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Corruption and firm performance: An empirical study on the impact of bribe payments on the performance of Chinese firms

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Abstract: Corruption is often compared to a double-edged sword. While acting as a "necessary evil" to avoid bureaucratic inefficiencies such as red tape to grease the wheels of commerce, there are many other studies expressing their concerns regarding the negative effects corruption has on growth. Based on previous empirical evidence and theories such as the "rent-seeking" theory that conceptualize the relationship between corruption and firm performance, this paper hypothesizes that Chinese firms that engage in bribery in the form of payments or gifts to government officials have higher levels of firm performance. The hypothesis is empirically analyzed by using a recent dataset provided by the World Bank Enterprise Survey conducted in 2011-2013. The empirical results from this study suggest that firms that perceive the court system to be corrupted and firms that perceive it to be non-corrupted both achieve growth in firm performance. This implies that corruption does not contribute negatively to Chinese firm growth at all.

Key words: Corruption, bribery, firm performance, China

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Chapter 1

Introduction

The relationship between corruption and economic growth has been a widely studied phenomenon in literature. Corruption is believed to be one the most common obstacle to economic growth according to development experts. Corruption is especially a well observed phenomenon in countries with low economic growth. Many scholars have tried to analyse the relationship between corruption and growth by describing the various issues in the macroeconomics of misgovernance (Ehrlich and Lui, 1999; Sarte, 2000). An abundant amount of evidence suggests that corruption directly hinders economic growth, and therefore suggests a purely negative relationship between corruption and economic growth (Keefer and Knack, 1997; Knack and Keefer, 1995; Li et al., 2000). However, a smaller body of literature argues that corruption may have a beneficial effect on economic development as it greases the wheels of commerce, which is quite puzzling (Leff, 1964; Bayley, 1966; Huntington, 1968; Lui, 1985; Becquart-Leclercq, 1989).

The spread of corruption may differ considerably across countries. In a study by Neeman et al. (2008), evidence suggests that only countries with a high degree of financial openness suffer from corruption as a hindrance of economic growth. On the contrary, in countries that are less financially integrated, the negative relationship almost disappears. Méndez and Sépúlveda (2006) find that corruption benefits growth at low levels of economic development, but becomes harmful to growth when the economy develops to a higher level. Corruption may restrict economic growth to a lesser of greater degree when accounting for other various economic and social factors.

Moreover, Studies of Campos et al. (1999) and Rock and Bonnett (2004) find that corruption has less negative impact on investment when it is organized as it is less uncertain and thus more predictable. Furthermore, the negative relationship between corruption and investment only occurs in small developing economies, but shows a positive correlation in the newly industrialised economies such as China. Previous empirical evidence that aliens with this reasoning

suggests that not all economies with extensive corruption have suffered from poor growth rates. Wedeman (2002) finds that many countries in the "East Asian paradox" such as China, South Korea, Thailand and Indonesia have coped well with corruption. China, as one of the "East Asian paradox" countries, has witnessed exceptional growth rates despite of high levels of corruption. On the recent ranking of the Transparency Index (2016), China ranks as the 79th least corrupt country out of 175 countries. China averages 68.32 from 1995 until 2016, reaching its highest rank of 100 in 2014 and its lowest rank of 40 in 1995. It is expected that China will rank 82 at the end of this quarter (Trading Economics, 2017). The long-term perspective is that China will even reach rank 90 in 2020. Accordingly, corruption seems to be less damaging to economic growth in the "East Asian paradox" countries, with China being the most compelling example. China has been one of the fastest growing economies since the reforms started in the early 1980s. China's economy has even reached a peak average annual growth rate of 10 per cent (Wang and You, 2012). However, despite these remarkably growth rates, corruption remains to thrive along with economic and social reforms. It is therefore quite interesting to ask: why does corruption not hinder economic growth in China? This paper seeks to provide a clarification for this puzzle from a micro-level point of view. In particular, this paper analyses the relationship between corruption and Chinese firm growth.

Existing literature has paid extensive attention to the nature and extent of corruption, yet to my knowledge there is a relative scarcity of empirical studies on corruption and growth in China. In particular, there is a lack of literature examining the effect of corruption on the growth performance of Chinese firms. This scarcity is mainly due to the lack of empirical data. Though, over the past years several country studies on macro-level have had China in their sample. However, Fisman and Svensson (2007) rightfully argue that cross country analysis is an inadequate way to get relevant information about the impact of corruption on firm level growth. By relying on aggregate macroeconomic statistics, it withholds scholars of analysing possible variations of corruption in a country nor does it allow to identify factors that influence firm performance.

The remainder of this paper is organized as follows. Chapter 2 provides an overview of the main theories and hypothesis related to the research of the

relationship between corruption and firm performance of Chinese firms. Chapter 3 provides an overview of the existing literature on the topic and country specific background on the deep rooted existence of corruption and the battle China has with corruption. Chapter 4 describes the data that is collected and used in this study. Chapter 5 describes the methodology and model specifications. Chapter 6 presents the results of the regressions of the estimated models. Chapter 7 discusses the results and implications more in depth. Lastly, chapter 8 provides the final conclusions, limitations and recommendations for future studies.

Chapter 2

Theory and Hypothesis

2.1 Theoretical context

China is a country that succeeded in an environment of weak institutions and lacking enforcement of regulations, which led to a rather productive business environment. Yuen Yuen Ang (2016) discussed in his book that *"The first step of development is always to build markets with weak institutions,"* meaning that it may appear to look corrupt or it may seem that you are doing business with wrong types of practices but at the end it is all about making the best use of the already established institutions in order to stimulate market activities. China has been searching for ways to restart their economy since the early 80s. The most extraordinary method is the Chinese government directing their bureaucrats to use their personal network in order to attract (foreign) investors for projects. Compared to western standards this may strike as a corrupt system because the bureaucrats basically have been given a "*card blanch"* to look for investors. However, this system is rather based on a voluntary agreement between the two involved parties either in the form of a monetary transaction or in terms of an undefined reciprocation, which in the end is beneficial for both parties.

Historically, China has witnessed the fastest economic growth than any other country in the world. Root of this development was partly due to China's under-regulated business environment. This under-regulated business environment was characterized by its emphasis on networks and social connections sweetened by monetary incentives. Another factor that contributed to China's success is their negligence of following the rules affirmed by more developed countries. Emerging economies, such as China, often find themselves in a compromising position when it comes to what to establish first, get rich fast or establish solid formal institutions. In China's case, many believe it chose to get rich fast first. This approach has been beneficial to China's economic growth over the last three decades. However, China has reached a more developed stage with

mature markets and now faces the consequences of the double-edged sword since the corrupt practises have a deteriorating effect on the Chinese economy (Shepard, 2016).

2.2 Theoretical background and empirical evidence

2.2.1 Definition of corruption and bribery

Corruption and bribery are often used as interchangeable terms within literature. Transparency International (2017) defines corruption as *"the abuse of entrusted power for private gain"*. Three types of corruption are recognized, namely grand, petty and political corruption. Grand corruption refers to operations committed at a high level of government that alter policies or the functioning of the state. It enables officials to profit at the expense of the public good. Bribery is considered to be a direct measurement of corruption (Fisman and Svensson, 2007). This thesis adopts the following definition for bribery: *"The offering, promising, giving, accepting or soliciting of an advantage as an inducement for an action which is illegal, unethical or a breach of trust. Inducements can take the form of gifts, loans, fees, rewards or other advantages"* (Transparency International, 2017). Since bribery is considered to be the most important, resilient and damaging form of corruption (Guo, 2008), bribery will be the main focus in this thesis. For simplicity reasons, "corruption" is often used interchangeably with "bribery" unless stated otherwise in the text.

