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Firm Accounting Practices, Accounting Reform and Corruption in Asia

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Abstract

Despite rapid economic growth and assiduous efforts in anti-corruption campaigns, many Asian economies continue to be plagued with rampant corruption problems; and in a number of countries, the progress towards corruption reduction has stagnated over the last decade as measured by corruption perception indices. This paper focuses on the corporate sector as the main source of corruption problems in Asia, with particular emphasis on the impact that firm accounting practices have on the level of bribery. Using a unique cross-country firm-level dataset, we examine some distinct characteristics of bribery in corporate Asia, and empirically test the relationship between firm accounting practices and bribery. Our findings suggest that that better accounting practices can help reduce both the incidence of bribery activities and the amount of bribe payments, but conforming to high quality accounting standard alone will not necessary enhance the quality of accounting practices and thus will not automatically bring down the incidence of bribery.

Key Words: Accounting, Bribery, and Corruption

Introduction

Despite rapid economic growth, many Asian economies continue to be plagued with rampant corruption problems. According to the 2004 Corruption Perception Index (CPI) by Transparency International (Table 1), with only a few exceptions (Singapore and Hong Kong) most Asian countries are ranked as having a high level of corruption, and some of them ranked among the most corrupt countries in the World (Myanmar, Azerbaijan and Bangladesh in particular). On a more startling note, in countries such as India, Indonesia, Malaysia, Pakistan, and the Philippines, the progress towards corruption reduction has stagnated over the last decade despite of enormous resources directed to anti-corruption programs.

Table 1

Corruption in Asia: Corruption Perception Index 1995-2004

	1995		2000		2004	
	Raw score	Rank	Raw score	Rank	Raw score	Rank
Azerbaijan			1.5	87	1.9	140
Bangladesh					1.5	145
China	2.2	40	3.1	63	3.4	71
Hong Kong	7.1	11	7.7	15	8.0	16
India	2.8	35	2.8	69	2.8	90
Indonesia	1.9	41	1.7	85	2.0	133
Japan	6.7	20	6.4	23	6.9	24
Kazakhstan					2.2	122
Malaysia	5.3	23	4.8	36	5.0	39
Mongolia					3.0	85
Myanmar					1.7	142
Nepal					2.8	90
Pakistan	2.3	39			2.1	129
Papua New Guinea					2.6	102
Philippines	2.8	36	2.8	69	2.6	102
Singapore	9.3	3	9.1	6	9.3	5
South Korea	4.3		4.0	48	4.5	47
Sri Lanka					3.5	67
Thailand	2.8	34	3.2	60	3.6	64
Vietnam			2.5	76	2.6	102

Data Source: Transparency International

The prevalence of corruption in Asia has attracted a great deal of attention in literature. Some scholars point to the emphasis of Asian culture on personal connections and collectivism to explain why Asian countries tend to be more corrupt than others. For example, Moon and Mclean (2003) blamed Confucian values for the ineffectiveness of anti-corruption efforts in Korea as “Confucian values override rationality, fairness and openness in public service”. Other scholars attribute rising corruption in the region to the democratization movement underway in many Asian countries, warning that money politics coupled with weak institutions could lead to more corruption during transitional period (Pye, 1997; Werlin, 2000). No matter how convincing these propositions are to account for the prevalence of corruption in Asia, however, they contribute very little towards the design of more effective anti-corruption strategies for the region. The cultural change may take decades, generations and even centuries if it takes place at all; and rising corruption levels could be perceived as a reasonable price to pay for political development.

Another main shortcoming in the literature is that the role of the corporate sector in the prevalence and persistence of corruption in Asia has for the most part been overlooked. Corporate Asia has several unique features that might pose potential challenges for effective anti-corruption campaigns. First of all, government-business relations in Asia are often governed by patron-client networks under which politically connected businesses can easily become vehicles for corrupted politicians to seize enormous economic rents (Wu, 2005b). Second, the majority of businesses in Asia are family businesses that are often more vulnerable to extortion of predatory officials because of their weak negotiation positions and less stringent information disclosure requirements. Third, low corporate governance standards in many Asian countries may greatly facilitate corrupt exchanges. For example, while accurate financial information reporting is essential to detect bribery and fraud, the tempering and doctoring of accounting reports have been widespread practices in Asian firms (Claessens and Fan, 2002)

Ignoring the role of the corporate sector in corruption may have severely limited the effectiveness of any anti-corruption campaign. While corrupt politicians and government officials are the bribe-takers, it is often the private sector (especially the corporate sector) that offers the bribes (Vogl, 1998; Wu, 2005a). The corporate sector is both the victim and perpetrator of corruption: while businesses are often subject to extortion from corrupt government officials, it is not uncommon to find that businesses themselves initiate the bribery deal in order to evade their responsibilities to the public or to undermine the efforts of their competitors.

