

**CORRUPTION IN THE PROCUREMENT
OF PHARMACEUTICALS AND MEDICAL
EQUIPMENT IN CHINA:
The Incentives Facing Multinationals, Domestic
Firms and Hospital Officials**

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ABSTRACT

Calls for reform of the Chinese healthcare system are voiced at the highest levels of the Chinese government, but reform cannot succeed unless policymakers confront the incentives for corruption built into the institutional structure of the healthcare system. Focusing on the markets for pharmaceuticals and medical equipment, this article isolates the special features of the Chinese healthcare system that are conducive to corruption. Without denying the responsibility of individual corporate representatives (both domestic and foreign), middlemen, and healthcare professionals, this article looks beyond the individual deals to document the underlying incentives for corruption by hospitals, physicians, and companies and explains how corrupt practices are currently organized. Finally, we argue that curbing the prevalent corruption requires efforts from both private companies and from the government.

KEYWORDS: *China, healthcare, hospitals, pharmaceuticals, medical equipment, multinationals, corruption, kickbacks*

1. We thank Deborah Davis, Sami Farhad, Jamie Horsley, Neysun Mahboubi, Alex Millman and participants in seminars at Yale Law School and the University of Pennsylvania Law School for very helpful comments as well as the editors of the *Pacific Basin Law Review* for their helpful and professional work.

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We will abolish the practice of compensating for low medical service charges with high drug prices, adjust the prices of medical care and drugs, and create a mechanism for running hospitals by nongovernmental capital. We will consolidate and improve the system of using basic medicines and the new mechanisms for operating community-level clinics.

Report on the Work of Government by Premier Li Keqiang,
March 5, 2014, Twelfth Meeting of the National People's Congress.

Calls for reform of the Chinese healthcare system are voiced at the highest levels of government, and reform efforts are ongoing and fast changing. In a country as large and diverse as China, with an aging population and regional variations in the quality and quantity of care, providing adequate and affordable healthcare is bound to be a difficult and complex task. We do not attempt to present a comprehensive framework of reform here. Rather, we argue that no reform can succeed unless policymakers confront the incentives for corruption and personal self-dealing built into the institutional structure of the healthcare system.

Corruption in the health sector is costly for all countries, but it is an especially important problem in developing and transitional economies where public resources are scarce (Vian 2002). Corruption can undermine the quality of healthcare, lead to inappropriate treatments, and raise the cost of care, leaving the poor inadequately served.² In any system, the problem goes beyond locating "bad apples"; it cannot be ameliorated without structural changes that limit corrupt incentives. The nature of healthcare as an essential service provided by professionals to poorly informed patients creates incentives for self-dealing in all countries. China is no exception, but some aspects of its healthcare system are unique. We aim to highlight these distinctive qualities and consider the relationships between Chinese institutions and private producers of medicines and equipment, especially multinational firms.

Most analyses of corruption focus on the interactions between public officials and private actors (Rose-Ackerman 1978). At a very broad and abstract level, corrupt incentives occur whenever a public official has discretionary power over the distribution of a benefit or cost to the private sector (Rose-Ackerman 1999: 9-10). But that framework is inadequate; it fails to capture the corrupt incentives that arise in hybrid institutions that mix public and private structures and operate in highly constrained and regulated environments.

Corruption appears to be endemic in the procurement of drugs and medical equipment in China. In 2010, the Chinese Academy of Social Science and the Ministry of Health conducted a survey of more than 300

2. According to Gupta, Davoodi and Tiongsoni (2000), countries with high indices of corruption on average have higher rates of infant mortality. In post-socialist transition countries, studies documented how partial reforms and low levels of state support created corrupt opportunities in Poland, Russia, and Bulgaria. *See*, for example, Leven (2005), Shishkin (2003), and Pashev (2007).

doctors in order to gauge their confidence in the integrity of the market. Seventy-eight percent of the doctors surveyed believed it was impossible for healthcare companies to compete in China without paying bribes. Interviews by one of the authors of this article (Tan) with 23 physicians and hospital officials show that most of them have been approached by healthcare companies who offered bribes at least once (Appendix 1).

Of course, corruption in healthcare may simply reflect a general tolerance for bribery and self-dealing throughout society. Cultural factors, such as China's heavy dependence on relationships (*guan xi*), are important in explaining the prevalence of epidemic corruption in the market, but they are constants that do not provide analytical insight into the recent surge in bribery cases.³ Focusing on the markets for pharmaceuticals and advanced medical equipment, we go further to try to isolate the special features of healthcare that are conducive to corruption.⁴

We recognize that patients also frequently give illegal "gifts" or "red envelopes" to doctors and other healthcare providers. They are an important aspect of the overall story of corruption in healthcare, but we do not analyze them here except to note that their roots lie in the same basic pathologies as the kickbacks that are our focus. Corruption has also occurred in the regulation of drugs for safety and efficacy and in the monitoring of production processes. The scandals in that sector resulted in the arrest and execution of the head of the national regulatory body in 2007 and have been well analyzed by others (Liu 2010, Yang 2009). While many reforms have occurred since then, problems remain (Song 2014). These regulatory weaknesses form an important backdrop for our study.

3. Manion (2014) investigated legal cases concerning Chinese corruption in 2000-2013. She found 98 cases involving foreign firms. Twenty-eight of these were US FCPA cases, only four of which involved a corresponding law enforcement action in China. The industries most commonly represented were mining, finance, pharmaceuticals, and information services—all major sources of foreign investment and trade in China. The 74 Chinese cases represent under 1% of commercial bribery cases, and a very small number of foreign firms have been targeted.

4. In China the causes and effects of corruption have been the subject of much research. Wedeman (2012) resolves the double paradox of China's intensification of corruption and rapid economic growth by distinguishing it from the developmental corruption that is epidemic in Japan, South Korea and Taiwan. He argues that deepening reforms fueled worsening corruption, and corruption evolved as the economy restructured. However, the intensification of corruption did not undermine current growth. Duckett (1999), Fan and Grossman (2001), Oi (1995), and Walder (1998) arrive at similar conclusions, arguing that corruption and the opportunity for personal profit served as an incentive for local government officials to support economic growth and reforms. Although worsening corruption and rapid growth may coexist in the short run, most commentators worry that they are inherently incompatible in a long run. For example, Sun (1999) warns that corruption distorts the economy and worsens maldistribution of wealth. It undermines state legitimacy and institutional integrity, leaving the state vulnerable to crisis. Pei (1999, 2008) also argues that Chinese corruption is leading to rapid but distorted growth that may collapse in face of an external shock.

Many allegations of corruption involve the activities of multi-national firms, although domestic firms have been implicated as well.⁵ Multinational businesses have reportedly faced corrupt incentives since their entry into the market in about 2000. In 2006, 38 foreign-funded firms pledged not to bribe doctors to attain contracts, although that action proved to be merely symbolic.⁶ Former employees of Siemens have revealed that “nearly all major multinational healthcare companies bribe in one way or another, but few of them get caught. Eighty percent of contracts come from corruption, and you cannot even sustain your business if you don’t bribe” (Nandu 2008). In the summer of 2013 the Chinese authorities accused the pharmaceutical company GlaxoSmithKline [GSK] of corruption, and in September 2014 it paid a criminal fine of almost \$500 million, with five executives receiving suspended sentences.⁷ In early 2014 Abbott Laboratories was accused of paying kickbacks to doctors for purchase orders.⁸ Outside of China, three of ten cases in 2012 that alleged violations of the U.S. Foreign Corrupt Act (FCPA) in China related to bribery in the healthcare industry (Eli Lilly, Pfizer, and Biomet).⁹ These cases coincided with intensifying efforts by multinational healthcare companies to expand into the Chinese market. The FCPA investigations revealed that, beginning in 2001, multinational companies have been involved in the bribery of physicians in state-owned hospitals in exchange for purchasing contracts and medical prescriptions.¹⁰ These revelations highlighted the existence of corruption, but the analysis seldom went beyond recitals of corporate wrongdoing and official malfeasance. Without denying the responsibility of individual corporate representatives, middlemen, and healthcare professionals, we look beyond the individual deals to try to understand the structural features that encourage

5. A report from Aubound Consulting calculated that over the past decade, 60% of 500,000 corruption cases overall in China were related to multinational companies, and that their involvement has been growing every year. *See also* Alesina and Perotti (1995). However, that report did not isolate health-related firms from the total, and, of course, prosecutors may have targeted MNCs over domestic firms.

6. *See* 38 foreign pharmaceutical firms agree on transparent, fair sales in China, Xinhua News, October 16, 2006, <http://english.sina.com/business/1/2006/1016/92010.html>.

7. *See* Keith Bradsher and Chius Buckley, *China Fines GlaxoSmithKline Nearly \$500 Million in Bribery Case*, N.Y. TIMES, September 19, 2014, http://www.nytimes.com/2014/09/20/business/international/gsk-china-fines.html?_r=0 (discussing the case and providing background. The fine was much larger than previous criminal fines levied on firms).

8. *See* Abbott Accused of Bribing Doctors to Promote Drugs, CHINA COMPLIANCE DIGEST, January 27, 2014.

9. Complaint, *US SEC v. Eli Lilly and Company*, Case 1:12-cv-02045 (US Dist. Ct. Dec. 2012); Complaint, *US SEC v. Pfizer Inc.*, Case 1:12-cv-01303 (US Dist. Ct. Aug. 2012). *See also* US SEC. & EXCH. COMM’N, SEC ENFORCEMENT ACTIONS: FCPA CASES, www.sec.gov/spotlight/fcpa/fcpa-cases.shtml (last accessed Nov. 21, 2014); US DEP’T OF JUSTICE, FRAUD: FCPA AND RELATED ENFORCEMENT ACTIONS, www.justice.gov/criminal/fraud/fcpa/cases/a.html.

10. We discuss the investigations by the DoJ and SEC in section 4.

corruption in spite of the threat of prosecution both in China itself, under the US FCPA, or the OECD Anti-Corruption Convention.

To understand the prevalence of bribery in the Chinese healthcare market, we first need to understand some basic facts about the Chinese healthcare system and the reasons behind the entry of large numbers of MNCs into the Chinese market in recent years. We begin in Section I by isolating the sources of market failure in the healthcare sector that might produce distortions and corrupt incentives. Market failures are pervasive even in systems with a large and often competitive private sector. These failures produce inefficiency everywhere, but they do not invariably lead to corruption. Section II outlines the way healthcare is financed in China and summarizes shifting reform initiatives. Section III summarizes the growth in the market for pharmaceuticals and medical devices and documents the entry of multinational firms into the Chinese market. Section IV considers the incentives for corruption in healthcare procurement. Section V provides examples of corruption involving multi-national pharmaceutical firms. Drawing on Tan's interviews, Section VI outlines a number of generic techniques used by firms to structure corrupt arrangements and avoid direct responsibility. In light of the continuing corruption risks, Section VII argues for reform proposals addressed both to MNCs and to Chinese regulators.

I. MARKET FAILURES AND SOCIAL VALUES IN HEALTHCARE

There are three fundamental market failures in healthcare in any society. First, there are information asymmetries – doctors and other professionals are much better at diagnosing and recommending treatment options than patients themselves. Second, if patients are insured, moral hazard exists when they demand excessive care because they are insulated from the social costs of its provision. Third, adverse selection occurs because young and healthy people may not purchase insurance that is priced to cover the expected healthcare costs of the old and sick, undermining insurance schemes.¹¹ In some countries these problems are compounded by social policies that seek the worthy goal of universal healthcare or, at least, a basic minimum for the poor.

