrastructure and other industries throughout asia, africa and latin america. General merchandise trading segment mainly exports textiles, electric machinery, solar power systems and agricultural accessories, among others. Industrial investment and operation segment is mainly involved in the production and sale of sucrose and alcohol in overseas market in the form of leasing.
China Nonferrous Metal	China nonferrous metal industry's foreign engineering and construction co.,ltd. Is a China-based company principally engaged in the mining, selecting and smelting of nonferrous metals. The company's main products include lead concentrates, zinc concentrates, lead ingots and rare earth oxides, among others. The company is also involved in the international project contracting, the manufacture and trading of equipment and other businesses. The company operates its business in domestic and overseas markets.
China Wu Yi	Chinawuyico.,ltd. Is a China-based company principally engaged in the undertaking of construction engineering projects and the development of real estates. The company's construction contracting projects include building construction engineering projects, such as residential buildings, hospitals and convention centers, as well as public infrastructure projects, such as highways, bridges and airports. The company's real estate products include apartments, villas, shopping malls, office building and hotels, among others. The company is also involved in international trading, property management, building materials production and engineering supervision businesses. The company operates its business in domestic and overseas markets.
Xuanhua Construction Machinery	Xuanhua construction machinery co., ltd. Is a China-based company principally engaged in the mining development business, as well as the processing and sales of mineral products. The company's main products include copper, magnetite and vermiculite. The company is also involved in the manufacture and sales of engineering machinery and accessories. The company distributes its products in domestic market and to overseas markets.
China Camc Engineering Company Limited	China camc engineering co., ltd. Is an engineering construction contractor. The company undertakes various complete projects with the content of exporting complete sets of equipment and technology. The company's contract projects consist of industry projects, agriculture projects, water projects, electric power projects, transportation projects and others. In addition, the company involves in the domestic and overseas trading business, as well as asset management business. The company operates its business mainly in asia, south america, africa, europe and China.
Hengbao Company Limited	Hengbao co., ltd. Is a China-based company, principally engaged in the manufacture and distribution of various card products. The company's businesses and products include financial integrated circuit (ic) cards, citizen cards, social security cards, health cards, communication and internet of things connection products, intelligent terminal products and security products, among others. The company is also engaged in the provision of notes, modules and software products. The company conducts its businesses within domestic market and to overseas markets.
Canny Elevator Company Limited	Canny elevator co.,ltd is a China-based company principally engaged in the research, development, production and distribution of elevators. The company's main products include elevators, escalators, moving pavements and related parts and components. The company's products are mainly used in residential buildings, shopping malls, hotels and public facilities, among others. The company also provides installation and maintenance services. The company distributes its products in domestic market and to overseas markets.
Chongqing Sansheng Industrial Company Limited	Chongqing sansheng industrial co.,ltd., formerly chongqing sansheng industrial co., ltd.,is a China-based company principally engaged in the comprehensive utilization and product development of plaster resources and pharmaceutical business. The company operates through two main segments. The construction materials and chemical industry segment is mainly involved in the manufacturing and sales of commercial concretes, water reducing agents, expanding agents and

	sulfuric acids. The company's products are mainly applied in the construction, tunnels, bridges, seaports, roads, chemical fertilizers, chemical engineering, light manufacturing, textiles, steels and others. The pharmaceutical business segment is primarily involved in the production, research and development of raw material medicines, preparation products and intermediate products.
Crrc Corporation Limited	Crrc corporation limited, formerly csr corporation limited, is a China-based company, principally engaged in the manufacture and distribution of railway transportation equipment. The company's main businesses consist of the research and development, design, manufacture, repair, distribution and leasing of railway locomotives, electric multiple units (emus), rapid transit vehicles, engineering machinery, mechanical and electrical equipment, electronic devices and components, electronics and environmental protection equipment. The company is also engaged in the provision of related technical services. The company distributes its products within domestic market and to overseas markets.
Ningxia Orient Tantalum	Ningxia orient tantalum industry co., ltd. Is a China-based company principally engaged in the smelting and processing of precious metals. The company's products portfolio consists of tantalum products, niobium products, tantalum alloys, niobium alloys, energy materials and silicon carbide, among others. The company's products are mainly applied in electronics, metallurgy, chemical engineering, aviation, atomic energy and other fields. The company is also engaged in the import and export trading of nonferrous metals and equipment. The company distributes its products within domestic market and to overseas markets.