This article focuses on firm accounting practices as a potential contributing factor of corruption in Asia. Corruption, regardless of which form it takes, usually involves a financial payment, inevitably leaving a paper trail behind in accounting record. Accountants and auditors are thus in a unique position to detect and prevent corrupt acts. In Asia, however, the accounting practices in many firms are often of low quality. On one hand, firms may find it convenient to have murky accounting practices because they can easily tamper with their accounting books to evade extortion or to shield them from unfair discrimination by the government. On the other hand, bad accounting practices also make it difficult to detect and prevent other business flaws that are detrimental to the firms.

The 1997-98 Asian financial crisis has decidedly changed firms' calculation of the benefits and costs of establishing better quality financial reporting systems. The low standard of accounting practices has been recognized as a major factor contributing to the crisis (Rahman, 1998; Johnson et al, 2000; Mitton, 2002), and many Asian governments have launched various accounting reforms to enhance the quality and disclosure of accounting information in order to restore the investor confidence (ADB, 2001). Typical reform initiatives implemented in the region include the adoption of International accounting standards (IAS) and the strengthening of the role of external auditors.

The main objective of our paper is to examine the importance of accounting practices in reducing bribery, as well as the effectiveness of accounting reform as an anti-corruption strategy. Using a unique cross-country firm-level dataset, we examine some distinct characteristics of bribery in corporate Asia, and empirically test the relationship between firm accounting practices and the level of bribery. Our findings suggest that that better accounting practices can help reduce both the incidence of bribery activities and the amount of bribe payments, but merely conforming to high quality accounting standard alone will not necessary enhance the quality of accounting practices and thus will not automatically bring down the incidence of bribery.

In the next section, we will provide an account of prevalent bribery practices in corporate Asia by using the dataset from the World Business Environment Survey. Following that, we propose a theoretical link between the firms' accounting practices and the incidence of bribery. Then, we will present our empirical findings on the effect of accounting practices on corruption, based on multivariate analysis. Finally, we will conclude our analysis by discussing some policy implications of our findings.

Bribery Activities in Corporate Asia

While it is widely believed that bribery is widespread among Asian firms, few studies provide systematic evidence of actual bribery activities across Asian countries. Most existing studies focus on the demand side of the corruption, that is, on the corrupt officials who receive bribes, while the role of the corporate sector in providing the payoffs is largely ignored. As a result, many critical questions regarding the extent and nature of bribery activities in corporate Asia remain unanswered. For instance, to what extent do Asian firms engage in bribery? How much in bribes do Asian firms pay? Do firms normally know the amount of bribery in advance? Would the corrupt officials deliver their services after receiving the bribery

payments? Do firms have other options without reverting to bribery? What are the differences across countries and across firms within each country?

The World Business Environment Survey (WBES) provides a unique dataset that is suitable for comparative analysis of bribery activities in Asia. The survey was conducted in 1999-2000 by the World Bank with the aim to understand the constraints facing businesses, and it covers 83 countries, including 12 Asian countries. The coverage of the survey in Asia and the number of firms in each country are reported in Table 2. The survey is unique because it contains several questions directly related to the corruption and bribery in firms. For example, one question asks firms how often they have to pay “additional payment” to public officials to get things done¹, and another question elicits the amount of bribe paid as a percentage of the firms’ revenues².

Table 2

Coverage of World Business Environment Survey in Asia

Country	Number of firms
Azerbaijan	128
Bangladesh	50
Cambodia	326
China	101
India	210
Indonesia	100
Kazakhstan	127
Malaysia	100
Pakistan	103
Philippines	100
Singapore	100
Thailand	422
Total	1867

¹ Firms were asked: “How often do firms in my line of business have to pay some irregular ‘additional payments’ for government officials to get things done?” The responses were tabulated across a range - Always, Usually, Frequently, Sometimes, Seldom and Never.

² Firms were asked: “What percentage of revenues do firms like yours pay per annum in unofficial payments to public officials?” The responses ranged across percentage - 0%, less than 1%, 1 to 2%, 2-10%, 10 to 12%, 12 to 25%, and over 25%.

Table 3 presents an overall assessment of the bribery practices in Asian firms. Fifty-four percent of Asian firms regularly pay bribes to public officials, and only 17% of firms have never paid any bribe. The results unquestionably reveal the highly institutionalized bribery practices in many Asian countries: firms generally know in advance the amount of bribe payments that have to be made, and the bribe takers do deliver their services once the bribe payments are received. It is equally revealing to find that many firms have the option of not paying bribes. While the bribe-extracting officials are highly predatory, as about half of the firms report that bribery payment may lead to additional requests for bribe payments, over fifty percent of the firms do have the option of not paying the bribes. It is clear that the corporate sector is not just a 'victim' of corruption, and many firms are in fact active and willing parties to corrupt transactions.