Information asymmetries are severe in healthcare. Patients are often poorly informed about the best treatment for their symptoms. The advent of health information on the internet can only mitigate this problem to a certain extent, especially because this information is not always reliable. Hence, patients rely on professionals—doctors and other specialists—to diagnose and prescribe. Patients must rely on the professionals' credentials and on the norms of behavior that are part of their training. The accountability of professionals to their patients is complicated by the uncertainty that faces even highly trained doctors. Often the best treatment is not obvious; doctors need to exercise judgment, and, absent

11. See Akerlof (1970), Bloom et al. (2008), and Rothschild and Stiglitz (1976) for a summary of these market failures.

overt malpractice, there may be few ways for others, even professional oversight bodies, to evaluate doctors' choices. Thus, even systematically poor choices may never be uncovered by market pressures.

Next, even when most households have insurance, adverse selection and moral hazard create problems. When adverse selection occurs, the choices independently made by patients and insurance providers may undermine the market for insurance even if each individual makes a rational choice. The problem arises if insurance companies cannot charge high-risk people higher rates, either because they cannot identify them or because they are legally forbidden to price discriminate. They will then set prices that reflect the average risk in order to cover costs. As a consequence, those who are actually low risk may rationally opt to self-insure, increasing the overall risk of the remaining pool of policyholders and pushing up the breakeven price. In the worst case, no insurance is provided at all even though everyone is willing to pay to cover his or her own risk. Market segmentation by risk class is efficient but could undermine equity goals if those with low incomes are also of high risk.

The state can avoid adverse selection by providing a national single-payer system that automatically enrolls all citizens, giving them no opt-out option. This was arguably the Chinese policy from 1950 until the early 1980s, although China's low level of development meant that the overall quality and quantity of service were low.¹² However, universal coverage can exacerbate the third problem of moral hazard.

Moral hazard is inherent to insurance. Because people pay for insurance up front, they lack financial incentives to limit their consumption of healthcare *ex post*. If healthcare providers are paid for the services they provide, they have an incentive to over provide, and patients have little incentive to complain. Recognizing this problem, many insurance policies, especially in the United States, include co-pays for doctor's visits and/or financial limits on overall coverage, subcategorized by doctors' visits, pharmaceuticals, etc. These provisions help to dampen moral hazard but do not eliminate it.

In addition to issues related to economic efficiency, a social commitment to the provision of healthcare also means that the free market cannot be left unregulated. Although an efficient healthcare market might charge rich people with good health habits and those without genetic risks less than poor people with chronic debilitating conditions, this seems socially problematic. Of course, if some patients are not able to pay the marginal cost of their care and the healthcare system is still to serve their needs, others must provide a subsidy, through taxes, private charity, the prices charged to other patients, or as a charge on the earnings of professionals and the profits of hospitals.

With these issues in mind, we turn to the case of China. As we will see, significant problems arise at the intersection of paying patients'

12. See generally Fox (1960) describing the state of medical care in China from 1949-1959.

doubts over the quality of domestic products; the financial interests of doctors, hospitals, and public officials; the profit-maximizing aims of suppliers—which are often, but not always, multi-national firms; and the central government’s expensive mandates and low levels of subsidy. We begin with a broad overview of the healthcare field before turning to focus on pharmaceuticals and medical equipment. While information asymmetry has been the dominant market failure contributing to corruption, proposed reforms seeking to increase insurance coverage could lead to growing problems of moral hazard and adverse selection.

II. HEALTHCARE FINANCING IN CHINA

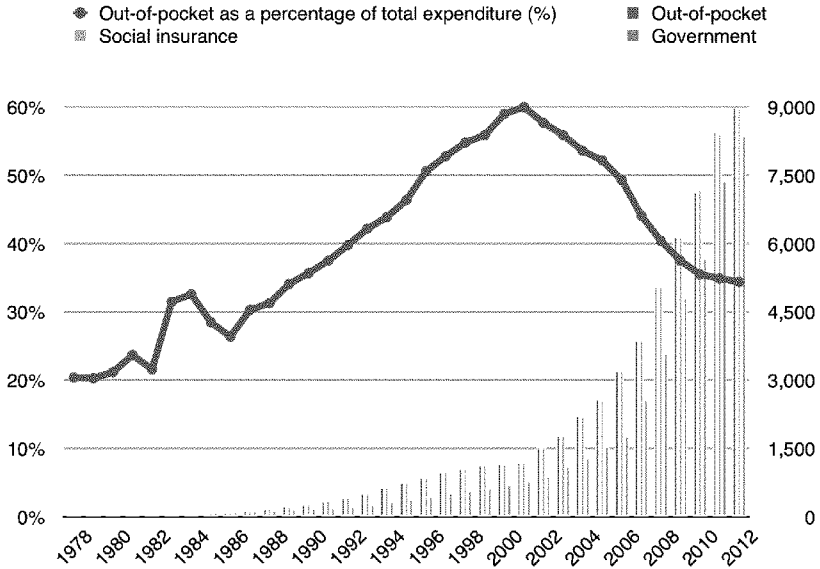
Two key conditions are of central importance to understanding the Chinese healthcare system. First, neither public nor private insurance provides broad coverage. Insurance costs are low, but much spending is out-of-pocket by patients at the time of service. Second, national reforms have pushed financing responsibilities onto local and provincial healthcare institutions and place heavy pressure on them to maintain service levels and budgets. Recently announced reforms may change the situation, but any changes must be understood against these background conditions.

A. *Limited Private Insurance*

The poor receive a minimum level of state-supported healthcare. Those who are better off, such as some groups of workers and public employees, receive state-subsidized health insurance with limited coverage. Private insurance is available but is expensive and, as a result, many households which are neither very poor nor in the labor force have no health insurance, and even those with coverage can easily face out-of-pocket charges. As a result, households may have to pay large unexpected charges if a family member develops a serious health problem. Figure 1 illustrates the amount spent on healthcare by government at all levels, social insurance (including both the public social security system and private insurance financed by households and/or employers), and households in out-of-pocket charges paid at the time of treatment.¹³ In the past two decades, the lowest out-of-pocket payments as a percentage of total expenditure was 35%; this number peaked at 60% in 2001.

13. China Ministry of Health gives the following definitions: government expenditures include fiscal budgets from all levels of governments spent on public health and medical cares; social insurance includes expenditures by the social security system, private health insurance plans, social donations, and administrative operations; out-of-pocket expenditures include cash or cash equivalent payments by patients themselves.

Figure 1: China's Total Healthcare Expenditure Breakdown, 1978-2012



Source: China Ministry of Health (MoH)
Expenditure measured in 100million RMBs

By comparison, in the United States, where health insurance coverage is also not comprehensive, out-of-pocket payments as a percentage of total expenditure are much lower. In 2011, for example, U.S. healthcare spending reached \$2.7 trillion, but out-of-pocket spending was only \$307.7 billion, or 11% of the total (Centers for Medicare & Medicaid Services 2012). While the Chinese government first proposed the development of private insurance in 1996 to supplement China's public health insurance, the industry remains small and immature. Private health insurance as a percentage of total revenue in the private insurance industry has never been higher than 7%, and has even trended downwards in the past several years.¹⁴ Private health insurance accounted for less than 2% of China's overall healthcare expenditure in 2011(Table 1).

14. Total commercial insurance includes property insurance, life insurance, health insurance, and casualty insurance.

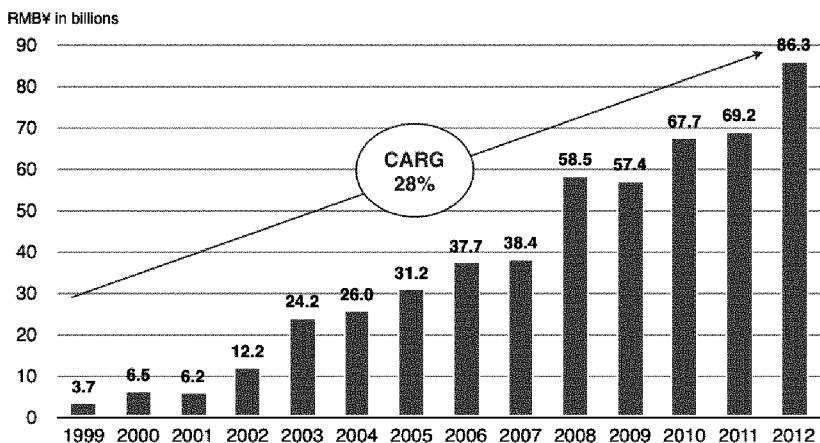
Table 1: Health Insurance in Total Healthcare Spending, 2006-2011

	2006	2007	2008	2009	2010	2011
(1) Total healthcare expenditures	984.3	1157.4	1453.5	1754.2	1998.0	2426.9
(2) Social Insurance	321	389.3	506.5	615.4	719.6	842.4
(3) Private health insurance	12.5	11.7	17.5	21.7	26.4	36
Private health insurance as a percentage of total healthcare expenditures	1.3%	1%	1.2%	1.2%	1.3%	1.5%

Note: All expenditures are in nominal RMB billion.

Source: CIRC and China MoH

Although private health insurance is only a small portion of healthcare spending, the industry has expanded significantly over the past decade. Insurance premium collections grew at 28% per annum over the past ten years to reach RMB 86 billion in 2012 (Figure 2), with an estimated 6-9% of the urban population enrolled in private health insurance plans. Private health insurance penetration (total insurance premium divided by GDP) doubled and density (per capita spending on insurance) grew ten times over the past decade (Chen and Lin 2012).

Figure 2: Private Health Insurance Premiums Collected, 1999-2012

Source: CIRC

ARG=compound average rate of growth.

The number of private health insurance plans increased from an estimated 300 in 2008 to more than 1000 currently. However, despite the large number of plans, product variety is limited. There are two types of

plans. The first, hospitalization supplemental insurance, is a partial payment for hospitalization expenses in addition to the reimbursement allowed by government insurance schemes, thereby reducing out-of-pocket costs. The second type only covers severe diseases and provides a lump sum payment to the patient if he or she contracts a “major” disease.¹⁵ There is limited innovation in the market, with insurance companies competing on prices, sacrificing margins both for volume and for the opportunity to cross-sell life insurance products (Chen and Lin, 2012).

Several factors explain the undeveloped state of the market. First, ordinary people are not aware that private health insurance a viable option although that may be changing. A 2011 survey found that younger Chinese are more interested in protecting against risks than they were in a previous survey conducted in 2009 (Chen and Han 2012). Second, insurance companies lack accurate risk-related data, and firms are unable to assess the frequency and the cost of health risks. One reason for this lack is the inaccurate information that households provide to insurance firms. A single healthcare card is sometimes used by multiple people. Fraudulent sales are common in part because agents earn income on the basis of policies sold. One study found that 60% and 80% of the insurance contracts sold by agents and banks respectively contained some degree of fraud or misinformation about health status (Jeantet, 2012). The unreliability of agents also discourages other households from purchasing insurance.

The availability and quality of care also differ widely between rural and urban areas. Both the training of doctors and the quality of hospitals and equipment are lower and more variable in rural areas.¹⁶ This may make the sale of insurance to rural households uneconomical; households are simply too poor to be worth insuring given the risks and the difficulty of monitoring service provision. Finally, the cost of healthcare is highly variable and, as we discuss below, may be biased upward because of corruption and incentives to prescribe costly drugs, tests, and procedures. Therefore, although it is possible to sell health contracts with very restrictive guarantees, the characteristics that would make health insurance broadly appealing are not sustainable on the current market. The end result is limited private insurance and high levels of out of pocket spending.