2.2.2 Rent-seeking theory

Several studies, conducted on a macro-level, have presented evidence on the impact bribery has on economic development and growth (Ades and Di Tella, 1997, 1999; Brown, 2006; Hellman et al., 2000; La Porta et al., 1997, 1999; Mauro, 1995; Persson et al., 2003; Treisman, 2000; Wei, 1997). There are various theories that explain corruption. One compelling theory that is universally viewed as the main explanatory theory of the phenomenon of corruption is the rent-seeking theory, which is developed by Gordon Tullock and others in the 1970s. This theory treats corruption as a specific rent-seeking activity and views bribery as a mean which is offered by firms to government officials in order to

gain preferential treatments (Rose-Ackerman, 1999). The main cause of bribery is believed to be due to government intervention in economic activities (Buchanan 1980; Manion 2004). Emerging economies that have high levels of political intervention in terms of licenses, permits and quotas suffer from scarcity. This scarcity indicates that there is possibility that rent-seeking activity such as bribery occurs. Since Chinese government officials determine the allocation of resources, many misuse that opportunity to extort bribes (Shabbir and Anwar, 2007). Furthermore, most often firms tend to find that bribery is the only way to benefit their firm since they gain prevalence from government officials. Ngo (2008) concludes that rent-seeking is believed to be the most common source of corruption nowadays in China since firms bribe in exchange for rents such as economic gain in the form of subsidies or tariff protection. Ngo (2008) further argues that a vast majority of rent-seeking activities bear directly on the predominance of bribery in China. Firms are considered to be rational actors, particularly when it comes to the decision to engage in bribery. As the Neo-classical economic theory suggests, rational actors base their decisions within a benefit-cost framework (Michaels and Miethe, 1989). A firm will make the decision to bribe a government official when it benefits their firm performance to such an extent that without the bribe the firm will lose out on eminent resources. Gao (2010) provides evidence that there is a positive relationship between firm's perceived benefit and its attitude towards bribery. He argues that given the cost of bribery, firms inclination to bribe increases when the perceived benefit increases.

On the other side, literature also provides various explanations as to why government officials bribe. Relative low salaries for government officials have been argued to be a cause of corruption in developing countries such as China (Quah, 2005). Economic liberalization of the incomes of new private businesses have increased immensely, yet the salaries of government officials stayed behind. The income gap and the growth of living cost over the past decades creates incentives for government officials to engage in rent-seeking activities such as bribery to compensate for the lack of income (White, 1996).

2.2.3 Moral theory

Apart from the rent-seeking theory, scholars agree upon two other competing theories that conceptualize the interaction between bribery and firm performance more specifically. The first theory covers the rather dominant moral theorisation, meaning that bribery has a negative interfering impact on firm performance due to rent seeking, misallocation of resources, and inefficient investments.

Previous macro-level studies already provided compelling evidence on the negative effect corruption has on growth (Donadelli and Persha, 2014; Doh et al., 2003; Faruq and Webb, 2013; Frye and Shleifer, 1997; Gray et al., 2004; Knack and Keefer, 1995; Mauro, 1995; Rodrik et al., 2002; Wieneke and Gries, 2011). Myrdal (1968) argues that corrupted government officials can purposefully delay permits etc. that would otherwise not happen in order to extract a bribe. The effect of this is that overall costs on aggregate and firm level increases which negatively affects firm performance. Fisman and Svensson (2007) conducted research and found that a one percentage point increase in bribes is related to a decline of firm growth by three percentage points. Other empirical evidence provided by Djankove et al., (2002) confirms this result. In their study they argue that high levels of bribery results in high costs for businesses such as transaction costs and therefore limits firm performance. Literature regards bribery not as rational strategic choice to benefit firm performance, but as a compulsory "tax" set by rapacious government officials who operate in a weak institutional environment (Fisman and Svensson, 2007). As a result, firms who also operate in this poor environment feel pressured by this involuntary tax. This type of bribery affects firms' financial resources negatively and hinders firm growth (Mauro, 1995; Wei, 2000).

2.2.4 Grease the wheels

On the other side, bribery is often theorised as the driving factor of commerce. This theory suggests that engaging in bribery may enable firms to avoid red tape and bureaucratic obstacles and therefore having a positive effect on firm performance (Acemoglu and Verdier, 2000; Meon and Weill, 2010; De Vaal and Eb-

ben, 2011). Thus, this theory suggests that corruption improves firm performance rather than harming it. Kaufmann and Wei (1999) discuss the "efficient grease" hypothesis more in depth. They argue that corruption is an efficient method to reduce bureaucratic burdens which results in economic growth. The "grease the wheels" hypothesis accepts the fact that some "grease" money is necessary to overcome any distortions due to inefficiencies caused by bureaucratic burdens and red tape (Williams et al., 2016). Another argument that presumes the positive contribution of bribery is that bribes may enhance the establishment of beneficial relationships with government officials. This theory emphasises on the fact that organizations and individuals engage in corruption to maximize their interests (Misangyi et al., 2008). Above all, the theory suggests that the engagement in corruption is a rational response to inefficient bureaucracies (DeSoto, 2000).

Empirical evidence on the positive relationship between bribery and firm performance maintains to be limited since some scholars only find insignificant or negative effects (Gaviria, 2002). However, in a recent study Ayaydin and Hayaloglu (2014), they analysed the relationship between bribery and firm performance in Turkey. In a sample of 41 Turkish manufacturing firms they found that there is indeed a positive relationship because "grease money" avoids bureaucratic burdens. This is one of the few studies that confirms the positive relationship between bribery and firm performance. When it comes to China, almost no studies have been conducted on the relationship between bribery and firm performance of Chinese firms. Wang and You (2012) are one of the few that conducted research about the impact of bribery on firm performance in China. Their study uses the Investment Climate Survey which is conducted by the National Bureau Statistics of China in 2005. The survey consists of 12,400 firms located in 20 different Chinese provinces. The study found a positive relationship between bribery and the growth rates of Chinese firms. They also found evidence that well-functioning institutions such as the financial market is detrimental to a firm's growth rate. However, since then no studies have been conducted that include Chinese firms in the dataset. To fill this gap, a recent data set is employed to test the following proposition.

H1. Given China's high corruption levels, Chinese firms that engage in bribery in the form of payments or gifts to public officials have improved firm performances.

2.3 Why do firms engage in bribery?

Bribery involves an illegitimate transaction between government officials and other actors. In this paper the emphasis is on the relationship between government officials and firms who give the bribes. It is therefore important to understand the role and motives of Chinese government officials and to recognize that firms are part of the problem too. As discussed, it is beneficial for Chinese government officials to engage is bribery as they receive monetary incentives to compensate for their relative low income. Firms, however, base their decision to engage in bribery on a benefit-cost analysis while considering the advantages and disadvantages.

2.3.1 Advantages

Why do firms bribe? There are four main advantages for firms when it comes to bribing government officials. The first advantage refers to the strong relationship one builds with government officials. This relationship may help eliminating constraints that comes with bureaucratic hurdles (de Jong et al., 2012). Kasuga (2013), finds in his research that bribery has a positive effect on firm productivity due to reduces bureaucratic impediments as a result of preferential treatment. Secondly, Meon and Weill (2010) argue that corruption might increase aggregate efficiency when a firm is dealing with weak institutions. In particular, weak institutions are one of the main reasons as to why governments maintain control over resources such as finance and raw material. This implies that firms operating in such economies are very dependent on governments due to their reliance on those vital resources (Baron, 1995; Zhou and Peng, 2011). Third, firms believe they gain access to manipulating markets, wining contracts and favourable treatment if they bribe government officials. Fishman (2001), finds in his research strong links between bribing government officials and higher market values for firms in Indonesia. Lastly, based on a survey conducted by Charney and

Qazi (2015), firms bribe to keep up with the competition. By paying bribes, firms aim to gain a larger market share which benefits their revenues.

2.3.2 Disadvantages

Countries that have weak institutions may suffer from the indirect costs of bribery compared to countries with advanced institutions, since the latter has an elevated importance in transparency and accountability. There are three important indirect costs related to bribery, namely: social penalties, competitive disadvantages and misallocation of resources. Social penalties occur from divergent socially accepted behaviour. Fisman and Miguel (2007) argue that as institutions become stronger, bribery becomes a less accepted way as a business norm. The effect of this is that the social penalties are related with an unreliable reputation, loss of trust and estrangement from social and business networks. This will eventually result in bad firm performance (Luo, 2002; Lambsdorff, 2008; Nichols, 2008). Second, firms that operate in an environment of weak institutions and therefore bribe, compete with non-bribing firms that have sufficient access to resources and are less dependent on government relations. This means that the predominance of bribery as way of conducting business declines. The bribing firms lose their competitive position due to their heavy dependence on government relations and resources. This results in lowered likelihood of profitability in more advanced institutional environments (Doh et al., 2003). Lastly, according to Murphy et al., (1993) bribing leads to an inefficient allocation of human capital and resources from production to rent-seeking. Particularly, bribing disturbs investment to innovation, marketing and limits the capability of firms to further develop and innovate (de Jong et al., 2012). As a result, corruption evolves into a growing risk and a disadvantage for firms (Luo, 2002).