Table 3

Bribery Activities in Asian Firms

	Frequently	Sometimes	Seldom	Never
Do firms have to pay some irregular "additional payments" to government officials to get things done?	54%	19%	10%	17%
Do firms know in advance about how much this "additional payment" is?	57%	22%	12%	9%
Is the service delivered as agreed If the firm pays the required "additional payment"?	77%	13%	5%	5%
Would another government officials subsequently require an additional payment for the same service if firm pays the required additional payment to a particular government official?	47%	21%	11%	20%
Can the firms go to another officials to get the correct treatment without recourse to unofficial payments if a government agent acts against the rules?	29%	24%	22%	25%

Data source: WBES (2000) and author's calculation.

Considerable variations in the levels of bribery are found among different Asian countries. Table 4 shows the frequency of the bribery payments by firms in different countries. In Bangladesh, where bribery is the most prevalent among all countries in the sample, 96% of firms reported that they regularly bribe public officials. In Singapore, only 2% of firms are found to offer bribes regularly and 90% of firms never pay any at all. It is interesting to note that the rank of a country in the Corruption Perception Index roughly corresponds to the frequency of the bribery payments—not only suggesting that the findings are robust, but also confirming that the corporate sector is indeed the main contributor of the rampant corruption problems in Asia.

Table 4

Incidence and Amount of Bribery across Asian Countries

	Incidence of Bribery				Amount of Bribery Payments as % of Sales			
	Frequently	Sometimes	Seldom	Never	less than 1%	1-10%	10-25%	Over 25%
Azerbaijan	59%	9%	14%	17%	20%	47%	26%	7%
Bangladesh	94%	4%	2%	0%	32%	48%	19%	0%
Cambodia	44%	27%	14%	15%	27%	50%	18%	5%
India	55%	28%	6%	11%				
Indonesia	68%	23%	3%	6%	28%	45%	23%	4%
Kazakhstan	24%	35%	13%	28%	45%	35%	17%	3%
Malaysia	20%	27%	7%	45%	32%	42%	26%	0%
Pakistan	70%	17%	9%	4%	21%	48%	29%	3%
Philippines	43%	27%	17%	13%	44%	44%	13%	0%
Singapore	2%	1%	7%	90%				
Thailand	79%	10%	8%	4%	29%	48%	21%	2%
Total	54%	19%	10%	17%				

Data source: WBES (2000) and author's calculation.

The amount of bribes made by firms that report graft activities also differ considerably in different countries (Table 4). In Azerbaijan, Indonesia, Pakistan and Malaysia, more than a quarter of the firms that engage in bribery pay out at least 10% of their sales as bribes. It is of interest to observers that the amount of bribes made might not be correlated closely with the incidence of bribery across countries. For example, the incidence rate of bribery reported by

Malaysian firms is quite low, but a significant portion of firms that are involved in bribery make sizeable payouts. In Bangladesh however, although 98% of firms report some levels of bribery activities, the majority of the firms make small payouts. This suggests that anti-corruption programs may, in fact, result in an increase in the amount of each bribe payout as a higher reward is needed to justify the increased risk of being caught (Rose-Ackerman, 2002).

In summary, the corporate sector is an important source of prevalent corruption problems in Asia. Based on WBES results, the majority of Asian firms have been involved in bribery activities although there are significant variations across countries. Firms pay a significant portion of their sales as bribes, and bribe payments often lead to more extortion from predatory officials.

Although corporate Asia is a major contributing factor of corruption, the potential of containing corruption through the reduction of bribery practices in the corporate sector has not been explored fully. Highly institutionalized bribery practices in Asia suggest that the mechanisms of detecting and preventing bribery activities in the corporate sector are quite weak, and that significant progress can be made by targeting this weak link in the battle against corruption.

Linking Firm Accounting Practices with Corruption

On the surface bribery may appear to be cost-effective for the firms because bribe payment is often a fraction of the services provided by the bribe takers, and it might be especially true for Asian firms as the bribe takers are reportedly able to honor their promises. However, the seemingly justifiable bribery practices have several hidden costs for the firms in the long run. Participating in bribery activities could expose firms to substantial legal and financial risks in the future, and open the door for more extortions as we see in last section. Bribery also

undermines the firms' strategies in developing long-term competitive advantage if they continue to rely on bribe payments to win businesses (Wu, 2005a).

Why do so many firms engage in bribery activities if it is not in their best interest to be involved in such activities? The principal-agent problems often arise in modern corporations where the ownership and management are separated as the interests of the managers (the agents) may not coincide with that of the owners (the principals). As a result, the managers might pursue their own interests at the expense of the owners and other stakeholders of the firms. For example, securing a public project by bribing public officials may increase the compensation for the managers, but the firm could be held criminally liable for such action, and the owners and other stakeholders are forced to take the blame for the managers' actions.