B. *Chinese Healthcare Reform: the Move Toward Private Funding*

The underdeveloped insurance market and the financial pressures on healthcare providers resulted from a series of central government reforms. In the early years of the Chinese Communist regime, insurance was tied to urban residence and type of employment—those employed in manufacturing and as government or party officials had insurance (He

15. Major diseases include malignant neoplasm, myocardial infarction, brain stroke, coronary artery bypass surgery, organ transplantation, end stage renal disease, and hematopoietic stem cell transplantation.

16. China's urban doctor-patient ratio was 2.8 doctors per 1,000 people. In rural areas, the ratio was 0.95 doctors per 1,000 people.

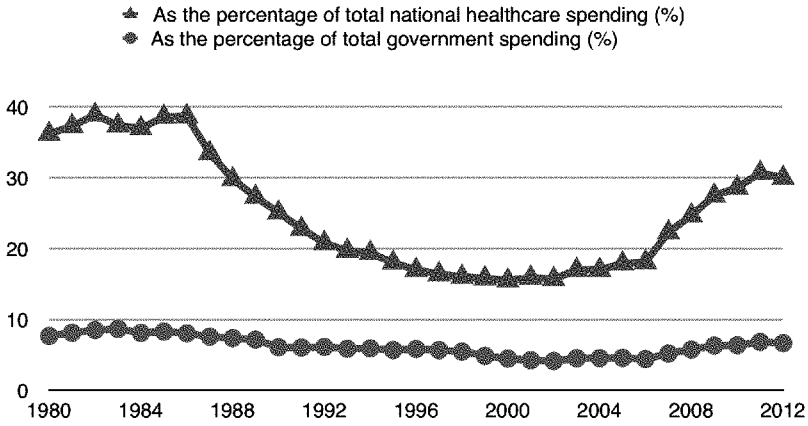
2007). Vast numbers of households had little or no insurance. In connection with the economic reform starting in 1978, the Chinese government carried out major healthcare reforms. These reforms transformed a system where the central government was the sole owner, sponsor, and provider by allowing the market economy to play a larger role. These reforms had three phases up to 2005 (Blumenthal and Hsiao 2005, Dong and Phillips 2008). The reforms of the last decade will be discussed separately.

i. Stage One: Local Financing and Price Ceilings under Government Ownership

The first phase started in the early 1980s after Deng Xiaoping returned to power and heralded a period of rapid economic development and decentralization of political power in the public sector. This reform included the privatization of a large portion of healthcare financing. Hospitals in urban areas and rural township clinics remained under central government ownership, but the responsibility for financing and administering the healthcare sector shifted from the central to the local authorities. This decentralization dramatically changed the structure of healthcare financing and unintentionally led to many deeply rooted problems and challenges that still persist. From 1980 to 1999, the central government's share of national healthcare spending as a percentage of total healthcare expenditure fell from 36% to 15% (Figure 3) (Blumenthal and Hsiao 2005). The central government's share in total government expenditure on healthcare fell from 8% to 4% (Chinese Ministry of Health, 2009). Monetary totals actually rose somewhat, as Figure 1 indicates, but they fell as a share both of the healthcare budget and of central government spending. Because local governments in the provinces have limited taxing power,¹⁷ this change forced Chinese healthcare facilities to turn to the private market for funding. The privatization of healthcare financing required hospitals to rely more on the sale of services, drug prescriptions, and medical examinations to earn revenues.

17. According to the statistics from the website of State Administration of Taxation in China, revenues collected by all local governments consisted of about one-third of total tax revenues in 2009, the rest was collected by the central government. STATE ADMINISTRATION OF TAXATION IN CHINA, <http://www.chinatax.gov.cn/2013/n2735/n2738/n2761/c73041/content.html> (last accessed Nov. 13, 2014).

Figure 3: Government Spending Share in the Healthcare Sector, 1980-2012



Note: "Government" refers to all levels of the government in China
 Source: China's Ministry of Health

Table 2: Chinese Healthcare Spending, 2000-2014E

	2000	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013E	2014E
Healthcare spending (US\$ bn)	45.0	92.0	108.0	131.0	154.8	208.5	258.5	297.0	365.7	433.3	509.4	604.6
Healthcare spending (% of GDP)	4.6	4.7	4.7	4.7	4.4	4.6	5.1	5.1	5.2	5.3	5.4	5.6
Healthcare spending (US\$ per head)	35.0	71.0	83.0	99.0	103.6	131.8	153.4	173.5	208.8	245.5	290.8	344.6

Note: All expenditure numbers are nominal. Data for 2013 and 2014 are estimates.
 Source: APCO, China's Ministry of Health

The National Development and Reform Commission imposed price regulation at the same time that the national government withdrew much financial support. The Commission's price guidelines for basic health services were supposed to be low enough to assure that the services would be affordable for patients. The government tightly controlled the prices that state-owned hospitals could charge for routine examinations, surgeries, standard diagnostic tests, and pharmaceuticals. Hospitals were prohibited from earning more than a 15 percent markup from these regulated tests and drugs. Numerous empirical studies and surveys have shown that the price regulation placed hospitals at serious financial risk (Meng et al. 2005, Liu et al. 2000, Eggleston et al. 2008). The regulated fees were believed to be far below unit costs, and they failed to track

rising inflation. A nation-wide study commissioned by the Chinese Ministry of Health in 1994 found that 90% of the service items examined had a unit cost that was more than the regulated fee (Liu 1996). A large gap existed between average unit cost and the controlled price. Before the reform of hospital financing in the 1980s, the national government budget fully covered this gap. However, after the reform, price regulation imposed large financial pressures on hospitals and their management.

In the first few years of the reform, about one-third of the public hospitals operated in deficit (Shi 1987). Although the NDRC kept the prices of basic services low, it permitted hospitals to offset their losses through markups on expensive high technology and tests. The government also modified the salary-based system of payments to hospital physicians. Generally, doctors in China have low financial incomes. The out-of-pocket costs of medical school are quite low, but the other costs are high in terms of training time, academic degrees, technical demands, and professional risks. Doctors generally only receive the equivalent of a few hundred U.S. dollars a month as base salaries—less than the earnings of many less-skilled workers. Physicians are, therefore, motivated to search for ways to increase their income.

By setting the base salary low, hospitals expected doctors to earn extra income through bonuses based on services to patients. However, because the quality of service is hard to measure, hospitals pegged doctors' bonuses to quantity—measured by the revenues they generated for the hospital (Blumenthal and Hsiao, 2005). Physicians then had large incentives to supplement their livelihood by prescribing expensive drugs and diagnostic procedures. These distortions continue. According to an investigation of three hospitals in 2010 in the east of China (Fang 2011), 80% of physicians' total income came from bonuses that were directly connected with department profits. These forces contributed to an increase in overall healthcare prices, and an explosion in the purchase of expensive diagnostic tests and pharmaceuticals by hospitals.

In short, as a result of the reforms, doctors had strong incentives to maximize their bonuses by prescribing costly pharmaceuticals and tests. These incentives laid the groundwork for the corrupt practices that we discuss below. In this first phase, however, this income-maximizing behavior was inefficient but not necessarily corrupt. It arose from the information asymmetry between doctors and patients, and perhaps also from moral hazard as insured patients demanded high-cost care.

ii. Stage Two: Experiments with Market Tests in Healthcare

During the second phase of the reform, from mid-1990s to mid-2000s, the central government conducted experiments in several rural and urban public hospitals. It also allowed the limited formation of for-profit healthcare facilities with private owners, but the overall extent of that move is unclear and contested.¹⁸

18. Detailed news reports describe the experiments. See *Suqain Medical*

An experiment with privatization and the free market occurred from 2000-2006 in Suqian City in Jiangsu province. In 2000, a vicious circle existed in Suqian, where the lack of funds led to low-quality service by poorly paid doctors with inadequate training, which, in turn, reduced demand for their services. Due to these difficult circumstances, the local government privatized the whole healthcare system with the approval of the central government. Except for the maintenance of basic public-health facilities, the local government sold public hospitals to individuals, partnerships, and share-holding companies. The goal was to eliminate the government monopoly on the supply side and to fully marketize the healthcare system. After five years of privatization, the mayor of Suqian proudly announced that the reform was successful, and the city achieved the “complete exit of governmental forces on the supply side of Suqian’s healthcare system.”¹⁹ Supply-side privatization reportedly benefited both urban and rural patients in the cost and quality of care.²⁰

iii. Stage Three: Lack of Overall Reform

In spite of Suqian’s reported success, the government never endorsed full-scale privatization as a general policy. The proximate cause of the pullback was the SARS epidemic in 2003.²¹ With hospitals owned

Reform Who is Should Play 80 Minutes or 20 Minutes, ECON. OBSERVER (July 8, 2006, 10:48 AM), <http://finance.sina.com.cn/g/20060708/10482715968.shtml>; *Snow Buried: Evaluation of Suqian Health Reform Can Not Wear Colored Glasses Preconceived*, CHINA YOUTH DAILY (Jun. 27, 2006, 7:01 AM), <http://finance.sina.com.cn/review/zlhd/20060627/07012683639.shtml>; Zhang Qi-zhi Huang Tingjun, *Medical Prices Drop Even Five Years: Suqian Health Reform Survey*, XINHUA DAILY TEL. (April 15, 2006, 6:06 PM), http://news.xinhuanet.com/mrdx/2006-04/15/content_4428005.htm.

19. *The Health Care Reform Case In Point: Suqian’s Road of Privatization*, ECON. OBSERVER, July 8, 2006.

20. Average health care expenditure per visit fell from 75.49 to 70.19 yuan at the city-county level, and from 3762 to 2784 yuan at the village level. The average charge per bed per day also fell by 4 percent at the city-county level, and by 17 percent at the village level. Waiting time was reduced by 30 minutes. Not only did health care spending fall, private hospitals also provided better services. The private supply side successfully improved efficiency, profitability, and patients’ experience by introducing competition (Chow 2009).

21. One reason why the reform stalled was its weak response to health emergencies, such as the SARS epidemic, that required a centralized response to prevent their spread across internal borders. Of course, a centralized emergency response can be combined with a decentralized system, as in the US, but such a mixed system did not exist at that time. Furthermore, problems with the response to SARS go far beyond the institutional structure of central/local relations. Lack of information sharing was due to China’s state secrets law system whereby disease-related information is secret until confirmed by central authorities, which need to approve reports to the public by localities and media, combined with inadequate internal information-sharing policies and systems/capabilities, rather than decentralization and privatization *per se*. See, e.g., Yanzhong Huang, *The SARS Epidemic and Its Aftermath in China: A Political Perspective*, JOHN C. WHITEHEAD SCHOOL OF DIPLOMACY AND INTERNATIONAL RELATIONS, SETON HALL UNIVERSITY, available at <http://www.ncbi.nlm.nih.gov/books/NBK92479/>. Recently, China did a much better job of handling the bird flu outbreak in April 2013. CBS/AP, *China Praised for Transparency During Bird Flu Outbreak*, CBS

and operated by a diverse set of institutions and individuals, the system was fragmented and communication was weak. Many attributed the under-reporting of SARS cases in Beijing to the lack of information sharing and the absence of central administrative enforcement.²² Without an established network of supervision and control, the hospital network posed huge bureaucratic challenges to the detection of and response to communicable diseases such as SARS and HIV/AIDS.