Chapter 3

Literature Review and background

3.1 China and its battle with corruption

Corruption is considered to be one of the most extensive impediments to economic growth, firm growth and social development. After investigating a considerable amount of studies regarding this relationship, it becomes clear that in general countries with bad economic performances tend to experience high levels of corruption (Wang and You, 2012). A striking fact about corruption is that no matter what kind of measurement you use; it is consistently higher in poor countries. According to the Transparency International Corruption Perceptions Index (2016), the 10 least corrupt countries have an average GDP per capita of approximately $36,700, while the 10 most corrupt countries have an average GPD per capita of approximately $5,000. However, there is compelling evidence that contradicts this assumption. It appears that not all countries have endured the negatives of corruption. One of the most conspicuous examples serve as a basis of the "East Asian paradox". A few countries in the East Asian region, such as China, have experienced extraordinary double-digit growth rates although suffering from high corruption levels.[1] A possible explanation is that corruption appears to have a positive relationship with growth in newly industrialised economies such as China compared to small developing countries (Wedeman, 2002).

There are several events that were essential for comprehending China's remarkable economic growth over the last two decades. China initiated a set of economic reforms in 1978 under Deng Xiaoping, which transitioned the country from a central planned economy to a market-led economy. China opened up the country which encouraged international trade and major FDI inflows. As a result, China is considered to be one of the most rapidly growing economies of the world. Another important event is the implementation of the company law

[1] Other countries that are included in the "East Asian paradox" are South Korea, Thailand and Indonesia

in 1993 and the revision in 2005 were key. This law enabled, especially foreign investors, to set up limited liability companies and joint stock companies. Few years after the introduction of the company law, China joined the World Trade Organization (WTO). The entering of China to the WTO in 2001 signified its complete integration into the world economy. Six years later, China implemented the property rights law in 2007 which established laws that regulates ownership and property rights protection. These reforms combined led to an impressive expansion of firms that got registered in China. Today, there are over 77,469,000 registered companies in China, active in different sectors ranging from heavy industry to light industry (Dickinson, 2007).

3.1.1 Anti-corruption campaign

Despite the economic growth, China's high levels of corruption overshadow their economic success. Xi Jinping took China's leadership in 2012 during the 18th National Congress. Xi emphasized on the crackdown of corruption by implementing various policies. In spite of president's Xi Ping's anti-corruption campaign *"catching tigers and flies"*, China's ranking remains 79 out of 176 on the Transparency International Index (2016) and scores 40 out of 100 where 0 indicates highly corrupted and 100 least corrupt. It even seems that China has become more corrupt over the years (Figure 3 and 4). Though, since the start of the anti-corruption campaign over 300.000 government officials were punished last year on top of the already punished 400.000 in previous years. While in the early 80s the same government officials were encouraged to use their personal relations to attract investors for projects, now this could cost you your job or even jail time. Xi's efforts to fight corruption seems to be more of a downstream fight rather than fighting the upstream institutional causes. It is easier and quicker to punish government officials than reforming a whole bureaucracy and building strong institutions. The effect of the policy goes even further than not being able to receive or give gifts, it disturbed fundamental ways of the functioning of local governments. Chinese government officials seemed no longer to know how to approach their work. No official wants to make an important decision due to the fear of being accused as corrupt. Instead of having this system where officials use their relations to get investors, there is a new decision making committee involved in allocating projects. This means that businesses inside and

outside of China are dealing with a slower system that comes with more regulations. The overall result of Xi Ping's anti-corruption campaign is a less dynamic economy and hampered development (Shepard, 2016).

3.2 Bribery as a strategy: Guanxi

Why is corruption such a big problem in China? Giving gifts or grease money is a custom in China since it is considered to be part of a larger picture. By giving money or gifts you belong to a particular network of personal relationships known as *guanxi* (Steidlmeier, 1999). Whether these relations are considered to be right is truly a matter of moral and practical concern. Bribery in China basically takes two strategy forms, either as an active strategy or as a passive strategy. These strategies are a way of dealing with the challenges faced by Chinese firms due to the changing economic and business environments. Guanxi is mainly described as the close and long-term business relationship between businessmen who lean on the principle of resource exchanges (Yeung and Tung, 1996). Guanxi is a phenomenon that is deeply rooted in Chinese society and business environment (Luo and Chen 1996; Park and Luo 2001; Xin and Pearce 1996). In order to enter the Chinese business market, one first needs to enter the huge network of guanxi (Su and Littlefield, 2001). Guanxi originates from the long-standing Confucian heritage which is based on the principles of hierarchy, relations and corporation (Hwang, 1987). However, the development of such guanxi networks has risen on the back of the economic reforms such as the opening-up reforms late in the 1970s (Seligman, 1999). China's opening-up policy and its transition to a marked-based economy have led to important obstacles for Chinese firms since they are operating in a different business environment. In order to maintain their competitive advantages, many firms find themselves in a position compelled to take matters into own hands by paying bribes and relying more on the guanxi web (Huang and Rice, 2012). Being part of guanxi-based networks remains to be a vital condition for doing business in China. This suggests that the way guanxi is anchored in the Chinese culture means that many Chinese businesses do not recognize corruption and bribery as much as Westerners would. A sales manager from a telecom company in Harbin China said: *"It's an*

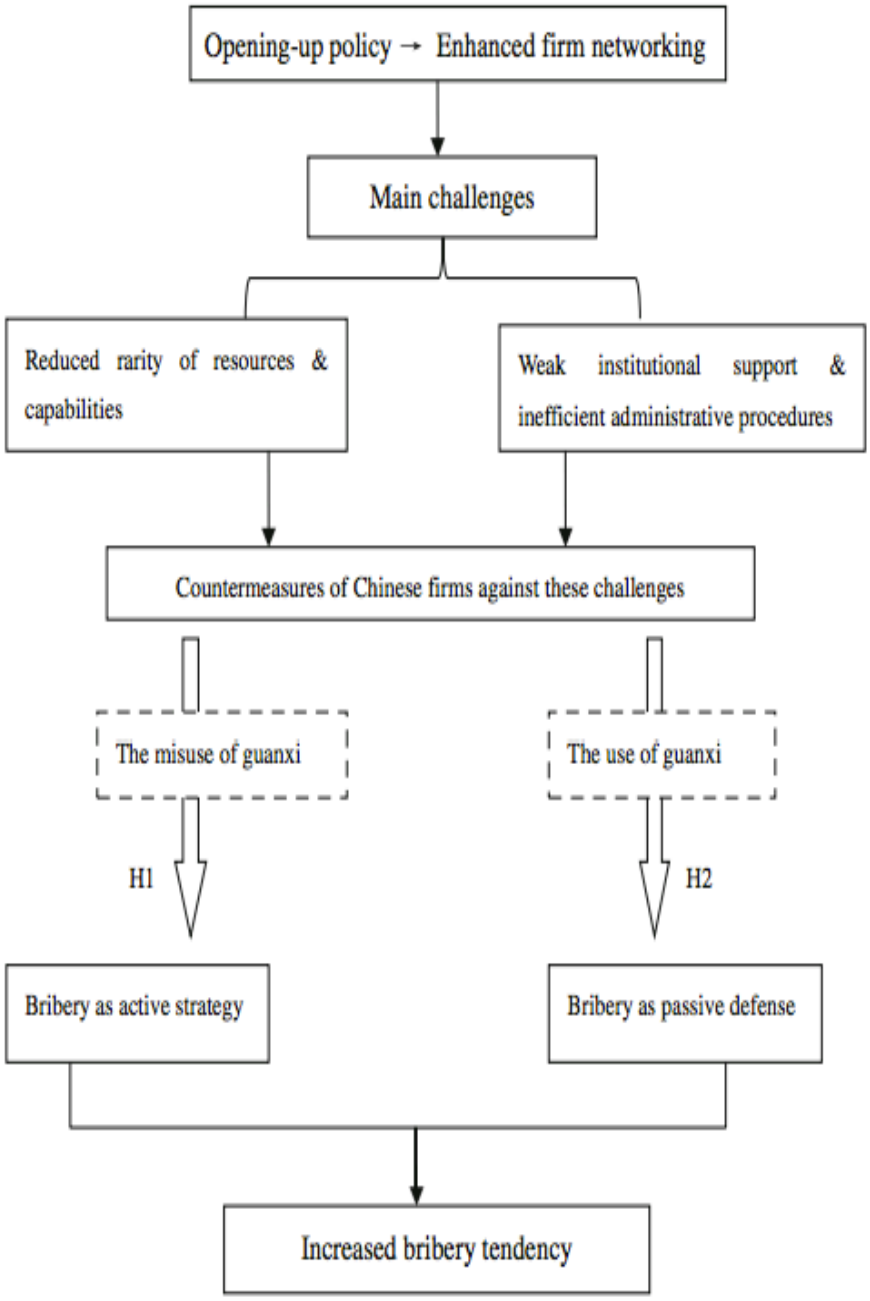
unspoken rule" (Charney and Qazi, 2015). This statement confirms the perception about corruption that prevails in China.