The multiple layers in corporate structure can also be an obstacle to effective internal control of a company. Even if the top management is committed to ethical business conduct, lower-level managers or employees may engage in corrupt practices to increase their short-term personal gains. For example, many multi-national companies have established subsidiary companies to penetrate markets in developing countries, and there have been several high profile bribery cases involving these subsidiaries in recent years (e.g., Xerox in India and IBM in Argentina).

Firm accounting practices are essential in preventing and detecting bribery. Bribery often involves financial payment in one form or another, and it inevitably leaves behind a paper trail. Accounting is an information system that reports financial transaction and auditing serves as the monitoring and internal control mechanism—together they form a critical line of defense against corrupt practices. Accounting and auditing are also essential in detecting bribery activities. Unusual and excessive expenditure may immediately raise the red flag on the possibility of bribery, and a departure from the routine handling of financial transactions

could also catch the attention of well-trained accountants. It is thus no surprise that accountants are often closer than other professional in detecting corrupt acts (Kimbrow, 2003).

On the other hand, poor financial information reporting systems can greatly undermine the firms' ability to detect and prevent bribery activities. Those who deal with a firm's business operations may hold certain advantages over others with regard to the information on business transactions, which enable them to exploit the weaknesses of the accounting system. For example, if the accounting rules on depreciation rates and equipment upgrading are not well established or implemented, bribe payouts can be easily disguised as high equipment depreciation costs while a claimed equipment upgrading never takes place.

More formally, the effects of firm accounting practices on bribery can be outlined as follows. First of all, better accounting practices can reduce bribery by solving the problem of information asymmetry inherent in modern corporations. The information asymmetry problem originates from the fact that agents often have some advantage over principals in their access to information, as they are closer to business operations. Clear accounting rules and implementation guidelines level the playing field between the agents and principals over information, enabling the latter to more effectively monitor and assess the behaviors of the agents.

High quality accounting practices can also help to deter bribery activities from the demand side because the bribe-extracting official would face greater risks of being caught if firms' have good accounting systems. By committing to better accounting practices, a firm is also sending a strong signal to other firms that that it is determined to close door to bribery practices, limiting the chances for predatory officials to play the firms against each other in eliciting bribes.

Last, better accounting practices can help prevent high level or “grand corruption” for which bribes are paid in exchange for favored treatment on contracts, concessions and privatization deals, because it would make it almost impossible to hide the huge payments under a well-run accounting system. While greatly outnumbered by “petty corruption”, which is widespread in many developing countries, “grand corruption” often has far more destructive impact on a country’s economic and political system (Rose-Ackerman, 2002).

Empirical Findings

1. Firm Accounting Practices in Asia

Maintaining high quality financial information reporting is strenuous on both time and resources, involving long term high costs and the deployment of highly educated human capital such as accountants and lawyers (Bushman and Smith, 2001). Many firms in developing countries in Asia may be reluctant to make the resource commitment needed to maintain high quality financial information reporting. Firms also lack proper incentives to improve the quality of financial information reporting, because murky accounting practices make it easier to tamper with accounting information to evade tax obligations, a common practice among Asian firms. In addition, the manipulation of accounting information is not only tolerated, but also implicitly encouraged by predatory governmental officials because it leaves the door wide open for extortion.

Over the last decade, however, the value of high quality accounting practices has been gaining recognition in many Asian countries. First of all, as companies face increasingly competitive environments, the access to capital becomes essential for firms’ survival and growth. If firms have low quality financial information reporting, they could face high hurdles in securing the capital resources they need. Secondly, as globalization deepens, the expansion of international trade makes it increasingly necessary to have a common set of accounting standards that will provide a level playing field for all companies worldwide. The

International Accounting Standards Committee (IASC) has been actively promoting the use of a single set of accounting standards that will ultimately be acceptable to all countries as the basis for cross-border financial transactions (Bushman and Smith, 2001). Finally, the rapid economic growth in many Asian countries has enabled these countries to focus on the development of human resources necessary for strengthening financial reporting. For example, business education in Asia has experienced significant growth over the last twenty years and tens of thousands business professionals graduate with MBA degrees annually.

The single most important event that altered Asian firms' perception of the importance of accounting practices is the 1997-98 Asian financial crisis. It is widely believed now that inadequate financial disclosure was a leading cause of the crisis. Choi (2001) argues that the noncompliance of financial statements with International standards, the firms' disclosure deficiencies and the lack of rigorous monitoring by external auditors are among the leading causes for the financial crisis in Korea. Rahman (1998) conducted a comparative study of five East Asian countries affected by the crisis and he found most of the companies in these countries did not follow International Accounting Standards (IAS).