The existence of more privately-owned facilities may also have exacerbated the distortions in service provision. In a well-functioning market, competition drives down prices and improves quality. However, in Chinese healthcare, competition may simply have driven the sales of high-tech medical equipment due to patients' lack of sophisticated information. In order to attract patients, privatized hospitals started to compete not only on price but also in technological sophistication. So long as providers could persuade patients to use these services, both private and government hospitals had an incentive to buy equipment that could generate high profit margins (Li et al., 2006). Thus, Magnetic Resonance Imaging (MRI) Machines and other advanced equipment came to be more prevalent in Chinese cities than in their counterparts in more advanced economies (Brix et al., 2011). For example, Yianjin, a city with 6 million people, had 68 CT scanners in 1993, or over 11 per million; Anshan, with a population of 1.4 million, had 12 CT scanners in 1994, or 8.6 per million; Qingzhou, a city of 150 000 people, had 4 CT scanners in 1997, a ratio of about 27 per million (Liu and Chen 2000). Canada, by contrast, with one of the best, publicly supported healthcare systems in the world, had only 8 CT scanners per million people in 1995, increasing to 13.9 in 2009, the last year for which data are available.²³ The income per capita of those Chinese cities was only about one tenth of that in Canada. Hospitals that were short of funds obtained equipment using bank loans, international government funds, investment shares sold to their staff, or lease agree-

NEWS (Apr. 11, 2013), <http://www.cbsnews.com/news/china-praised-for-transparency-during-bird-flu-outbreak/>. We are grateful to Jamie Horsley for these citations.

22. The Ministry of Health sent a group of scholars and government officials to Suqian after SARS to assess the linkage between the city's hospital privatization and SARS under-reporting. As reported in *Southern Weekly*, the group blamed the decentralization of the healthcare system. See *The Ministry of Health Survey Suqian Radical Health Care Reform*. SINA WEEKLY, (Oct. 23, 2003, 3:01 PM), <http://finance.sina.com.cn/roll/20031023/1501486909.shtml>. Of course, decentralization was not the only problem, other difficulties included the burden of filing reports and the desire to avoid being identified as a local institution affected by the infection.

23. Data from the Centers for Disease Control and Prevention, Health, United States, 2011, Table 123, <http://www.cdc.gov/nchs/data/hus/2011/123.pdf> 2011. The table is based on OECD data. In the United States there were 34.3 CT scanners per million in 2007, the only year for which data are available. The OECD, in reporting on the prevalence of CT scans and MRI tests in member states, argues that the U.S. medical care system suffers from incentives to overuse that arise from the benefits to private physicians and healthcare facilities. See OECD, *Health at a Glance*, 2013, 4.2 Medical Technologies, http://www.oecd-ilibrary.org/sites/health_glance-2013-en/04/02/index.html?itemId=/content/chapter/health_glance-2013-33-en&mimeType=text/html.

ments with international suppliers for a percentage of revenues generated from the equipment. The price structure encouraged hospitals to quickly adopt new and expensive medical equipment because they could quickly generate high revenues from their use, although we do not have the data to demonstrate that result.

Distortions in the prescription of drugs in China result from another unique factor. Unlike in much of the West, where medicines are sold mainly in independent pharmacies, hospital-owned pharmacies dispense about 80% of Chinese drugs (Deloitte 2012). Hospitals rely heavily on pharmaceuticals as a source of revenue. As a result, the phenomenon of *yiyao buyi*, or “medicine-subsidized healthcare,” has arisen as Chinese doctors prescribe drugs at rates higher than nations at any stage of economic development. This practice was encouraged by bonuses that doctors received based on the value of the drugs they prescribed. According to statistics from China’s Ministry of Health (2011) on general hospitals in China, revenue from pharmaceuticals provides over 40% of total hospital revenues (Table 3). These practices are inefficient but not obviously corrupt. However, they provided an opening for corrupt self-dealing that helped to make the Chinese market very profitable to MNCs at the expense of hospitals and patients.

Table 3: China’s General Hospital Average Revenue Breakdown. 2002-2009

	2002	2003	2004	2005	2006	2007	2008	2009
Average total revenue per hospital (RMB 10,000)	3715	3970	5112	5576	6164	7507	9283	11495
Revenue breakdown (revenue from each of the following source as a percentage of total revenue)								
Fiscal subsidy	7.3%	7.5%	6.2%	6.0%	6.4%	7.0%	7.0%	7.4%
Clinic	16.4%	16.1%	15.6%	16.7%	17.3%	16.9%	16.4%	15.7%
Hospitalization	29.0%	29.9%	29.3%	31.4%	32.1%	32.6%	32.6%	33.0%
Pharmaceuticals	43.5%	43.7%	40.0%	42.8%	41.5%	41.7%	42.3%	42.2%
Others	3.8%	2.8%	8.8%	3.1%	2.7%	1.9%	1.8%	1.8%

Source: China’s Ministry of Health Yearly Statistics 2010

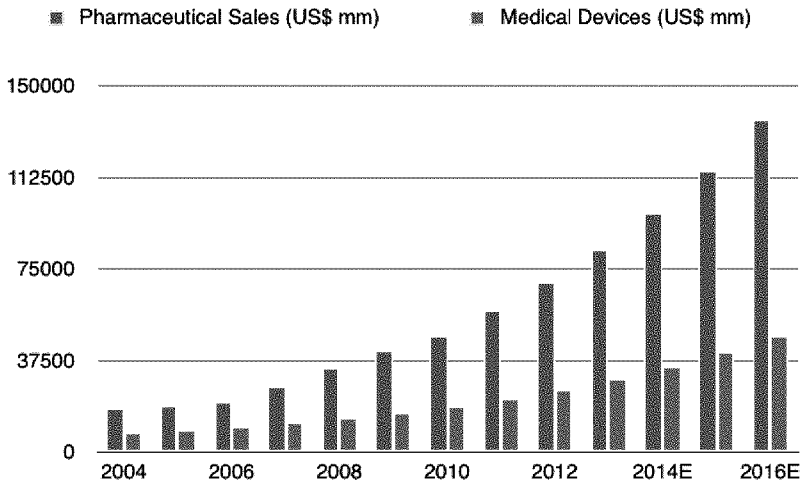
Note: All revenue numbers are nominal. Expressed in dollars at official exchange rates, average revenue ranged from \$4.49 million in 2002 to \$16.8 million in 2009.

III. THE RISING ROLE OF MULTINATIONAL FIRMS

China currently is the world’s third largest medical device and pharmaceutical market, following the United States and Japan. Business researchers forecast that the market will maintain its double-digit growth and will surpass Japan to become the second largest market in the world within five to seven years (APCO 2011). China’s current healthcare

spending as a percentage of GDP is only 5.3, a level much lower than other OECD countries (US 18.0%, Japan 7.9%, Germany 11.6%).

Figure 4: The Dramatic Growth in Chinese Demand for Pharmaceuticals and Medical Devices, 2004-2016E



Source: McKinsey (2012)

Note: All numbers are nominal

The current size and continued momentum of growth in the market have not been lost on multinational healthcare companies. Several leading pharmaceutical firms, such as Bayer Healthcare and Novo Nordisk, rank China among the top three markets in total sales revenues. Others have been increasing investment and hiring efforts, seeing China as their number-one contributor to absolute revenue growth. Medical devices and equipment companies, such as GE Healthcare and Phillips, have rapidly built Chinese business franchises with annual revenues of more than \$1 billion, and they are expecting to expand further (Deloitte 2012). According to an analysis by McKinsey, since 2006, 13 of the top 20 pharmaceutical companies have established R&D centers in China; in 2011, the 10 largest multinational drug companies employed a total sales force numbering more than 25,000 in China (McKinsey 2012).

Drug prices are generally lower in China than in America. One reason for this is the price caps imposed by the Chinese government, although in recent years the actual selling prices have sometimes fallen below the cap. For example, one study found that the prices of Norvasc, a Pfizer product, and Glucobay, a Merck product, were sold below their price caps in 2011 and 2012, in part because of competitive pricing processes for drugs not on the government's reimbursed drug list. An informal survey by one of the authors and a Chinese contact found that overall prices of generic drugs were much lower in China (Appendix 2).

One reason for the success of foreign producers is that patients often prefer their products to those produced by local firms, even at higher prices.²⁴ China has its own procedures for the approval of pharmaceuticals, but high levels of corruption and fraud characterized the first efforts at regulation, undermining public trust in the process (Liu 2010, Yang 2009). Recently, the process has improved (Yan, Chen, and Wang 2013), but adverse drug incidents have continued (Song 2014).²⁵ In contrast, drugs sold by multinationals benefit from an expectation of higher quality because they have been subject to oversight by the US Food and Drug Administration and by drug regulators in Europe and elsewhere. Similar preferences may exist for high tech medical equipment, even on the part of doctors. As a result, in the absence of price regulation, MNCs can charge higher prices than local producers selling substitutes.²⁶ In practice, stringent Chinese price regulation limits the MNC's pricing power, but de facto price parity still gives them an advantage in making sales and capturing market share, even in highly competitive product segments such as generic drugs (Chen and Han, 2013).

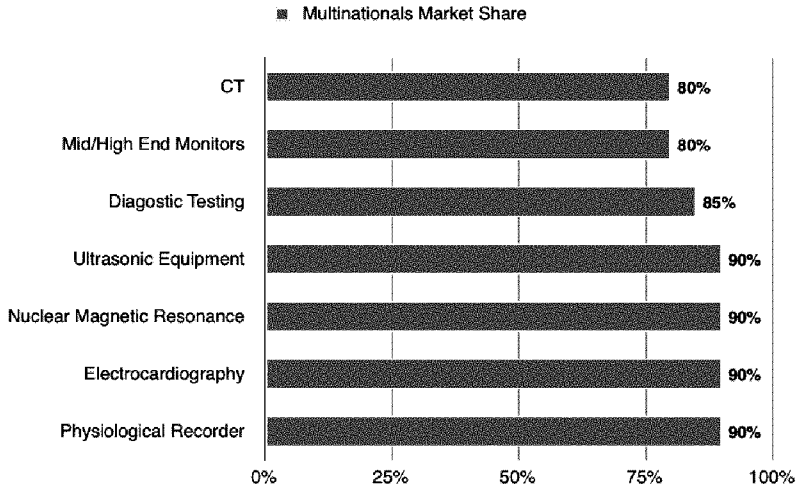
Hence, in recent years multinationals have quickly dominated the market for medical devices in China (Figure 5). For example, in the high-value diagnostic test and imaging equipment market, multinationals enjoy an absolute dominance, with over 80% of the market share. MNCs are important but less dominant in pharmaceuticals. In the first quarter of 2011 MNCs sold just over fifty percent of pharmaceuticals by the dollar volume of sales. Their market shares varied from 8.32% (Pfizer) to 2.87% (Johnson & Johnson). However, their sales volume is growing rapidly. MNCs reported sales growth of from 15 to 31 per cent over the previous year (KPMG 2011).

24. The strong preference for the foreign brands corresponds to the socio-characteristics of the country. Foreign brands not only mean higher quality, but they carry symbolic values of prestige required by the Chinese customers. See Chen (n.d.).

25. Some Chinese health practitioners have warned anonymously that generic drugs produced in China risk being contaminated, counterfeit, or simply under-strength and ineffective.