3.2.1 Opening-up reforms and bribery

The opening-up reforms and the transition to a more market-based economy in the late 1970s included revolutionary macro-economic changes such as the lessening of central control by the government. Reforms on micro-economic level included privatization of state-owned enterprises, the attraction of Foreign Direct Investments (FDI) and the stimulus of international trade (Dunfee and Warren, 2001). The reforms introduced by Deng Xiaoping contributed intensively to China's extraordinary economic growth over the past decades (Hung 2008). The reforms have had far-reaching consequences, especially from a micro-economic perspective. Openness and free flow of information have been key aspects in the reforms. The free flow of information has been catalysed by the growth of internet and telecommunication, making China an interesting country to conduct business with (Dunfee and Warren, 2001).

Despite the great opportunities that emerged, the reforms have inescapably caused for many challenges. Huang and Rice (2012) developed a conceptual framework that shows the opportunities and challenges associated with the reforms introduced that incline firms to engage in bribery-related activities (Figure 1). These strategies are either employed as an active measure to maintain resource-stock rarity, or as a passive defence against different bureaucratic inefficiencies and institutional weaknesses.

Figure 1: Theoretical framework



Source: Huang and Rice (2012)

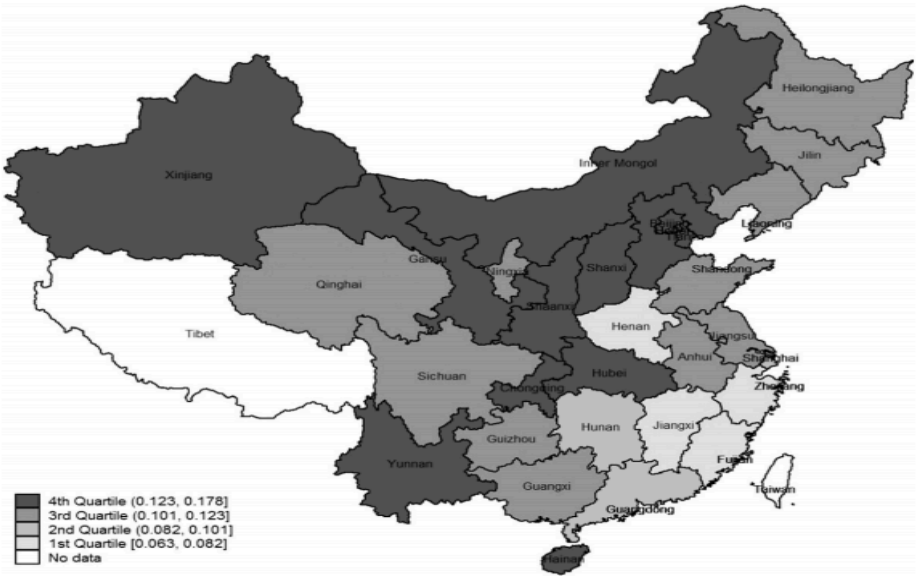
The opening-up of Chinese markets and economy have opened the door to more competitive pressures, not only globally but also internally. Moreover, the lessening of the control of the Chinese government and the privatization of many State-Owned Enterprises have shifted responsibility from the government. This led to reallocation and increased competiveness for resources. The

greater openness is believed to implicitly lead to more pressure on senior management decision making to establish sustainable competitive arrangements (Huang and Rice, 2012). The consequence is that managements seek relational advantages through actively participating in bribery. In addition, the inefficient Chinese public sector which is characterized by red tape and time-consuming processes have appeared to be even more problematic in transitional China than initially expected (Xin and Pearce, 1996; Dunfee and Warren, 2001). Due to these greater bureaucratic inefficiencies firms passively use their network to get things done by engaging in bribery as shown in the conceptual framework (Bardhan, 1997).

3.3 China in national and international perspective

Previous research presents evidence that corruption tends to be clustered in neighboured areas (You and Nie, 2017). Figure 2 shows that Chinese provinces in the East are 10 per cent less corrupt than provinces in the west. This is in line with the findings of Wei (2000), as he argues that more open regions in terms of economy size and geographic locations as is the case in East-China, better facilitate resources to establish stronger institutions and governance and therefore, deal with lower levels of corruption.

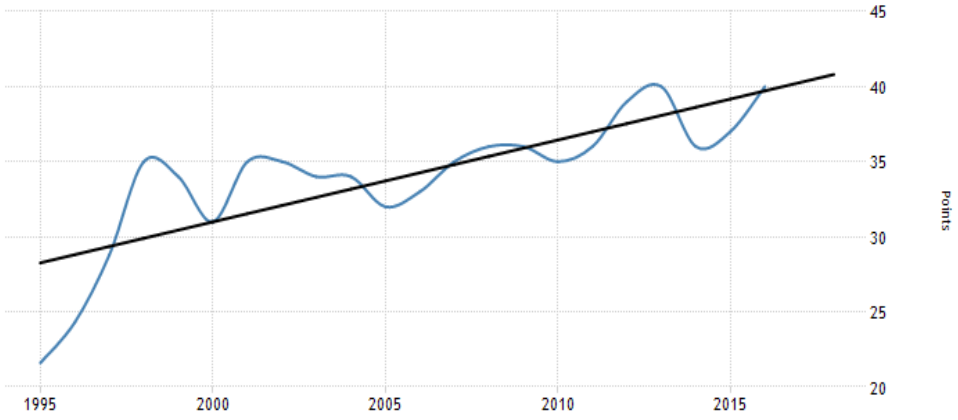
Figure 2: Geographic distribution of corruption



Source: You and Nie (2017)

Each year Transparency International publishes the Corruption Perception Index which indicates what the "corruption" ranking is of the 176 countries that are included in the index. Figure 3 shows the Corruption Perceptions Index for China. According to this index China averages 33.99 points from 1995 until 2016, reaching a peak of 40 points in 2013 and 21.60 points in 1995.[2] Furthermore, the graph shows a clear upward trend line. It is interesting to observe that China has been battling corruption since 1995 and maybe even earlier despite China's efforts and reforms to eliminate corruption. However, there seems to be a downward trend around 2012 until 2014 when the anti-corruption campaign started. Despite the campaign, the long-term effects are limited since there is an upward trend noticeable staring in 2014.

Figure 3: China corruption index 1995-2016



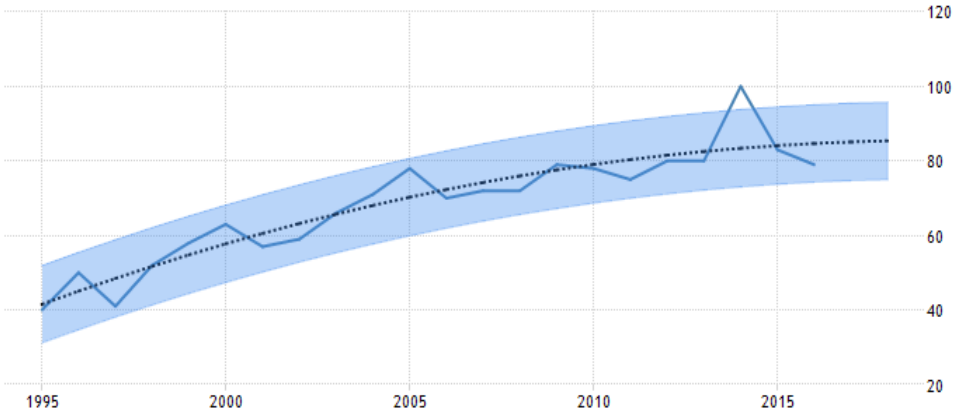
Source: Trading Economics (2017)

A particular concern is that China remains to score low when it comes to corruption compared to other countries. Another country that has witnessed great economic growth over the past decades is Russia. Table 1 (Appendix A) presents the ranking for China and Russia. Both countries have grown rapidly over the past decades whilst much of the world was battling the financial crisis and therefore witnessed no growth. China's and Russia's impressive growth does have implications that reach far beyond their own economies due to their international trade and investments. The Foreign Direct Investments (FDI) flows to both countries was around US$120 Billion in 2010, this is five times more the

[2] With 0 being highly corrupt and 100 being very clean.

value of FDI from Brazil and India (Transparency International, 2011). Thus, not only domestic businesses battle corruption, international businesses are also bound to be exposed to corrupt practices, which make corruption not only a "Chinese" problem but also a global problem.