In the aftermath of the Asian financial crisis, many Asian countries have undertaken accounting reforms to strengthen the quality of financial reporting. Countries that have largely escaped the crisis, such as China, have also realized the financial risks associated with poor accounting practices (Lin and Chen, 2000). Typical reform measures in Asian countries involve the adoption of International accounting standards and independence in audit. Table 5 shows that the effects of these reform initiatives at the firm level have been quite impressive: roughly fifty percent of the firms in the WBES sample now use International accounting standards and about 60% of firms hire external auditors to review their annual financial statements.

Table 5

Accounting Standards and Their Implementations across Asian Countries

	Accounting Standards		Accounting Practices		
	Percent of firms use international accounting standards (IAS)	Percent of firms have annual financial statements that have been reviewed by external auditor	Percent of firms report 100% of their sales for tax purpose	Percent of firms report 50-99% of their sales for tax purpose	Percent of firms report less than 50% of their sales for tax purpose
Azerbaijan	18%	8%	29%	53%	18%
Bangladesh	76%	95%	15%	69%	15%
Cambodia	27%	22%	24%	35%	41%
China	12%	43%	14%	34%	52%
India	75%	97%	54%	44%	2%
Indonesia	45%	52%	32%	51%	17%
Kazakhstan	63%	37%	54%	39%	7%
Malaysia	20%	47%	26%	40%	34%
Pakistan	64%	52%	28%	49%	24%
Philippines	31%	81%	46%	41%	13%
Singapore	68%	95%	88%	7%	6%
Thailand	62%	83%	21%	61%	18%
Total	48%	58%	34%	45%	21%

Data source: WBES (2000) and author's calculation.

The adoption of the rules and regulations in accounting reforms, however, should not be interpreted as equal to having good accounting practices. Accounting scandals in US, such as Enron, WorldCom, and Tyco, suggest that accounting flaws occur even in developed countries with good accounting rules and highly competent professionals. Accounting standards are only as good as the enforcement mechanisms driving them, and the external auditors may align their interests with corrupt corporate boards and managers by turning a blind eye on irregularities in accounting reports. Choi (2001) argues that change in accounting practices may take a long time to be fully implemented, although it is relatively quick to introduce the change. Rosser (2003) observes that, while the adoption of IAS in Indonesian

firms may create a positive image for foreign investors that they are doing something to improve the quality of financial information reporting, little has changed in actuality.

The difficulties of carrying out accounting reforms are confirmed by our empirical results. Table 5 indicates that there is a sizable disparity between the accounting standards and their actual implementation. While 50% of firms use International accounting standards and 60% hire external auditors to auditor annual financial reports, only 34% of firms would report 100% of their sales for accounting purposes. This disparity is especially startling for firms in South Asia. For example, in Bangladesh, while 76% of firms use International accounting standards and 95% of firms have their annual financial statements audited by external auditors, only 15% report 100% of their sales and more than half of the firms only report less than 50% of their sales for tax purposes. It is clear that conforming to new accounting standards alone would not guarantee good accounting practices.

On the other hand, while comparisons between standards and implementation indicate the inadequacy of reforms in changing accounting practices, there is no denying of some improvements made by the accounting reforms in Asian firms. Table 6 shows the correlation between the accounting rules, such as in the adoption of IAS and the use of external auditors, and firms' actual accounting practices. Overall, the accounting practices are marginally better for the firms that have adopted the IAS and the same can be said about the use of external auditors.

Table 6

Effect of Accounting Standards on Accounting Practices

	Percent of firms report 100% of their sales for tax purpose	Percent of firms report 50-99% of their sales for tax purpose	Percent of firms report less than 50% of their sales for tax purpose
Firms that do not use international accounting standards (IAS)	26%	46%	28%
Firms that use international accounting standards (IAS)	43%	43%	14%
Firms that don't provide their shareholders with annual financial statements that have been reviewed by an external auditor	25%	44%	32%
Firms that provide their shareholders with annual financial statements that have been reviewed by an external auditor	43%	43%	13%

Data source: WBES (2000) and author's calculation.

In the remainder of this section, we examine the relationship between firm accounting practices and bribery by using the three measures of accounting practices – the adoption of IAS, the use of external auditors and the percentage of sales reported for tax purpose.

2. Econometric Models

Two econometric models – the probit model and the interval regression model – are used to test the hypotheses regarding the relationship between firm accounting practices and bribery. The probit model focuses on the firms' decisions to engage in or refrain from bribery in their business operations, while the interval regression model focuses on the determinants of the

size of the bribery payments. Together, these econometric models provide empirical evidence of the relationship between firm accounting practices on bribery activities.