26. A report from Accenture (2012) shows that in China, branded generics and off-patent originators from foreign brands dwarf pure domestic generic products in terms of profitability. Multinational pharmaceutical companies like Eli Lilly & Co. and Pfizer have built portfolios of branded generic drugs for the Chinese markets. See *Lilly Eyes China's Branded Generics Market*, PMGROUPE, June 13, 2012, http://www.pmlive.com/pharma_news/lilly_eyes_chinas_branded_generics_market_407605; *Pfizer Forms Branded Generics Sales Alliance in China*, PMGROUPE, Sep. 13, 2012, http://www.pmlive.com/pharma_news/pfizer_forms_branded_generics_sales_alliance_in_china_425226.

Additionally, Andrew Witty, the CEO of GSK, said in an interview "branded generics charge higher prices because of their higher quality." *Branded Generics Are Attracting Large Pharmaceutical Companies*, BIOON NEWS, Mar. 1, 2010, <http://www.bioon.com/industry/reviews/434319.shtml>.

Figure 5: MNCs' Dominating Positions in Medical Device Markets

Source: McKinsey (2009)

IV. THE DEMAND AND SUPPLY OF BRIBES AND KICKBACKS

With this background, we are now ready to concentrate on the corrupt incentives built into the Chinese healthcare system as it attempts to reform. These incentives are connected to the fundamental market failures in healthcare – information asymmetry, moral hazard, and adverse selection, as well as to features of the Chinese market that give multinational firms a competitive edge. An increase in demand does not in itself create corrupt incentives, but in China, poorly informed patients and insurers and the structure of government reforms gave hospital officials strong bargaining power vis-à-vis both patients and firms, which was in turn used by some for corrupt gain. Dishonest hospital officials were able to solicit illegal payments from suppliers and their subsidiaries even as they sought to increase hospital revenues.

A. *The Supply Side of Corruption: Special Features of MNC Entry*

It appears that MNCs' incentives to bribe intensified before the recent crackdown for a few reasons. First, market conditions induced multi-national firms to focus increasingly on China. Firms saw more and more potential in the Chinese market because of its consistently strong growth, even when the global economy was in recession. Siemens Healthcare, for example, announced in a 2013 news release that they have been able to offset the decrease in U.S. sales volume through an annual growth rate of 27 percent in China (Siemens 2013). The CEO of Royal Philips Electronics, an Amsterdam-based healthcare giant, made a conscious choice: "If Europe is stagnant then maybe we need to shift resources away from mature markets into these growth geographies like China"²⁷

27. Maaike Noordhuis, *Philips to Pursue Growth in Emerging Markets as*

Second, even if the MNCs' generic drugs are chemically equivalent to those produced by local generic drug firms, purchasing agents, doctors, and patients take MNC brand names as indicators of quality, allowing them to charge higher prices and still remain competitive (Chen and Han, 2013). This price differential allows officials with bargaining power to extract bribes, which are then hidden in the difference in selling price.²⁸ In fiercely competitive market segments, there are also greater incentives for suppliers to pay higher bribes to secure supply contracts with hospitals.

Third, healthcare sales rely mostly on face-to-face marketing, and a failure to establish a favorable position in an early round of competition may result in a poor market position in the future. This feature of the market induces the agents of both domestic and foreign firms to establish good relations with purchasing agents and doctors; bribery is one way to curry favor. Moreover, if hospital officials are purchasing either medical equipment or pharmaceutical products, they may be influenced by the choice of other similar hospitals.²⁹ This increases incentives for corruption.

As the market grew in size, corruption levels do not seem to have been self-limiting. Even taking into account the risks of exposure and punishment, the benefit of bribery appeared to exceed its expected cost by greater amounts as the size of the market increased. Until recently, firm managers apparently believed that the chance of being prosecuted for corruption in the healthcare market was very low.³⁰ A brief breakdown of a simplified decision making calculus of a firm manager considering the microeconomics of bribery runs as follows:

Consider a firm that treats corruption as a cost of doing business. Such a firm would calculate the cost of the bribe or kickback (K) plus the probability of being found out (p) times the sum of economic losses (C) from reputation damage, legal fees, and fines or prison terms both in China and in a firm's home country. The benefits of obtaining a contract (B)

Europe Stagnates, BLOOMBERG BUSINESSWEEK, Feb. 11, 2013, <http://www.bloomberg.com/news/2013-02-11/philips-to-pursue-growth-in-emerging-markets-as-europe-stagnates.html>. See also *Hard Pills to Swallow*, THE ECONOMIST, Jan. 4, 2012, at 46 (contrasting low growth of the pharmaceutical market in North America, Europe and Japan with rapid growth in emerging markets, 1-4% compared to 10-13% per year according to IMS Institute for Healthcare Informatics), available at, <http://www.economist.com/news/international/21592655-drug-firms-have-new-medicines-and-patients-are-desperate-them-arguments-over>.

28. Of course, analogous to discussions of tax incidence, the entire cost of the bribe may not be shifted into the price. Some of it may show up in a reduction in profits compared to a contract made with no bribes. In a fully corrupt system, all contracts may include some level of payoffs, and the contract negotiations are implicitly negotiations about the incidence and level of payoffs.

29. Of course, sometimes hospital administrators are reluctant to take on new technology that might disrupt familiar ways of doing things.

30. In Tan's interviews with sales representatives of healthcare companies, one sentence comes up multiple times in reference to paying bribes: "everyone does it". This belief supports firm managers' assumption that because everyone does it and only a handful of people get caught, the probability of being prosecuted is very low.

must then exceed $K+pC$ for corruption to be worthwhile.³¹ In addition, there may also be a fixed cost in setting up a system for making payoffs through connections and other means that must be spread over all the individual corrupt deals. Let us call these costs over and above the cost of the bribe the “costs of illegality”.

The benefits of bribery depend upon the net profit expected from bribery. Bribes might give the firm a greater market share and/or permit it to charge a higher price than in an honest contracting environment. The firm’s decision about whether and how much to bribe depends upon the link between the level of payoffs and both the marginal costs of illegality and the marginal benefits in market share and price as bribes increase. A profit-maximizing firm’s decisions about whether to tighten its internal controls against bribery are determined by comparing the marginal cost and the marginal benefit. If there are fixed costs either in setting up a system to pay bribes, a bribe is not economically worthwhile until the expected economic benefits pass some threshold. The legal system may only deter bribes when the market is small and may completely fail to deter high-level players if the penalties do not rise in proportion to the benefits of corruption, both to the payers and the recipients of bribes. This appears to be the case in China, at least until very recently.³²

We do not mean to imply that all firm managers think in such purely instrumental terms when they do business in a corrupt environment. Both home-country legal action and personal scruples could lead firm management to support broad-based anti-corruption reform in China. In addition, a firm with a range of highly desirable patented drugs or inventions can afford to resist corrupt demands because healthcare facilities will be unwilling to forego the firm’s products.

Within a firm, the principal/agent relationship between top management and those overseeing the firm’s business in China adds additional complexity. If the firm rewards managers on their sales numbers, the managers have an incentive to make payoffs so long as their superiors do not check the activities of their foreign subsidiaries too carefully and law enforcement is weak. Successful sales representatives may not only be promoted by less than diligent superiors; they may also develop valuable contacts with corrupt purchasing agents that can generate other career options should they desire to move on. These internal dynamics highlight the fact that top management that actually wishes to limit corruption cannot simply reward subordinates on the basis of sales figures but must be more proactive, especially if law enforcement is weak or compromised.

31. This formulation assumes that those who are not corrupt are never falsely accused. If that risk exists, then the model would need to be adjusted to include the net increase in punishment for the corrupt compared to the honest.

32. Of course, it is also possible that as bribes increase, the costs of illegality increases at an increasing rate so that profits are maximized at some finite level and eventually fall; there may then a maximum acceptable bribe. The available information does not permit a definitive answer, but the case in the text seems most likely.

B. *The Demand Side of Corruption*

On the other side of the deal, the incentives for corruption are particularly acute for physicians and other officials with hospital procurement responsibilities.³³ These incentives arise, in part, from Chinese healthcare reforms in the past several decades that gave doctors financial incentives to prescribe expensive drugs and other forms of premium medical treatments in order to earn bonuses.³⁴ These incentives help keep the demand for such treatments high throughout a hospital, and as a consequence, make contracts to supply these drugs and equipment especially valuable to suppliers.

As far as we could learn, procurement decisions for retail pharmacies and inexpensive medical devices are made by doctors acting alone. However, for large deals (exceeding, say, RMB 10 million or \$1.7 million) government officials in the healthcare administration or even the general government may have a role. According to those Tan interviewed, these officials have an influence on promotions within the hospital. Hence, they might use that leverage to steer doctors' procurement decisions toward firms that have paid them kickbacks. These types of kickbacks with their ties to internal state and party promotion decisions are not unique to healthcare. They are simply one example of how officials can use their leverage inside the bureaucracy for personal enrichment. There is nothing particularly unusual about such corruption. The fact that large contracts are likely to attract the attention of higher up officials with no medical qualifications suggests that the marginal net benefit of corruption does indeed rise with the scale of the deal in China.

In economic terms, officials may face a fixed cost of setting up a corrupt system, whether or not they are caught. In addition, if even a small bribe is revealed, they may lose their jobs. Thus, like the firm, there are corrupt transactions that are too small to be worth the effort. Officials then have a minimum bribe threshold, and may also have a maximum acceptable bribe, depending upon the way the expected costs of illegality (including risks of exposure) scale with the size of the transaction.

The distortions that arise from the incentive structures facing physicians feed into the procurement process that generates the list of available drugs and medical devices. In a number of cases physicians and

33. Tan's interviews of people familiar with hospital administration indicated that it is uncommon for anyone with no medical practice to be in charge of administration in Chinese hospitals. In other words, almost all hospital administrators are doctors or physicians. Unlike private hospitals in the United States or in Europe, Chinese hospitals do not hire managers with no history of medical practice. This is not to say, however, that bribes are only paid to doctors. Government officials who are not experts in medical services can influence the procurement decisions indirectly, because they have control over staff promotion and job assignment.

34. In addition, physicians reportedly ask patients to pay them supplementary cash either for better-quality care or for access to treatment. That practice is not directly relevant to our study although it may be another reason that higher income patients, able to afford expensive care, are favored by the system.

other officials who are responsible for procurement have been accused of soliciting illegal payments from medical equipment and drug companies to help them win approval of their products. Although many officials and scholars regard this corruption as the result of market forces that distort the hospital-company relationship, that account is incomplete. Most fundamentally, the distortions are the result of poorly structured government policies that affect physicians' payment scales (Fan 2007). As noted above, pharmaceutical and medical equipment firms' sales volumes heavily depend on hospital physicians' prescriptions and their use of medical equipment; this gives hospital agents the bargaining power to solicit bribes in return for making drugs and equipment available to physicians who have strong incentives to use them. Even with the downward pressures on prices that we have documented, the size of the market gives firms an incentive to seek increased market share. Aggressive sales efforts are, of course, not in and of themselves corrupt, but they become so when the "sales methods" include personal benefits for the officials in charge of making the choices for major hospitals and clinics. Bribes from suppliers are paid to those who make hospital procurement decisions, most of whom are physicians with administrative responsibilities.

Payments from firms generally fall into the following two categories: kickbacks and illegal upfront payments. Firms reportedly pay the director of a department (who is usually a physician) an amount that is proportional to the drug's sales in that hospital; the department head then requires his or her fellow physicians to prescribe those drugs, and distributes the kickbacks accordingly. Corrupted physicians who make procurement decisions are also reported to ask for illegal upfront payments from healthcare firms to list their products in the selection pool. Similar kickback schemes take place during the medical device purchasing process involving both physicians and other hospital officials.³⁵

Of course, not all physicians and hospital administrators are corrupt. Many may follow professional norms that forbid corruption. Others may only take "red envelopes" from patients as a way to pay their bills or to reassure patients of their interest in the patients' case, but avoid corrupt interactions with supplying firms. Our point is simply that incentives to take bribes exist within hospital purchasing departments, and case study evidence suggests that they have led to payoffs in a range of cases.