Figure 4: China corruption rank 1995-2016 and forecast 2016-2020



Source: Trading Economics (2017)

Figure 4 shows China's corruption ranking from 1995-2016. China ranks as the 79th least corrupt country out of 175 countries according to the Corruption Perceptions Index (2016). China averages 68.32 from 1995 until 2016, reaching its highest rank of 100 in 2014 and its lowest rank of 40 in 1995. It is expected that China will rank 82 at the end of this quarter, based on global macro models of Trading Economics. The long-term perspective is that China will even reach rank 90 in 2020. Transparency International argues that lower-ranked countries such as China and Russia, are afflicted by untrustworthy and poor functioning public institutions. Even though these countries have anti-corruption laws in place, in reality those laws are often ignored and/or avoided.

Chapter 4

Data

4.1 Data source

To empirically determine the effect of bribery on the performance of Chinese firms, this paper uses data from the World Bank Survey 2012. The Enterprise Survey is a firm-level survey of a representative sample of an economy's private sector conducted by the World Bank since 1998. The surveys are conducted across all geographic regions, industries and small, medium, and large firms.

The World Bank Survey 2012 is carried out in China between December 2011 and February 2013. The dataset includes 2700 privately-owned and 148 state-owned firms. The objective of the survey is to observe firms in the state and private sector and to build enterprise data that enables researchers to track changes over time allowing them to assess impacts of reforms for instance. The survey is conducted through face-to-face interviews with firms operating in different kinds of industries such as manufacturing and service. The dataset covers twenty-five cities such as: Beijing, Chengdu City, Dalian City, Dongguan City, Foshan City, Guangzhou City, Hangzhou City, Hefei City, Jinan City, Luoyang City, Nanjing City, Nantong City, Ningbo City, Qingdao City, Shanghai, Shenyang City, Shenzhen City, Shijiazhuang City, Suzhou City, Tangshan City, Wenzhou City, Wuhan City, Wuxi City, Yantai City, and Zhengzhou City (World Bank, 2013).

The World Bank contacted 7.24 Chinese enterprises per interview and had a rejection rate of 0.55. The World Bank provides two reasons for the rejection rate. The first reason is the refusal of Chinese enterprises to take part in the survey and the second reason is due to the quality of the sample frame. The World Bank (2013) applied two strategies to deal with non-responses in the survey. Enumerators were trained to collect sensitive questions that may lead to a

negative reaction from the respondent.[3] In case establishments provided incomplete information, respondents are re-contacted to complete the information. The World Bank maximized their efforts to contact the enterprises that initially did not respond. The attempts were conducted at various times and days of the week before a substitute Chinese enterprise was approached in order to achieve the strata goals (World Bank, 2013).

4.1.1 Reliability of the data

In general, the reliability of datasets that cover China is quite questionable. Datasets that cover China usually suffer from missing information due to the political climate and lack of openness. The consequence of missing information is that it undermines the representativeness of the sample. Furthermore, in this particular dataset, it is not clear who has answered the questions in the survey, which raises sessions regarding the validity of the data. A recent article in the New York Times also questions the reliability of China's economic data (Bradsher, 2016). The article claims that Chinese data is often manipulated and therefore do not represent the reality.

Moreover, the main focus of this paper is bribery. The payment of bribes is a very sensitive topic in China and therefore, people tend to be restricted about it as it may lead to severe consequences such as jail time. Hidden information may lead to a biased dataset. The questionnaire attempts to deal with this sensitive issue by asking the question regarding informal payments in an implicit manner.

4.2 Description of variables

4.2.1 Dependent variables

Firm performance can be measured by various means, such as growth rates of firms' sales, employment or investments (Dethier et al., 2010). To assess the relationship between bribery and firm performance of Chinese firms, the dependent variables of this study are annual sales growth and annual employment

[3] Enumerators are survey personnel who are responsible for assisting respondents in answering questions and completing the questionnaire (OECD, 2001)

growth. Annual sales growth is measured in percentage by computing the change in sales report in 2011 from the previous period 2009. All values for sales will remain in the original currency which is yuan. Annual employment growth is also measured in percentage by computing the change in full-time employment reported in 2011 and the previous period 2009.

Thus, annual sales growth and annual employment growth are used to determine firm performance. Figure 5 presents the sales and employment growth rates of China in 2012 in comparison with the world and Russia's growth rates.

Figure 5: Real annual sales growth and annual employment growth in percentage

Source: World Bank Country Highlights (2013)

The real annual sales growth in China between 2009 and 2011 was 5.7 percent. This growth rate was more or less the same compared to the world average. However, this growth was significantly lower than Russia's real annual sales growth over the same period which was 7.8 percent. Furthermore, China's annual employment growth over the same period was 9.1 percent which was considerably higher than the world average of 6.4 percent and Russia's growth rate of 5.8 percent. According to calculations of the World Bank (2013), the high employment growth and moderate sales growth were associated with declining labor productivity.

4.2.2 Independent variable

Subsequent to Fisman and Svensson (2007) and Lee and Weng (2013), this paper uses the following variable that covers the payment of bribes, namely: *"On average, what percentage of total annual sales, or estimated total annual value, do establishments like this one pay in informal payments or gifts to public officials for this purpose?"* (World Bank, 2012).

Value 0 indicates that no payments or gifts are paid, and a value of 1 or more indicates that a percentage of total annual sales is paid as an informal payment or gift. This study adds two other proxies to increase the reliability of the dataset. The variables are: "the time spent on dealing with regulations by the senior management" and "whether the court system is perceived to be fair, impartial and uncorrupted".

4.2.3 Control variables

In order to assess the impact of bribery on firm performance, it is important to include control variables that are relevant determinants of firm performance.

Firm age – this variable is considered to be a determinant of firm performance due to the fact that new enterprises lack legitimacy and resources compared to longer established enterprises. Due to the lack of legitimacy and resources younger firms may have a harder time to be profitable (Barron et al., 1994; Choi and Shepherd, 2005; Delmar and Shane, 2004; Ranger-Moore, 1997; Wiklund et al., 2010; Zimmerman and Zeitz, 2002). This variable is a continuous variable that measures firm age in years.

Starting-up unregistered- this variable is deemed to be an important determinant as it has a reducing effect on firm performance (La Porta and Shleifer, 2008; Perry et al., 2007). This variable is a dummy variable with value 1 signifies that the firm started unregistered and 0 indicates that the firm started registered.

Firm size- this variable is also critical because in general, larger firms tend to perform better than smaller firms (Hsieh and Olken, 2014). This variable is a categorical variable, value 1 indicates small firms with less than 20 employees.

Value 2 indicates medium size firms between 20 and 99 employees and value 3 indicates large firms with more than 100 employees.

Legal status- this variable has a strong association with firm performance it is very relevant whether a firm is an open shareholding, a closed shareholding, a sole proprietorship, a partnership, a limited partnership, or any other form (Barbera and Moores, 2013).

Ownership structure- apart from the legal status, it is also highly relevant whether a firm is owned by private domestic individuals, private foreign individuals or state owned. This factor is interesting especially in China since everything is heavily state regulated. This variable will be a dummy variable where value 1 indicates if the share of the firm's ownership is held by the state and 0 indicating otherwise.

Industry- firm performance differs across industries. Therefore, this variable will be included as a categorical variable indicating the various industries

Region- as discussed in chapter 3.3, there seems to be different corruption levels and performance growth across the provinces in China. It is interesting to see what the influence will be of this variable.

Access to finance- the ability of firms to access financial instruments such as bank loans are strongly correlated with firm performance because in absence of financial products firms tend to substitute labour for capital (Amaral and Quintin, 2006). This variable will be included as a dummy variable with value 1 signifying whether the firm has access to bank loans and value 0 stating otherwise.

Human capital factors- to assess firm performance key factors such as educational level and experience are essential. Therefore, six variables will be added to account for this determinant, namely: top manager's experience which is a continuous variable of the years of experience, temporary workers which measures the average number of temporary workers, permanent full-time workers which is a continuous variable of the average number of full-time employees, female

full-time workers, female ownership which is a dummy variable whereby value 1 indicates that a woman is the owner and value 0 indicating otherwise and external auditor which is a dummy variable with value 1 signifying that there is an external auditor and value 0 indicating otherwise (Black and Lynch 1996).

Level of technological innovation- the level of technological innovation is also highly correlated with firm performance, particularly because many consider this to be a main reason for the productivity gap between developed and developing countries (Farrell, 2004). To assess the effect of this variable, three proxies will be added, namely: a quality certification which will be included as a dummy variable with value 1 indicating that the firm has an internationally-recognized quality certification and the value 0 indicating otherwise.[4] The second proxy is the presence of a website which will be included as a dummy variable with value 1 indicating that there is a website that is used for business-related activities and value 0 indicating otherwise. Lastly, the use of e-mail will also be included as a dummy variable with value 1 indicating that the firm uses e-mail and value 0 indicating otherwise.