While the main variables of interest are the incidence of bribery and the firms' accounting practices, other variables are included in the models to control for alternative interpretations of bribery activities at the firm level. In particular, we assume that the bribe (b_{ij}) that firm i in country j pays (as a share of revenue) is a function of the firm's characteristics (x_{ij}), the characteristics of bribery (y_{ij}), the characteristics of firm-specific external environment (z_{ij}), country level characteristics (c_j) and a normally distributed unobserved error term (ε_{ij}):

$$b_{ij} = \alpha + \beta_1 x_{ij} + \beta_2 y_{ij} + \beta_3 z_{ij} + \beta_4 c_j + \varepsilon_{ij}$$

Besides the three variables measuring firm accounting practices, firm characteristics such as firm size and ownership type are included. Small firms may be easy targets for predatory governmental officials because of their lack of power to resist monetary demands, at the same time they can avoid detection by government authorities more easily (Svensson, 2003). The type of ownership may also affect the firms' propensity for bribery. Private ownership may be positively correlated with incidence of bribery because private firms tend to have higher profits while managers of public enterprises might be more able to resist bribe demands (Clarke and Xu, 2004).

The nature of bribery is measured by three variables: BRIBEPRED, BRIBEDELIV, and BRIBREALTER. The first variable, BRIBEPRED, measures the extent to which the amount of payment is known in advance, indicating the level of institutionalization of bribery practices. Firms are more likely to pay bribes in an environment where there is less uncertainty regarding bribery (Herrera and Rodriguez, 2003). The second variable, BRIBEDELIV, measures the extent to which the briber takes would deliver their services after the bribe payments are made. Firms are more likely to pay bribes if they are assured that the bribe-

takers would deliver on their promises. The last variable, BRIBEALTER, measures whether or not the firms have the options of not paying bribes. Firms are less likely to pay bribes if they have viable alternatives to bribery.

The firms' operating environment can also play a significant role in determining the extent of the graft activities it engages in. Here we examine four dimensions: the quality of the legal system (JUDICIAL), licensing requirements (LICENSING), taxation (TAXATION), and the level of competition (COMPETITION). JUDICIAL is the level of confidence a firm has in the ability of the legal system to uphold contract and property rights in business disputes. Bribery would be more prevalent in countries where firms have low confidence in its judicial system because the corrupt exchange is unlikely to be punished even if it is exposed. LICENSING and TAXATION, on the other hand, measure the discretionary power government officials have over the businesses; LICENSING is the extent to which business licensing is problematic and TAXATION is the firm's perception of the extent to which tax regulation/administration is problematic. We expect that the more discretionary power officials have in licensing and taxation, the higher the incidence of bribery activities. The final component is the number of competitors (COMPETITION) the firm has. When there are more competitors, firms become concerned that there will be more incidences of bribing to gain business advantage. They may also increase bribe amounts as part of a bidding war to elicit more services from corrupt officials.

Firms are more likely to engage in bribery activities in a country where the overall corruption level is higher because the moral cost of bribery is low or the likelihood of being caught is minimal (Clarke and Xu, 2004). To control of the effect of the overall level of corruption on firm's propensity for bribery, we include the corruption perception indices by Transparency International in the model. This is a country-specific variable because all firms in a particular country would face the same overall level of corruption.

The dependent variable for the probit model is I_{ij} , a dummy variable indicating whether or not firm i in country j is involved in bribery activities. I_{ij} takes 1 if the firm has engaged in bribery, and I_{ij} equals to 0 if the firm has never been involved in bribery. The likelihood function for the probit model can be expressed as follows:

$$L = \sum_{i,j} \{I_{ij} \log \phi(\alpha + \beta_1 x_{ij} + \beta_2 y_{ij} + \beta_3 z_{ij} + \beta_4 c_j) + (1 - I_{ij}) \log [1 - \phi(\alpha + \beta_1 x_{ij} + \beta_2 y_{ij} + \beta_3 z_{ij} + \beta_4 c_j)]\}$$

where ϕ is the standard normal distribution.

The dependent variable for the interval regression model is taken from responses to the question on the amount of bribes as a percentage of the firm's revenue. Only firms responding with non-zero percentage are included in the estimation, and six brackets are constructed, corresponding to firms reporting less than 1%, 1 to 2%, 2-10%, 10 to 12%, 12 to 25%, over 25%. They are, respectively, (0, 0.01), (0.01, 0.02), (0.02,0.1), (0.1, 0.12), (0.12, 0.25), (0.25, 1.00). The two numbers in the each bracket indicate the lower (b_{ij}^{lower}) and upper bound (b_{ij}^{upper}) of the bribery payment made by the firm. The likelihood function for the Interval Regression Model can thus be expressed as:

$$L = \sum_{i,j} \log \left[\phi \left(\frac{b_{ij}^{Upper} - \alpha - \beta_1 x_{ij} - \beta_2 y_{ij} - \beta_3 z_{ij} - \beta_4 c_j}{\sigma} \right) - \phi \left(\frac{b_{ij}^{Lower} - \alpha - \beta_1 x_{ij} - \beta_2 y_{ij} - \beta_3 z_{ij} - \beta_4 c_j}{\sigma} \right) \right]$$

A description of the variables for the models is shown in Table 7. All data are from WBES, except for the Corruption Perception Index (CORRUPTION) at the country level, which is from Transparency International. Both models are estimated by using maximum likelihood estimation.