C. *Determining the Level of Bribes*

The actual level of payoffs is the result of bargaining between officials and the sales agents of firms but must fall in the overlap between the theoretical bribery ranges discussed above. There is no corruption if the highest bribe that the firm is willing to pay is less than the lowest

35. Most of the evidence for these practices comes from interviews with anonymous sources in hospitals. See *GlaxoSmithKline Unrelated Bribery Door Medical Shady Prescription Drugs Make up the Numbers*, NETEASE, Sep, 7, 2013, http://money.163.com/13/0907/10/985PPEK900253G87_all.html.

that the official is willing to accept. If the ranges overlap, the outcome depends upon the bargaining power of the firms seeking sales and the officials seeking bribes. If officials can only select one supplier from a list, the payoff will also depend upon the excess profits of the different suppliers and their willingness to bribe. We hypothesize, that for the reasons outlined above, the range of bribes acceptable to both officials and the firms' agents has increased over time. Such a shift would both increase the incidence of bribery in China and also raise the level of individual payoffs unless the firms' bargaining power is very high.

V. CASES OF MULTINATIONAL INVOLVEMENT IN CORRUPTION IN CHINA

To understand how corruption in procurement operates on the ground, we consider cases where multinational companies were charged with offering bribes and engaging in corrupt practices to secure competitive advantages. These cases relate to MNCs that sell pharmaceuticals and medical devices. All the entities discussed in this section claimed to be observing codes of good business conduct, integrity, ethical standards, and social responsibility, but the cases illuminate the gaps and contradictions between corporate anti-corruption policy and action. The cases illustrate corrupt practices used in the Chinese market involving the firms directly or their agents. Local Chinese firms may also employ these tactics, but there are some techniques that only MNCs can use. Our cases are drawn from those revealed by law enforcement activities or by the media. Thus, they may not be representative. Nevertheless, they are consistent with the institutional story we have told so far.

A. *Siemens*

Siemens AG is a German multinational engineering and electronics conglomerate company headquartered in Germany. It is one of the world's largest manufacturers of industrial and consumer products, specializing in drive technologies, image and therapy systems, traffic control systems, communication networks, and electrical power plants. The company has 37,700 employees working in nearly 190 countries and reported global revenue of approximately 78.3 billion euros for 2012 (Siemens 2012).

Siemens AG has a long history in China, and it has become one of its leading MNCs. After Deng Xiaoping initiated economic reform in 1978, Siemens AG established a unique and cooperative relationship with the government through multiple projects in reform-intensive public sectors. In 2007, Siemens AG was indicted in the U.S. for "engaging in a widespread and systematic practice of paying bribes to foreign government officials to obtain business" in many countries, including China.³⁶ The company had a slush fund to pay bribes and kickbacks to government

36. Complaint, *US SEC v. Siemens Aktiengesellschaft*, Case 1:08-cv-02167 (US Dist. Ct. Dec. 2008).

officials through third parties in return for public contracts. In the end, Siemens admitted the misconduct and agreed to pay a record total of \$1.6 billion to American and European authorities to settle charges stemming from these corrupt practices.³⁷

Three Chinese projects were included in Siemens's worldwide bribery scheme including bribes of \$14.4 million paid to sell medical equipment to five Chinese state-owned hospitals, through direct bank account transfers and payments for lavish "study trips" taken by doctors. After the Siemens bribery case was brought to light, information on the involvement of Chinese personnel was sent to the Chinese justice authorities. Several key bribery recipients in the Chinese government's health-care unit were sentenced to death.³⁸

B. *Diagnostic Products Corp (DPC)*

Before being acquired by Siemens Medical Solutions in 2006, Diagnostic Products Corporation (DPC) was a California company. DPC sold medical diagnostic test systems and related test kits through subsidiaries and distributors in over 100 countries. In 1991, DPC established DePu Biotechnological & Medical Products Inc ("Depu") as a joint venture with a local government entity in Tianjin. Starting from 1997, DePu was converted into a wholly owned subsidiary of DPC, selling DPC medical equipment products to Chinese state-owned hospitals.

In 2005, DPC and DePu entered into agreements with the U.S. SEC and Department of Justice to resolve investigations into its misconduct and bribery in marketing and selling. DePu routinely made improper commission payments totaling approximately \$1.6 million to doctors who were responsible for purchasing medical devices for hospitals. Most of the commissions, which ranged in value from 3% to 10% of sales, were paid in cash and delivered by DePu's sales employees to doctors in exchange for business and contracts. The commission percentage was based on the prevailing rate in the customer's region, the sales amount, and the prior relationship with the customer. DePu inaccurately recorded these commission payments in its financial statements as selling expenses.³⁹

DPC discovered DePu's improper commission payments as a result of a report by a senior DePu manager, which revealed that DePu's auditors had identified certain Chinese tax issues surrounding the commission payments. DPC ordered DePu to stop all commission payments and make voluntary disclosures to the SEC and DoJ. DPC also revised its

37. See Eric Lichtbland & Carter Dougherty, *Siemens to Pay \$1.34 Billion in Fines*, N.Y. TIMES, Dec. 15, 2008, <http://www.nytimes.com/2008/12/16/business/world-business/16siemens.html>.

38. See Luo Jieqi and Zhao Hejuan, *Siemens Bribery Scandal Ends in Death Sentence*, CAIXIN ONLINE (Jun. 30 2011, 12:02 PM), <http://english.caixin.com/2011-06-30/100274546.html>.

39. Diagnostic Products Corp., Exchange Act Release No. 51724, SEC No. 3-11933 (May 20, 2005).

code of ethics and compliance procedures, and established a compliance program with respect to the FCPA.

The FCPA prohibits “making improper payments to foreign officials for the purpose of influencing their decision in order to obtain or retain business.”⁴⁰ DPC management was unaware of the misconduct by its subsidiary in China, but the FCPA holds public companies responsible for ensuring that their foreign subsidiaries comply with the Act. If it did not impose such liability, firms would establish subsidiaries or joint ventures and look the other way. Despite all the mitigating circumstances and efforts to resolve the matter, DPC paid approximately \$4,000,000 plus legal costs and additional expenses incurred in identifying and resolving the matter. The SEC also ordered the company to disgorge the net profits made from the illicit activities in China, approximately \$2.8 million.

C. *Pfizer*

Pfizer is a global pharmaceutical company headquartered in New York and is the world’s largest pharmaceutical company by revenue.⁴¹ Pfizer has over 100,000 employees conducting worldwide operations in over 180 countries. Pfizer promoted its pharmaceutical products in China through its indirect majority-owned subsidiary based in Beijing, Pfizer Investment Co. LTD (“Pfizer China”).

In 2012, Pfizer announced the resolution of a previously disclosed investigation by the U.S. Department of Justice and SEC into its subsidiaries’ improper transactions with doctors and other healthcare providers employed by foreign governments. Pfizer’s subsidiaries, conducting business in many countries, including China, were found to have paid doctors and government officials in the healthcare industry to obtain regulatory and formulary approvals, to influence purchasing decisions, and to clear customs. These subsidiaries falsely recorded the improper payments as expenses for promotional activities, marketing and advertising, travel and entertainment, conference costs, and clinical trials.

Pfizer China employees and agents engaged in various types of misconduct. They made improper payments to doctors in recognition of past product sales and prescriptions or as incentives to prescribe or purchase Pfizer products in the future. Pfizer China also created various “point programs” for doctors to redeem gifts from accumulated points based upon the number of prescriptions they had written. Next, Pfizer China sponsored Chinese doctors to attend domestic and international conferences in exchange for the prescription, purchase, or recommendation of Pfizer products. Lastly, Pfizer China also paid cash to influence doctors’ prescriptions based on the volume of products prescribed by those doctors.

40. Foreign Corrupt Practices Act of 1977, 15 U.S.C. § 78dd-1, *et seq.* (2012).

41. *See Pfizer Moves Higher Amid Persistent Breakup Talk*, BLOOMBERG BUSINESSWEEK (March 27, 2012, 3:15 PM), <http://www.businessweek.com/ap/2012-03/D9T-P13I80.htm>.

Unlike the Siemens case and like DPC, the improper payments were made without the knowledge or approval of officers or employees of Pfizer. Pfizer made an initial voluntary disclosure to the SEC and Justice Department in October 2004, and it undertook a thorough investigation of its operations. To revolve alleged criminal violations of the FCPA, Pfizer admitted that it failed to devise and maintain an appropriate system of internal accounting controls and paid a fine of U.S. \$15 million⁴².

D. *Eli Lilly and Company*

Eli Lilly and Company (Lilly) is a global pharmaceutical company with headquarters in the United States. Lilly sells its pharmaceutical products in 125 countries, both directly and through distributors or other intermediaries to hospitals and clinics. In 2012, Lilly had reported revenue of nearly \$23 billion (Eli Lilly & Co., 2012).⁴³

The SEC alleged that employees at Eli Lilly China, Lilly's wholly owned subsidiary, abused the firm's travel expense system to bribe physicians in state-owned hospitals in order to encourage them to prescribe and select Lilly products. According to the investigation, sales representatives in Lilly China submitted false expense reports under the direction of District Sales Managers, and then used those reimbursements to provide meals, visits to bath houses and karaoke bars, card games, jade bracelets, wine, and cigarettes to government-employed doctors and officials. In exchange, bribed doctors helped Lilly China with hospital drug selection and prescription processes. In another case, members of Lilly China's "Access Group," which was responsible for expanding access to Lilly products in China, used a similar method to convince government officials to list Lilly products on government reimbursement lists. The dollar amount of each gift was not large, but the misconduct was widespread within the subsidiary and was approved by all the Sales Managers in the company.⁴⁴

The SEC charged Lilly for its violation of the FCPA in 2012. Eli Lilly & Co. agreed to pay \$29 million to settle without admitting or denying the charges. According to an SEC investigation officer, after Eli Lilly became aware of possible violations of the FCPA, it did not intervene for more than five years.⁴⁵

42. SEC Files Settled FCPA Charges Against Pfizer Inc. and Wyeth LLC, Lit. Release No. 22438 (Aug. 8, 2012) (available at <https://www.sec.gov/litigation/litreleases/2012/lr22438.htm>).

43. "Eli Lilly & Co. Annual Report," <http://files.shareholder.com/downloads/LLY/0x0x736237/30C56C84-78DA-4D16-97F7-A51284E56A51/English.PDF>.

44. SEC Files Settled Charges Against Eli Lilly and Company, Lit. Release No. 22576 (Dec. 20, 2012) (available at <http://www.sec.gov/litigation/litreleases/2012/lr22576.htm>).

45. See Reuters, *Eli Lilly to Pay \$29M to Settle SEC Bribery Case*, FOX BUSINESS, Dec. 20, 2012, <http://www.foxbusiness.com/industries/2012/12/20/eli-lilly-to-pay-2m-to-settle-sec-bribery-case/>.

E. *GlaxoSmithKline*

GlaxoSmithKline (GSK) is a British healthcare company that researches and develops a broad range of pharmaceuticals, vaccines, and consumer healthcare products. Headquartered in London, GSK operates in 150 markets and manufactures in 86 sites globally⁴⁶. It is ranked as the world's fourth-largest pharmaceutical company measured by 2009 drug sales after Pfizer, Novartis, and Sanofi-Aventis.