To sum up the following control variables are included: firm age, starting registration, firm size, legal status, ownership structure, industry, region, access to finance, human capital factors and level of technological innovation.

4.2.4 Descriptive statistics

The dataset consists of 2700 observations and 287 variables. After carefully inspecting the raw data some missing values were discovered. Missing values can influence results in a significant way. Therefore, the missing observations will be omitted. Furthermore, as this paper aims to analysis a relationship between firm performance and bribery, the observations that have the value -9 which indicates "don't know" are also dropped since they do not contribute to the analysis in any way. By dropping those values and the missing observations, the final sample consists of 1532 observations.

[4] Such as ISO 9000, 14000 or HACCP.

The dependent variables in this study are transformed into logarithms to ensure a normal distribution, the next chapter will explain this more in-depth. Table 2 presents a summary of the descriptive statistics of all the variables that are discussed in the previous chapter.

Table 2: Descriptive statistics

Variables	**Obs.**	**Mean**	**Std. Dev.**	**Min**	**Max**
Annual sales growth (log)	1531	0.10	0.29	-7.60	4.54
Annual employment growth (log)	1531	0.08	0.14	-0.77	1.29
Informal payments in %	1532	0.21	1.57	0	30
State of court system	1532	2.75	1.57	1	4
Dealing with government in %	1532	1.01	2.69	0	50
Starting registration (0=No 1=Yes)	1532	0.95	0.21	0	1
Firm age	1532	1999.50	7.50	1887	2012
Firm size	1532	1.89	0.79	1	3
Ownership (0=Other 1=State)	1532	0.04	0.21	0	1
Legal status	1532	3.75	1.08	1	6
Industry	1532	NA	NA	NA	NA
Access to finance	1532	0.71	0.85	0	4
Quality certification (0=No 1=Yes)	1532	0.59	0.49	0	1
Use of website (0=No 1=Yes)	1532	0.69	0.46	0	1
Use of E-mail (0=No 1=Yes)	1532	0.85	0.35	0	1

Experience top manager	1532	16.30	7.47	1	50
Full time employees	1532	209.65	1093.96	5	30000
Top manager gender (0=Male 1=Female)	1532	0.56	0.50	0	1
External auditor (0=No 1=Yes)	1532	0.70	0.46	0	1
Transport constraint	1532	0.43	0.71	0	4
Electricity constraint	1532	0.46	0.72	0	4

Chapter 5

Methodology

5.1 Empirical methodology and model specification

Within research there are various ways of estimating a regression. The most suitable method for this study is a multiple regression method since there are two dependent variables. The advantage of such a model is that it is a joint estimator and therefore also presents the results of the estimates of the covariance's between the equations. The multiple regression analysis uses a similar set of probability distributions just as the univariate analysis does. This enables the study to understand the relationship between bribery and firm performance sufficiently. Furthermore, the coefficients and standard errors in a multiple regression analysis are similar to those that a linear regression produces, if the equations were estimated separately (STATA, 2017).

5.2 Defining and measuring corruption

It is rather difficult to define and measure corruption since it can be expressed in many forms. As mentioned in chapter 2.2, bribery is considered to be a direct

measure of corruption (Fisman and Svensson, 2007). In this paper, bribery is defined as the percentage of total annual sales that a firms pays in informal payments or gifts to public officials. To account for any sensitivity regarding the primary topic of interest corruption, the question is asked in an implicit manner by the interviewer. Therefore, there could be a possibility that this measurement of corruption suffers from falsity and hidden information (Wang and You, 2012). As described in chapter 4.2, this study accounts for this problem by adding two other proxies to increase the reliability of the dataset namely, "the time spent on dealing with regulations by the senior management" and "whether the court system is fair, impartial and uncorrupted".

It is quite insightful to explore the explanatory variable more in-depth before proceeding to the regression analysis. Figure 6 provides a graph wherein the distribution of the percentage of informal payments (bribes) is shown.

Figure 6: Distribution of informal payments

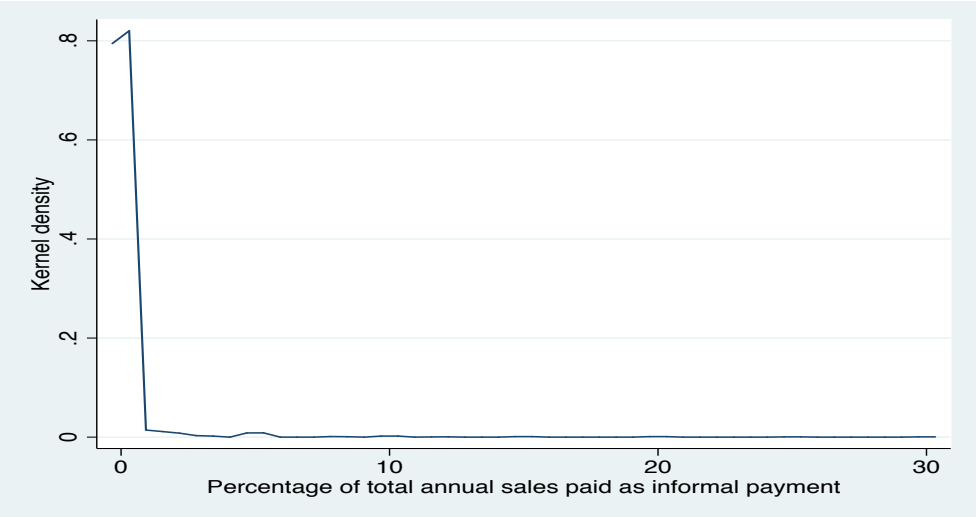


Figure 6 indicates that the highest percentage of total annual sales paid as an informal payment is 30 per cent. The average percentage paid as an informal payment is 0.21 per cent which indicated that on average a very small amount is spend on informal payments or gifts on Chinese governments. To account for the lack of variation in this variable, this study transformed the variable into a dummy to generate more variation. However, no significant changes were observed.

5.3 Construction of firm performance measurements

In this study, the growth rate of firm sales and employment are employed as measurements for firm performance, this is in line with Fisman and Svensson (2007).

The dataset used in this study recorded the sales in fiscal year 2009 and 2011, this allows the study to calculate annual sales growth. In order to normalize the firm's annual sales, this study includes a logarithm of the variable. The change in annual sales is calculated as the difference between the logarithms. The annual sales growth of Chinese firms between 2009 and 2011 is calculated as follows:

$$Si = (l\eta \text{ annual sales } 2011 - l\eta \text{ annual sales } 2009)/2$$

Furthermore, to normalize the firms' annual employment growth, a log of the variable is included. Employment growth is calculated by the change in full-time employment in the current fiscal year from a previous fiscal year. The annual employment growth of Chinese firms between 2009 and 2011 is calculated as follows:

$$Ei = (l\eta \text{ employment } 2011 - l\eta \text{ employment } 2009)/2$$

The theory and literature both provide evidence for either positive or negative impacts of bribery on firm performance. In order to assess the relationship between bribery and Chinese firm performance, this study investigates the following estimates:

$$Si = \beta 0 + \beta 1\ bribery_i + \beta 2\ starting\ registration_i + \beta 3\ firm\ age_i + \beta 4\ firm\ size_i + \beta 5\ ownership_i + \beta 6\ legal\ status_i + \beta 7\ industry_i + \beta 8\ region_i + \beta 9\ workforce_i + \beta 10\ major\ constraints_i + \beta 11\ innovation\ and\ technology_i + u_i \quad (1)$$

and

$$Ei = \beta 0 + \beta 1\ bribery_i + \beta 2\ starting\ registration_i + \beta 3\ firm\ age_i + \beta 4\ firm\ size_i + \beta 5\ ownership_i + \beta 6\ legal\ status_i + \beta 7\ industry + \beta 8\ region_i + \beta 9\ workforce_i + \beta 10\ major\ constraints_i + \beta 11\ innovation\ and\ technology_i + ui \quad (2)$$

Both model 1 and 2 include the logged variables of annual sales growth and annual employment growth. Si denotes the two-year average growth rate of annuals sales. Ei denotes the two-year average growth of employment. *Briberyi* is the measurement of bribery, which is presented as the percentage of total annual sales that a firms pays as informal payments or gifts to Chinese government officials. Finally, both estimates include *ui* which reflects the random error term.

Dethier et al, (2010) and Xu (201) conducted a comprehensive review and conclude that various other factors may also influence firm performance, such as firm size, firm age, ownership, workforce, industry, legal status, innovation and technology. Therefore, these variables are also included in the estimate.