Table 7

Description of Variables

SMALL	Dummy variable. 1=Small size firm; 0=all others
MEDIUM	Dummy variable. 1=Medium size firm; 0=all others
PRIVATE	Dummy variable. 1=Corporation privately held; 0=all others
IAS	Dummy variable. 1=firm adopts international accounting standards; 0=all others
AUDIT	Dummy variable. 1=Annual financial statements reviewed by external auditor; 0=all others
UNREPORT	The percentage of the sales firms "keep off the books." Scale from 1 to 7 (1=0%; 2=1-10%; 3=11-20%; 4=21-30%; 5=31-40%; 6=41-50%; 7=more than 50%)
BRIBEPRED	The extent to which the amount of bribery payment is known in advance. Scale from 1 to 6 (1=never; 2=seldom; 3=sometimes; 4=frequently; 5=mostly; 6=always)
BRIBEDELIV	The extent to which the service for bribery payment is delivered after the payment is made. Scale from 1 to 6 (1=never; 2=seldom; 3=sometimes; 4=frequently; 5=mostly; 6=always)
BRIBEALTER	The extent to which the firm has option of going to different officials to correct the treatment without reversing to bribery. Scale from 1 to 6 (1=never; 2=seldom; 3=sometimes; 4=frequently; 5=mostly; 6=always)
JUDICIAL	Level of confidence on the legal system to uphold contract and property rights in business disputes (1=very confident; 2=confident in most cases; 3=somewhat confident; 4=somewhat unconfident; 5=unconfident in most cases; 6=very unconfident)
LICENSING	The extent to which business licensing is problematic. Scale from 1 to 4 (1=no obstacle; 2=minor obstacle; 3=moderate obstacle; 4=major obstacle)
TAXATION	The extent to which tax regulations/administration are problematic. Scale from 1 to 4 (1=no obstacle; 2=minor obstacle; 3=moderate obstacle; 4=major obstacle)
CORRUPTION	Corruption Perception Index 2000 (Transparency International)
COMPETITION	Number of competitors

Regression Results

The results of the two models are presented in Table 8. Column (1) and (2) report the coefficients and standard errors of the estimation of Probit Model while Column (3) and (4) show the results of the Interval Regression Model. The main difference between Column (1) and (2) is the measurement for firm accounting practices in the model: the adoption of IAS and use of external auditors are used in the first model while the percentage of sales reported for tax purpose is used in the second model, and the same can be said about the difference between Column (3) and (4).

Table 8

Regression Results

	Probit Model		Interval Regression	
	(1)	(2)	(3)	(4)
SMALL	0.026 (0.245)	0.025 (0.240)	0.011 (0.009)	0.012 (0.008)
MEDIUM	0.033 (0.237)	-0.066 (0.237)	0.005 (0.008)	0.003 (0.008)
PRIVATE	-0.288 (0.196)	-0.394** (0.188)	0.002 (0.007)	0.000 (0.007)
IAS	-0.075 (0.198)		-0.001 (0.007)	
AUDIT	-0.073 (0.226)		-0.006 (0.007)	
UNREPORTED		0.076** (0.032)		0.002** (0.001)
BRIBEPRED	0.131** (0.065)	0.077 (0.066)	0.008*** (0.002)	0.006*** (0.002)
BRIBEDELIV	0.207*** (0.074)	0.252*** (0.075)	0.000 (0.003)	-0.001 (0.003)
BRIBEALTER	-0.019 (0.061)	-0.031 (0.061)	-0.006*** (0.002)	-0.005*** (0.002)
JUDICIAL	-0.176** (0.082)	-0.162** (0.080)	-0.008*** (0.002)	-0.009*** (0.002)
LICENSING	-0.056 (0.095)	-0.084 (0.095)	0.002 (0.003)	0.003 (0.003)
TAXATION	0.155** (0.093)	0.226** (0.094)	0.005 (0.003)	0.005* (0.003)
CORRUPTION	0.219*** (0.069)	0.213*** (0.064)	0.004 (0.003)	0.005* (0.003)
COMPETITION	0.342** (0.148)	0.298** (0.143)	-0.005 (0.005)	-0.004 (0.005)
CONSTANT	-1.678** (0.732)	-1.967*** (0.735)	0.021 (0.031)	0.015 (0.028)
Number of Observations	574	617	416	441
Pseudo-R ²	0.293	0.307	-	-

Note: The table reports unstandardized coefficients, with standard errors in parentheses.

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Most control variables in the two models are generally consistent with the prior predictions as well as findings of other empirical studies, although statistical significance levels vary depending on model specifications.