In the summer of 2013, China's Ministry of Public Security accused GSK China, the wholly-owned subsidiary of GSK, of bribing government officials and doctors over product sales and drug prices. The revelation of GSK's bribery was a result of another investigation. Starting from 2008, the police started to notice the unusual success of a Chinese travel agency, called Shanghai Linjiang International Travel Agency ("Linjiang"). Investigation into this travel agency revealed a corrupt cooperation agreement between GSK China and Linjiang. GSK China had been using Linjiang as a vehicle to provide bribe money to physicians and government officials in the health ministry.⁴⁷

Based on the information now made public, one can roughly understand the mechanism by which GSK China, Linjiang and the corrupt physicians and officials engaged in bribery transactions. The executive team of GSK China funneled hundreds of millions of RMB to the firm's regional distributors and to physicians directly. Bribes were provided in all forms: cash, kickbacks, gifts, and even sexual services. The firm managers attempted to hide the nature of the payments, not through a subsidiary, but rather through a complex set of nominally legitimate transactions that hid payoffs. One key route was a "corporate benefit account" at Linjiang that funded more than RMB 300 million of GSK's bribery. Linjiang obtained this business by bribing GSK China officials themselves with more than RMB 20 million in cash.

According to a sales representative from GSK China, when the internal auditing process began, the executives of GSK China called for a cutback in corrupt dealings, but they continued to hide bribery expenses in travel agency fees. For example, GSK China reported to its headquarters that it had spent RMB100 million on GSK-sponsored conference travel. Linjiang provided receipts for RMB100 million in travel fees. But actually, GSK China had only spent RMB50 million on travel arrangements and kept the remaining RMB50 million as a reserve for future bribes.

Past bribery appears to have fueled GSK sales in China. Sales fell by 61% after the probe began with "local hospital staff avoiding visits by

46. See generally Glaxo Smith Kline, Annual Report 2013 7 (2013), available at <http://www.gsk.com/media/325156/annual-report-2013.pdf>.

47. Comprehensive news coverage can be found in a series of reports from Financial Times Chinese. See Financial Times Chinese Search Page, http://www.ftchinese.com/search/?keys=GSK&ftsearchType=type_news&x=-1047&y=-135? (last visited 11/21/2014).

the company's sales representatives," according to ethiXbase, an online publication.⁴⁸ As we noted above, GSK was convicted of bribery by a Chinese court in September 2014 and agreed to pay a fine of \$487million. GSK stated, however, that the court had only found it guilty of bribing nongovernmental officials—a holding that may help the firm avoid prosecution in the US under the FCPA and could indicate that the actual incidence of corruption was more extensive than was disclosed in the public reports.⁴⁹

VI. BRIBERY SCHEMES

The individual company practices outlined above might be one-off examples tied to the characteristics of particular firms and individual deals. However, the background presented in the first sections of this article suggests that they are representative rather than exceptional. Of course, that claim is difficult to prove. Fraud and corruption in the Chinese healthcare system exhibit all the standard challenges of white-collar crime: well-orchestrated criminal schemes that are invisible by design and often go undetected. Bribery schemes are not revealed unless the firm is turned in by its employees or its business competitors. Nevertheless, corrupt methods appear to be the "rules of the game" in the healthcare industry, and nearly every firm or its subsidiaries either is aware of these schemes or practices them itself. We buttress this claim with the results of interviews conducted by Tan with sales representatives from several multinational healthcare companies and their subsidiaries and distributors in China and with hospital physicians who are responsible for pharmaceutical and medical device purchasing decisions. They provide a fuller picture of the "open secrets" of the industry that supplement the major cases outlined above. Understanding the bribery mechanisms utilized by MNCs, and perhaps by domestic firms as well, will help us to assess where the system is most vulnerable to attack, and is critical for developing policies to curb these practices and to promote reform. These specific practices relate to our supply and demand analysis, but here we provide more detailed descriptions of the workings of the corrupt systems.

We hasten to add that most of the mechanisms we document could occur in the procurement decisions of any healthcare facility anywhere in the world. Some of them, for example, "study" trips or research support, will sound familiar to those acquainted with the behavior of drug and medical equipment suppliers and doctors in the United States.⁵⁰ Nev-

48. See *Despite PN's Backing, Murky Waters Ahead for GSK*, CHINA COMPLIANCE DIGEST, (Dec. 9, 2013), <http://us5.campaign-archive2.com/?u=9176747d0b242ab2a4f4fc847&id=b429dd6b09&e=4cca0b57b3>.

49. See Bradsher and Buckley, *supra* note 7. However, the definition of a foreign public official is a contested issue under the FCPA, and it is uncertain if U.S. prosecutors and judges would accept the Chinese court's definition. The same presumably holds true for law enforcement agencies in other countries operating under the OECD treaty.

50. See, e.g., Gardiner Harris, *Crackdown on Doctors Who Take Kickbacks*, N.Y.

ertheless, they may be especially harmful in China because of its lower overall level of development and its under-developed insurance market. Some of the institutional features of Chinese healthcare also make these practices especially detrimental. These include the way bonuses are tied to prescriptions and the location of pharmacies inside hospitals, where they act as profit centers.

A. *Tendering and Bidding*

Most purchases by large Chinese hospitals, which are the major clients for multinational companies, have to go through a tendering and bidding process. The process usually begins after the department head submits drug or medical device purchasing proposals and a budget. If the hospital approves a proposal after evaluating its current financial status and medical needs, a committee will be formed to evaluate the tenders. This committee is usually headed by the directors of the hospital and the department heads, and will include a team of four to eight experts in the specific area of the proposal. The committee will specify a list of bidding requirements and qualification procedures, such as the bidding price range, the image quality, the spatial resolution rate, etc., and post it on the central tendering website to encourage company proposals. Within a certain period, usually a week, healthcare companies must submit their qualification and tendering proposals to the hospital for further evaluation. During the tendering evaluation period, the committee will be responsible for choosing the tender proposal that is the most cost-effective. Every hospital has its own procedures and standards of evaluation; however, Tan's survey included several of the largest hospitals in China, and their evaluation mechanisms are quite similar. The committee will rate two aspects of the proposals: technological efficiency and contracting cost. Technological efficiency encompasses the technical requirements of certain drugs or medical devices including their effectiveness, side effects, purity, accuracy, spatial rate, and image quality. Although each component may be measured accurately, weighting them to determine the overall score is highly subjective. The contracting cost includes both the purchasing cost as well as the follow-on costs after the purchasing decision is made. For example, if a blood diagnostic system is in place, the hospital will need to continuously purchase the corresponding reagents in order to keep the equipment functioning. The two scores are aggregated into a single score, using weights that vary by hospital. The proposal that receives the highest score wins the contract.

Most of the corruption in the tendering process starts long before the beginning of the formal procedure. The corrupt hospital officials will have already made the purchasing decision before the tendering and

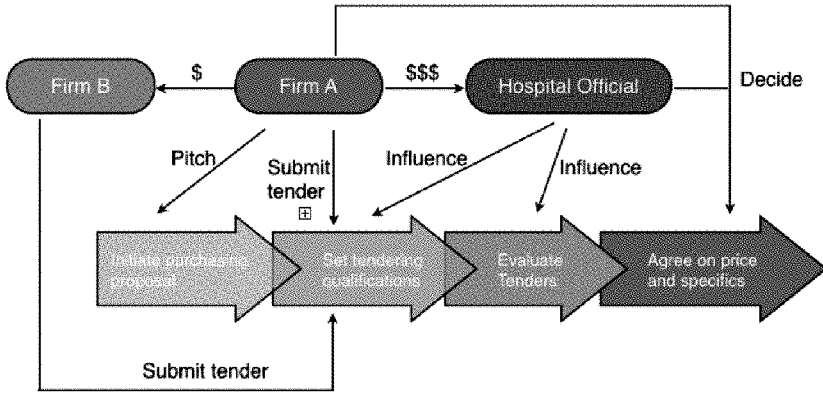
TIMES (Mar. 3, 2009), <http://www.nytimes.com/2009/03/04/health/policy/04doctors.html>.

(“The move against doctors is part of a diverse campaign to curb industry marketing tactics that enrich doctors but increase health care costs and sometimes endanger patients.”).

bidding even start, and the process itself is for show. There are three critical groups of players: the firm that wins the contract (Firm A), the small group of hospital decision-makers, and other bidding firms (Firms B and C). Firm A approaches the hospital director or department head to pitch the idea of purchasing certain drugs or medical devices. The company may use bribes to win over the hospital decision makers, taking the form of kickbacks that are only paid if the deal goes through. The kickback percentage depends on the size of the contract, the influence of the purchasing agent, and other factors, but appears to be mostly negotiated between firm A's representative and the corrupt hospital officials on a case-by-case basis. This is the first stage of the corruption scheme—winning over key hospital decision-makers. The corrupted hospital official will, in return for the payment, exercise his or her influence in setting the qualification criteria for the tender in a way that disfavors firm A's major competitors.

If the first stage goes smoothly, sometimes only firm A qualifies for the second step—submitting proposals. However, because open tendering and bidding requires proposal submissions from at least three firms, firm A will need to find another two companies to finish the show. These companies, firms B and C, are called “accompany-bidding firms.” These firms are an indispensable part of the second stage—they are responsible for submitting high bids. Firm A pays firms B and C to bid up the price so that A's contract is comparatively more attractive. Of course, the corrupted official is as critical as the bidding firms. He or she needs to act as an opinion leader in the evaluation discussion, directing the small group to choose firm A's product over the other two.

The mechanism is represented in Figure 6. In this scheme, firm A wins a very profitable contract where the price is much higher than the product's cost; the corrupted official receives a generous bribe upfront and afterward obtains kickbacks in various forms; firms B and C also obtain payments from firm A in return for fulfilling their roles in the show. The only loser in the mechanism is the hospital and ultimately the patients. The hospital is likely to overpay to buy a less-effective product.

Figure 6: The Corruption Mechanism in Tendering and Bidding

B. *Giving Implicit Benefits*

Many observers accuse the Communist Party of only verbally attacking corruption but not achieving real reform. However, according to an analysis conducted by Andrew Wedeman (2012), although the regime's anti-corruption efforts are insufficient to substantially reduce corruption, they do appear to have kept corruption from increasing. This conclusion applies well to the anti-corruption efforts in healthcare. Starting in 2000, the government initiated anti-corruption campaigns in Shenzhen, Beijing, Chongqing, Chengdu, and many other big cities. Corrupt doctors were sent to prison in substantial numbers; some were even sentenced to death. These campaigns have influenced doctors' expected value calculations when they decide whether to take a bribe or not. However, the result may not be lower levels of corruption but only a change in its form. As we argue above, even as the government chose to step up its anti-corruption campaigns, the opportunities for corruption appear to have increased. The government's crackdown may have raised the minimum bribe demanded by officials, but at the same time, the benefits of corruption have increased for firms. Hence, in spite of the crackdown, corruption has continued, albeit at higher payoff levels that are sufficient to cover the officials' greater risks of exposure.