Since the variables are transformed into logarithms, a different method of interpretation of the results applies, namely a one-unit increase in x is associated with an approximate beta per cent change in y. This study uses STATA analysis software to conduct the regressions. This study employs two dependent variables to measure firm performance, therefore a multiple regression analysis is the most appropriate method to estimate the models. By applying this model this study can assess the impact of change in the independent variable on the dependent variables.

5.4 Econometric obstacles

Problems that often occur when estimating regression models are heteroscedasticity and an abnormality in the residuals. Two important conditions of a regression model are the assumption of the variance of the error term being constant and the disturbance terms not being correlated. When either of these conditions are violated, the estimated coefficients are no longer efficient (Gujarati and Porter, 2009). Heteroscedasticity can occur when there are outliers in the observations or when the model is miss specified. The scatter plots of the residuals of the estimated models seem to be nearly normally distributed but it does suffer

from some outliers. To account for heteroscedasticity, the regression is performed by using White's robust standard errors. The standard errors are included in table 3 between parentheses. This study tested for multicollinearity, by applying the Variance Inflation Factor (VIF) analysis. The results indicate that all of the values are below the threshold of 5, thus collinearity seems not to be a problem.

Chapter 6

Results

6.1 Correlation analysis

Before testing the estimated models, it is interesting to analyse whether or not correlation between bribery and firm performance exists à priori. Table 3 presents the results of the Pearson correlation coefficients. The coefficients indicate that the level of correlation between informal payments made or gifts given and annual sales growth is rather weak. The same applies to the level of correlation between informal payments made or gifts given and annual employment growth. Furthermore, the results also indicate a weak correlation between the other variables and firm performance, except for the correlation between informal payments or gifts given and whether the court system is fair, impartial and uncorrupted, there is a stronger correlation noticeable. The negative correlation indicates that there is a negative relationship between how the court system is perceived and informal payments. This means that as one of the variables increases, the other tends to decrease, and vice versa.

To conclude, based on the Pearson's correlation analysis it becomes clear that there is no strong à priori correlation between bribery and firm performance. However, in order to explain the relationship more in-depth, a regression analysis is necessary.

Table 3: Pearson's correlation

	Annual sales	Annual Employ-ment	Informal payments	Court system	Dealing with gov-ernment
Annual sales	1.0000				
Annual em-ployment	0.115	1.000			
Informal pay-ments	0.006	-0.016	1.000		
Court system	-0.050	0.020	-0.147	1.000	
Dealing with government	0.061	0.009	0.096	-0.023	1.000

6.2 Regression results

The results of the regression analysis of the model specified in chapter 5 are presented in table 4. Model 1 represents the results in which the dependent variable is the annual sales growth. Model 2 represents the results in which the dependent variable is the annual employment growth. In both columns the study controlled for firm age, starting registration, firm size, legal status, ownership structure, industry, access to finance, human capital factors and level of technological innovation.

Table 4 model 1 presents the results of the intercept and the slopes for annual sales growth. The coefficients in model 1 reveal that a 1 per cent increase in bribery is associated with a decrease in firm' annual sales by 2.5 per cent. However, this result is not significant, meaning that this study fails to reject the null hypothesis.

Moreover, time spent dealing with government officials does have a statistically significant positive relation with annual sales growth. This indicates that 1 per cent more time spent on dealing with officials is associated with an increase in annual sales growth by 0.6 per cent. Thus, this result implies that the more time spend with government officials the better the firm performance is. The concept of guanxi is clearly noticeable, establishing good relations with government officials proves to be beneficial.

Chapter 3.3 discusses that firms that are located in the East of China have better firm performance as they benefit the well-structured institutions and governance. Model 1 statistically shows that all but one city have 12.1, 9.7 and 18.7 per cent higher growth sales respectively. This result indicates that cities in the East have better firm performances, which is in line with You and Nie (2017).

Furthermore, inspecting the results presented in model 2, it becomes clear that a 1 per cent increase in bribery is associated with an increase of firms' annual employment by 0.1 percent. However, just as in model 1, the impact of bribery on employment growth does not reach a statistically significant level in model 2. This means that this study fails to reject the null hypothesis.

Nevertheless, there seems to be a significant relationship between annual employment growth and whether firms find the court system fair, impartial and uncorrupted. Firms that disagree, agree and strongly agree all reach a statically significant level and are associated with a 6.5, 6.8 and 4.8 per cent increase of annual employment growth respectively. This result is interesting since firms that perceive the court system to be not fair, partial and corrupted and firms that perceive it as non-corrupt, both achieve growth in employment. This might imply that bribery does not contribute negatively to growth at all.

Moreover, just as in model 1 it seems that the firms located in the East of China benefit from their location. The significant results on model 2 indicate that firms that operate in the East of China have higher employment growth rates i.e. better firm performance. This result is again in line with the findings of You and Nie (2017). However, although these results indicate that firms in the East benefit from their location and the stronger institutions and governance, it does not prove that they are bribing less than firms in the West for instance. Further research would be necessary to assess whether or not this is the case.

Lastly, the R-squared of model 1 is 0.091, this implies that 9.1 per cent of the variation in annual sales growth is explained by the variables in the model. The R-squared of model 2 is 0.119, meaning that 11.9 per cent of the variation in annual employment growth is explained by the variables in the model.

Table 4: Multiple regression analysis results

	Model 1 Sales growth	Model 2 Employment growth
Bribery	-0.025 (0.052)	0.001 (0.002)
Court system (RC: Strongly disagree)		
Tend to disagree	0.002 (0.045)	0.065 (0.020)***
Tend to agree	-0.024 (0.043)	0.068 (0.020)***
Strongly agree	-0.072 (0.050)	0.048 (0.023)*
Dealing with regulations	0.006 (0.003)**	0.000 (0.001)
Registration *(RC: No)*	0.017 (0.037)	-0.013 (0.017)
Firm age	-0.049 (0.108)	-0.117 (0.049)**
Firm age (squared)	0.000 (0.000)	0.000 (0.000)**
Ownership *(RC: Other)*	-0.055 (0.042)	-0.009 (0.019)
Firm size (RC: small)		
Medium	0.028 (0.019)	0.001 (0.009)
Large	0.045 (0.022)**	-0.004 (0.010)
Legal status (RC: Shareholding company with traded shares)		
Shareholding company with non-traded shares	0.279(0.066)***	-0.054 (0.030)*
Sole proprietorship	0.271 (0.056)***	-0.026 (0.026)
Partnership	0.309 (0.060)***	0.025 (0.028)
Limited partnership	0.289 (0.056)***	0.028 (0.026)
Other	0.406 (0.078)***	0.019 (0.037)
Industry		
Refined petroleum	0.637 (0.211)***	
Recycling	0.227 (0.110)**	
Construction	-0.105 (0.051)**	
Region		
Guangzhou City	0.121 (0.053)**	0.072 (0.024)**
Tangshan City	-0.174 (0.056)**	
Jinan City	0.097 (0.050)**	
Shanghai	0.186 (0.091)**	
Foshan		0.044 (0.262)*

Shijiazhuang City		0.079 (0.024)***
Zhengzhou City		0.067 (0.255)***
Luoyang City		0.064 (0.263)**
Wuhan City		0.060 (0.250)**
Nanjing City		0.699 (0.270)***
Suzhou City		0.074 (0.023)***
Nantong City		0.066 (0.026)**
Shenyang City		0.050 (0.024) **
Qingdao City		0.051 (0.027)*
Hangzhou City		-0.071 (0.033)**
Ningbo City		0.089 (0.024)***
Wenzhou City		0.096 (0.027)***
Access to finance		
Minor obstacle	0.012 (0.019)	0.013 (0.008)
Moderate obstacle	-0.003 (0.029)	0.025 (0.011)**
Major obstacle	-0.060 (0.045)	-0.013 (0.019)
Very severe obstacle	-0.228 (0.100)**	-0.067 (0.046)
Transport (RC: No obstacle)		
Minor obstacle	0.004 (0.195)	-0.004 (0.009)
Moderate obstacle	-0.002 (0.032)	0.034 (0.015)
Major obstacle	0.020 (0.081)	-0.007 (0.037)
Very severe obstacle	0.000 (0.091)	0.051 (0.042)
Electricity *(RC: No obstacle)*		
Minor obstacle	-0.169 (0.018)	0.000 (0.009)
Moderate obstacle	0.024 (0.029)	-0.007 (0.014)
Major obstacle	-0.053 (0.080)	-0.069 (0.037)*
Very severe obstacle	0.053 (0.115)	-0.023 (0.053)
Innovation and technology		
Quality certification *(RC: No)*	0.013 (0.018)	0.018 (0.008)**
External auditor *(RC: No)*	-0.016 (0.019)	0.004 (0.008)
Website *(RC: No)*	-0.002 (0.018)	0.009 (0.008)
E-mail *(RC: No)*	-0.021 (0.025)	0.010 (0.009)