Variables on firm characteristics have limited explanatory power on the incidence and amount of bribery. The coefficients on SMALL shows that small firms are more likely to engage in bribery and they pay more in bribes, but both effects are not statistically significant. Contrary to findings by Clarke and Xu (2004) and Svensson (2003), private firms in Asia are not more prone to bribery activities than their public counterpart, indicating that bribery is also widespread practice among public-owned firms in Asia.

The level of institutionalization for bribery activities has statistically significant effect on both the incidence and amount of bribery. The more predictable the amount of bribery payment, the more likely the bribery activities and the higher the bribery payments. The extent to which the bribe-takers can deliver their services has statistically significant effects on the incidence of bribery, but its effects on the amount of bribery payments are not statistically significant. The coefficients and error terms on BRIBEALTER suggest that, while firms with options to abstain from bribery tend to pay less in bribery payments because they have stronger negotiation power in dealing with bribe-takers, such effects on the incidence of bribery is not statistically significant.

The results also show that firms' operating environments play an important role in determining both the incidence and amount of bribery. Both the incidence and amount of bribery decrease as the firm has more confidence in the judicial system. TAXATION seems to be a bigger concern for Asian firms in comparison to licensing requirements. Firms that report resentment for tax regulations and administration (TAXATION) are more likely to engage in bribery, while those who report dissatisfaction over licensing requirements (LICENSING) do not have statistically significant effects. In addition, more competition does make firms more likely to pay bribes, although its effect on the amount of bribery is not statistically significant. Finally, the overall level of corruption is indeed important in shaping firms' behaviors with regard to bribery. Firms in a country where the overall corruption level is higher are more likely to get involved in bribery. Firms are caught in a catch-22 situation

high level of corruption forces firms to engage in bribery, but by doing so firms also directly contribute to the increase the overall corruption level in the country. This vicious cycle of bribery and corruption makes it difficult to eradicate corruption at the firm level.

While the effects of the first two measures of firm accounting practices—adoption of IAS and use of external auditors – have expected effects on both the incidence and amount of bribery, these effects are not statistically significant, results of Column (2) and (4) show that firm accounting practices measured by the percentage of sales reported does have expected effects on bribery activities and it is statistically significant. The prevention of accounting irregularities such as keeping sales off the books can play a positive role in the battle against corruption from the perspective of the corporate sector. Our findings indicate that both the potential and limitation of the accounting reforms that emphasize the adoption of IAS and the role of the external auditors. While a reduction in the irregularities in firm accounting practices can play an important role in reducing corruption, a mere promulgation of the accounting rules and regulations would not be enough the revert the trend.

Concluding Remarks

The economic growth experienced by many Asian countries has been extraordinary by any yardstick. China's GDP has quadrupled over the past two decades and India's economic growth has surged since 1980. Asia's impressive economic progress, however, is overshadowed by rampant corruption. Measured by the Corruption Perception Index (CPI) by Transparency International, the progress towards corruption reduction in a number of Asian countries has stagnated despite enormous resources directed to anti-corruption programs.

A major shortcoming of many anti-corruption programs is that the supply side of the corruption problems has not been given its due attention. Corruption has both the demand and supply aspects to it, and the actions of bribe-payers (supply side) are as important as those

of bribe-takers (demand side) in determining the level of corruption. Our empirical analysis clearly shows that the corporate sector, often portrayed as the victim of corruption, is an important source of rampant corruption problems in Asia. A majority of firms have engaged in bribery activities in most countries, and in some countries, almost all firms are involved in one way or another. The corrupt practices are highly institutionalized as there is little uncertainty on the amount of bribes as well as on the delivery of the services in exchange for bribe payments. It is also clear that the corporate bribe-payers are not as innocent as they are made out to be, and many firms are active and willing parties to corrupt transactions.

Our empirical analysis also shows that better accounting practices can help reduce both the incidence of bribery activities and the amount of bribe payments, thereby crippling corruption practices at the source. Better accounting practices can reduce bribery by: 1) solving the problem of information asymmetry inherent in modern corporations; 2) imposing greater risk of being caught for bribe-extracting officials; 3) curbing “grand corruption” in contracting, concessions, and privatization deals.

Public policies targeting improved firm accounting practices could be effective anti-corruption strategies. Such efforts are likely to be sustained because it is self-motivated and self-driven from the perspective of firms. Firms can potentially receive triple dividends from improvements in accounting practices. Better accounting practices can protect firms from the costs of business flaws associated with murky financial information reporting, provide firms with better prospects of growth, and eliminate expenses in bribe payments.

Our empirical analysis also points to the potential and limitation of accounting reform as an anti-corruption strategy. While accounting reform measures, such as the adoption of IAS and the use of external auditors, have made some improvements on firm accounting practices, their enforcement is far from comprehensive, and conforming to high quality accounting standard alone will not automatically bring down incidence of bribery.

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