Work force		
Top manager's experience	0.002 (0.001)	-0.000 (0.000)
Permanent full-time workers	2.75e-06 (7.11e-06)	2.63e-06 (3.25e-06)
Female ownership *(RC: No)*	0.012 (0.017)	0.011 (0.008)
Constant	48.197 (106.755)	113.676 (48.845)**
Observations	1531	1531
Model *F* test	1.712**	2.326***
R-squared	0.091	0.119

*Note: Standard errors in parentheses. Significance are denoted at *p<0.1, **p<0.05, and ***p<0.01. Only the significant industries and regions are included in this table.*

Chapter 7

Discussion and implications

This paper started off by formulating a hypothesis assuming that Chinese firm performance increases when it engages in bribe payments to Chinese government officials. The results do not confirm the à priori expectations that firm performance increases due to the payments of "grease money" to government officials, controlling for other factors that could possibly influence firm performance. However, even though this paper fails to provide significant results, the findings are somewhat in line with the theories discussed in this paper. On the one hand, it appears that the principals of the "grease the wheel" theory applies since there is a positive correlation between bribery and annual employment growth. As the "grease the wheels" theory argues, engaging in bribery enables firms to overcome bureaucratic obstacles and gain a larger market share which benefits their firm performances. On the other hand, the results indicate a negative correlation coefficient between bribery and firms' annual sales growth. This is in line with the competing theory that argues that engaging in corruption leads to a misallocation of resources, inefficiency and thus lower firm performance. However, due to insignificance of the results, this study cannot empirically confirm this reasoning. But to build on a vast majority of literature that reveals both the positive and negative relationship between corruption and firm performance, it appears that this study does provide the appropriate framework.

Nonetheless, this paper did find a statistically significant positive effect between firm performance and dealing with regulations. It seems that firms that spend 1 percent more of their time dealing with government officials have higher firm performances. This in line with Cai et al., (2011) who argue that firms that may require new permits or in other words "need to get things done" spend more time on dealing with government officials. Though, this does not prove that spending time with government officials is related to illegal practices such as bribery, but because China is the primary focus in this paper it does suggest that good relations (guanxi) benefit firms' performances.

Furthermore, there is a statically significant positive relationship between whether firms perceive the court system to be fair, impartial and uncorrupted and firm performances. The results are quite interesting because both firms that agree and disagree with this question have positive growth rates. This suggests that bribery does not contribute negatively to growth at all. This is interesting since a vast majority of literature argues the negative effect corruption has on growth. These results contradict literature, making it questionable whether corruption is as bad on growth as some scholars claim.

Policy implications of this study are that some firms still perceive the court system to be not-fair, partial and corrupted despite China's efforts to battle corruption. A way of dealing with corrupted officials apart from jail time is to reduce incentives for corruption by increasing the wages for public officials. This way government officials could be less tempted to engage in corruption. Another implication is that the Chinese government primary focuses on corrupted government officials in its "catching tigers and flies" reforms, but it should also focus on the firms that offer the bribes. As discussed in the theory, bribery involves an illegitimate transaction between government officials and other actors. Drawing upon the Neo-classical theory, firms are rational actors that rationally make the decision whether to bribe or not based on a benefit-cost analysis (Allingham and Sandmo, 1972; Becker, 1968). Therefore, to change the cost-benefit ratio, the Chinese government needs to increase the risks and sanctions in order to make bribing an irrational choice. However, the existence of weak formal institutions in China may prevent this approach of succeeding. China reached a well-developed phase in their economy, but in order for China to sustain their economic growth, the establishment of strong institutions is necessary. By building strong institutions, corruption becomes less present.

Chapter 8

Conclusion

Corruption is widely viewed as the pervasive cause of poor economic performance. It is especially believed that countries with weak institutions suffer the most from corruption. Some scholars argue that corruption is a necessary evil that enables firms to mitigate the negative effects of inefficient bureaucracy. By bribing government officials, firms believe their company will benefit and achieve higher growth rates. Others argue that corruption has a negative interfering impact on firm performance due to rent seeking, misallocation of resources, and inefficient investments.

Nevertheless, not all developing countries suffer from corruption. China, as the striking example of the "East Asian paradox", seems to prove otherwise with its extraordinary economic growth rates over the past decades despite high levels of corruption. Based on this puzzle, the overall aim of this paper has been to investigate the relationship between corruption and firm performance of Chinese firms.

This paper used firm-level data collected by the World Bank to empirically test whether Chinese firms who engage in bribery have higher firm performances. The results of the econometric analysis were not able to statistically confirm a relationship between corruption and Chinese firm performance. A possible explanation of this result could be that the way guanxi is anchored in the Chinese (business) culture suggests that Chinese businesses do not recognize corruption so much and therefore fits nicely within their business practices and as a result does not obstruct growth.

Furthermore, this paper did find a significant positive relationship between whether firms perceive the court system to be fair, impartial and uncorrupted and firm performances. Firms that tend to disagree and agree both achieve higher levels of firm performance. This suggests that bribery does not contribute negatively to growth at all of Chinese firms. This paper did also find a significant relationship between firm performance and dealing with regulations, which indicates that spending more time with the government results in

higher levels of firm performance and emphasises again on the deeply rooted Chinese cultural phenomenon of guanxi.

The main limitation of this paper is the availability of empirical data. Only one questionnaire is used to construct the dependent and independent variables. In addition, as discussed in chapter 5, the reliability of Chinese data is ambiguous and therefore may lead to crooked results. Although the interviewer tried to account for the sensitivity of the subject and therefore asked the respondents about their firms' engagement in bribery in an implicit manner, this study cannot ensure no source bias. Employing a data set that covers more firms and includes variables that cover "corruption" and "bribery" to a greater extent would embellish the results immensely. Lastly, reverse causality could be a potential limitation too. There is a possibility that not only does bribery cause sales growth or employment growth, but also that sales and employment growth cause bribery. Reversed causality leads to endogeneity, which means that the regression produces biased and inconsistent estimates of the parameters.

The aforementioned limitations offer potential for future research. It would be interesting to see what the effect is of China's institutions on growth. Sustainable growth requires well-functioning institutions. Since this paper only controlled for firm-related factors, future research is necessary to account for institutional effects. Moreover, this paper discovered that firms in the East have higher levels of firm growth. However, this paper did not provide any evidence whether or not that firm growth is related to bribery. Therefore, further research is necessary to assess whether or not this is the case.

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Appendix A

Table 1: Briber Payers Index 2011

RANK	COUNTRY/ TERRITORY	SCORE	NUMBER OF OBSERVATIONS	STANDARD DEVIATION	90% CONFIDENCE INTERVAL	
					LOWER BOUND	UPPER BOUND
1	Netherlands	8.8	273	2.0	8.6	9.0
1	Switzerland	8.8	244	2.2	8.5	9.0
3	Belgium	8.7	221	2.0	8.5	9.0
4	Germany	8.6	576	2.2	8.5	8.8
4	Japan	8.6	319	2.4	8.4	8.9
6	Australia	8.5	168	2.2	8.2	8.8
6	Canada	8.5	209	2.3	8.2	8.8
8	Singapore	8.3	256	2.3	8.1	8.6
8	United Kingdom	8.3	414	2.5	8.1	8.5
10	United States	8.1	651	2.7	7.9	8.3
11	France	8.0	435	2.6	7.8	8.2
11	Spain	8.0	326	2.6	7.7	8.2
13	South Korea	7.9	152	2.8	7.5	8.2
14	Brazil	7.7	163	3.0	7.3	8.1
15	Hong Kong	7.6	208	2.9	7.3	7.9
15	Italy	7.6	397	2.8	7.4	7.8
15	Malaysia	7.6	148	2.9	7.2	8.0
15	South Africa	7.6	191	2.8	7.2	7.9
19	Taiwan	7.5	193	3.0	7.2	7.9
19	India	7.5	168	3.0	7.1	7.9
19	Turkey	7.5	139	2.7	7.2	7.9
22	Saudi Arabia	7.4	138	3.0	7.0	7.8
23	Argentina	7.3	115	3.0	6.8	7.7
23	United Arab Emirates	7.3	156	2.9	6.9	7.7
25	Indonesia	7.1	153	3.4	6.6	7.5
26	Mexico	7.0	121	3.2	6.6	7.5
27	China	6.5	608	3.5	6.3	6.7
28	Russia	6.1	172	3.6	5.7	6.6
	Average	7.8				

Source: Transparency International (2011)