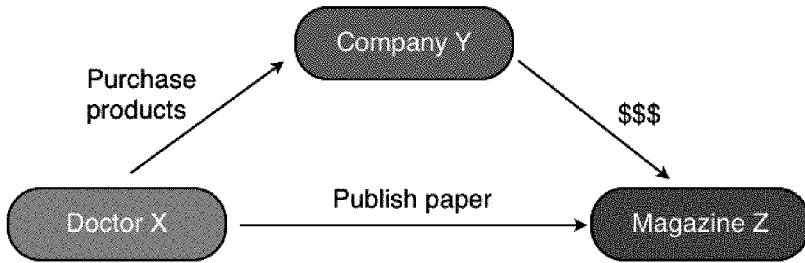
Furthermore, instead of giving cash or transferring money directly, more bribes are given through expensive gifts, costly meals and wines, singing karaoke, other recreational activities, and prime golf club memberships. Other implicit payments benefit not the corrupted officials themselves, but instead, their families and relatives. In one story from an interview, a sales representative from a multinational company approached a physician by offering to help get his son into the top high school in the city; in return the physician was to influence the hospital's purchasing decision for its product. The ultimate goal is to "win-over" key decision makers through illegal benefits.

C. *Sponsoring Academic-Related Activities*

Healthcare is a unique industry because of its huge information asymmetries. Information asymmetry not only exists between doctors and patients but also among physicians themselves. A doctor's achievement is evaluated largely by how many papers he or she has published in significant academic journals and books, how many conferences he or she has been invited to attend and speak at, and how much experience he or she has accumulated in research. Reputation, especially academic reputation, is critical for any doctor's career advancement. Corrupted physicians seek personal gains not limited to money. To bribe those who will have influence over purchasing decisions for their products, healthcare companies, both local and multinational, use methods that respond both to physicians' desire for wealth and academic recognition in their specialties.

In Tan's interviews, 18 out of 20 sales representatives admitted that they themselves or their companies have sponsored academic activities in an attempt to "form a favorable relationship with the key person." There are usually three means of sponsorship to achieve two major goals. Pharmaceutical companies sponsor drug tests and medicinal research; medical device companies sponsor diagnostic tests or imaging-related research paper publication, and nearly all of them sponsor academic conferences or trips. What these companies offer to the hospital officials is both money with enjoyment and fame with reputation.

Sponsoring academic achievement is lucrative for both the firm and the physician and builds on itself. The more distinguished the physician, the larger influence he or she will have over key purchasing decisions in the hospital. The greater power he or she has, the more incentive the firm has to bribe. For example, one story from an interviewee shows how corruption in healthcare can spill over into the academic world. Doctor X was a department head of laboratory medicine in a large hospital, and was in charge of purchasing decisions for clinical biochemistry analyzers. Company Y was a local distributor of all kinds of medical devices produced by well-known multinational healthcare companies. Doctor X, who was eager to improve his academic reputation, was willing to do whatever it took to get his paper published in a widely recognized medical magazine Z. In this story, doctor X bribed the editor-in-chief of magazine Z in order to publish his paper, but he did not pay the bribe with his own money. Instead, company Y was responsible for the payment. Company Y wired the money to the editor, the editor helped doctor X with his paper's publication, and doctor X, in return, exercised his power and influence to facilitate the purchase of company Y's product (Figure 7).

Figure 7: Three-party Transaction in Sponsoring Academic Related Activities

Helping with research paper publication is only one way in which healthcare companies, their subsidiaries, and their distributors utilize payoffs to aid their business. Other forms include sponsoring academic conferences and trips. Healthcare companies will invite targeted physicians, often from many hospitals at once, to come to academic conferences. These conferences may be held in fancy five-star hotels and resorts, and only one morning out of the four-day conference is allotted to academic discussion. Firms arrange all kinds of recreational activities for their clients, including eating expensive meals, drinking costly wines, deliberately losing huge amounts of money to them while playing card games, and giving them memberships at private golf courses. The conference is more like a travel trip. As for sponsoring academic trips, firms use similar schemes. If the doctor, usually a department head who already has a high reputation and strong academic achievements, is invited to attend an academically related event in another city, province, or country, sales representatives from healthcare companies might accompany him or her on the trip. All the fees incurred during the trip, including hotels, flights, shopping, and meals are taken care of by the company.

D. *Manipulating Third-Party Intermediaries*

Nearly all advice to foreigners about successfully doing business in China mentions the importance of using an intermediary. When multinational companies first entered China, they contracted with intermediaries to make introductions, provide language and cultural interpretations, and facilitate relationship building. Third-party intermediaries played critical roles in navigating local regulations, penetrating the enormous market, lobbying the government, and selling their products. However, third-party intermediaries create a high risk of corruption. The FCPA prohibits the giving of a payment or anything of value to a third party while knowing that all or a portion of such payment or thing of value will be given to a foreign official.⁵¹ Third-party agents are involved in over 90% of all FCPA prosecutions in China (Clifford Chance 2011). The healthcare industry is no exception. Some multinational companies manipulate third-party intermediaries not only to sell products through bribery but

51. Foreign Corrupt Practices Act of 1977, 15 U.S.C. § 78dd-1, *et seq.* (2012).

more importantly to circumnavigate FCPA compliance investigations. Given the high incentive for corruption in the markets for pharmaceuticals and medical devices, the use of intermediaries can smooth the way to corrupt deals.

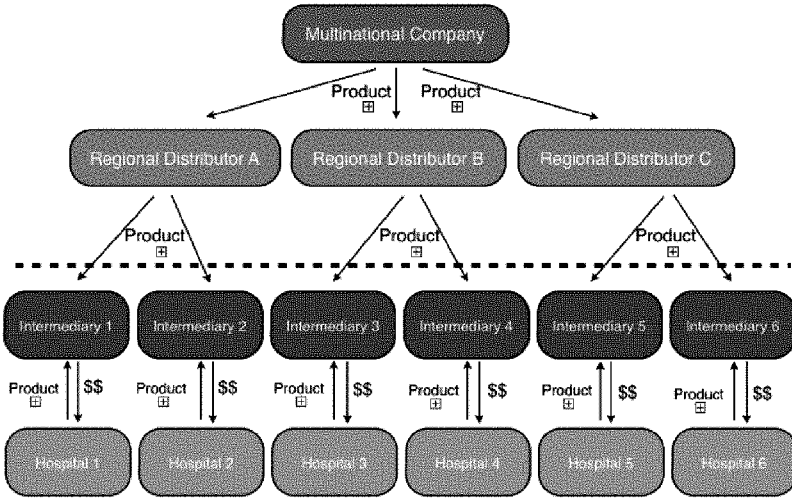
There are usually three methods of selling to hospitals: direct selling, distributor selling, and intermediary selling. Direct selling occurs when sales representatives from multinational companies or their subsidiaries directly interact with physicians and hospital officials to discuss purchasing initiatives. Distributor selling is more commonly used than direct selling. Every multinational company first selects one or two major distributors in each province or business region. They sell their healthcare products only to those distributors, who will be responsible for final sales to hospitals. Unlike distributors, which are relatively large and organized, intermediaries are usually small local firms or even individuals who have the necessary relationship with hospital officials to finish the transaction. Intermediaries first buy products from the multinational firms' distributors, and then sell them to hospitals at a higher price. The profit is shared between all parties in the transaction: the intermediary, the distributor, the multinational company, and the corrupted hospital officials.

To avoid the risk of corruption investigations, multinational companies are less and less involved in direct selling; instead, they increasingly use the other two sales methods with a special emphasis on intermediary selling. Sales representatives from MNCs are encouraged to avoid direct selling, and guidance from the firm's compliance offices deliberately requires them to focus on distributor management and intermediary interaction. The key issue that triggers liability under the FCPA is whether the company had knowledge that the money would be used for bribes on its behalf in connection with the sales of its goods or services. Hence, distributor selling is as dangerous as direct selling if bribery is used in the marketing campaign because it is easy for law enforcement bodies to find that the firm has consciously disregarded and deliberately ignored distributors' practices and conduct. Therefore, MNCs that are willing to use bribes to obtain business and win contracts must turn to another scheme—intermediary selling.

As discussed above, purchasing decisions are usually made days and weeks before tendering and bidding information is put on the public website. Intermediaries "win over" hospital officials through their own personal relationships or bribery and know exactly which hospital will purchase their drugs or medical devices. They may also have information on the date the purchasing process starts, what requirements the hospital has for tendering, who the key decision maker is, and most importantly, how to win the deal. When they approach the MNCs to pitch their initiatives, the MNCs will not deal with them directly or ask for specific information about how the relationship is built or whether it facilitates bribery. Instead, they direct these intermediaries to speak to their regional distributors. The rest of the business is coordinated between

the intermediary and the regional distributing company, leaving MNCs “without any knowledge” of the money potentially used for bribes. Intermediaries make tenders, sign contracts, deliver products and services, and finally pay kickbacks to hospital officials.

Figure 8: Multinational Companies' Use of Intermediaries in Corruption



In all the FCPA cases involving the Chinese healthcare industry, MNCs dealt with intermediaries directly and either directly participated in or consciously disregarded the intermediaries' bribery. But these cases are just the tip of the iceberg. Most MNCs no longer interact with intermediaries directly; instead they have built protective walls by adding their distributors in between. In this way, their manipulation is less likely to be revealed, evidence becomes harder to collect because intermediaries are short-term contractors, and multinational companies can enjoy a boost in product sales while limiting the risk of corruption charges.

VII. POLICY IMPLICATIONS

Because reforms that centralize some aspects of the system and decentralize others may just shift corrupt incentives to a different place in the healthcare system, it is imperative to isolate corrupt incentives under any reform proposal. Corruption is a two-sided affair. It involves one party that takes bribes and another party that provides them. Healthcare companies' involvement in corruption scandals in the Chinese market is no exception. Therefore, reform can be targeted at either or both sides of the illicit deals.

We first discuss the ethical obligations of multinational companies that operate in emerging markets such as China. Relying solely on the ethical obligations of for-profit institutions is not enough. Nor is a

single-minded emphasis on criminal law enforcement. Recognizing the limits of those approaches, Chinese authorities are starting to restructure the current healthcare system. We summarize these reforms but emphasize that they need to be carried out in ways that establish clear formal laws that can be enforced and that improve transparency. Thus, we end this section with our own list of reforms designed to create economic incentives for hospital officials to refrain from soliciting or accepting bribes and for companies to act against corruption. The efforts of the Chinese government and our own proposals are only a start, but they address critically important problems in the Chinese healthcare market that must be on the government's agenda as it seeks to improve the performance of a vital aspect of daily life.

A. *MNCs' Ethical Obligations*

Given the new and more aggressive anti-corruption environment both in China and elsewhere, limiting corrupt behavior may be profit-maximizing for many firms (Heineman, 2008). Corporations also have ethical obligations to refrain from making illegal payoffs and from organizing their businesses to facilitate payoffs by their agents.

Corporations, including the multinational firms selling pharmaceuticals and medical devices in China, are creatures of law. In permitting their creation, nation states believe that they provide the social and economic benefits associated with the market. Even a firm incorporated in one state and doing business in another has been granted that privilege by the host state as well as its state of incorporation. The very fact that a corporation is not a "real" person makes it especially obligated to abide by the law in both states (Rose-Ackerman 2002). Because no market is perfectly competitive, especially those where MNCs operate, these firms have an obligation over and above profit-maximization, not to undermine the efficiency of the market. As artificial "persons" created by states, they also have an obligation not to undermine government legitimacy. These are essentially negative responsibilities, but they imply positive actions, such as avoiding corrupt dealing.

These obligations are especially salient for healthcare MNCs operating in China. Bribery is like an extra tax, adding deadweight loss and creating friction and monopoly power in the market. If firms want to increase their business in China in the long run, they have an obligation to help the market function efficiently. Tolerating corruption by subordinates and agents could lead the state to carry out repressive crackdowns that undermine the operation of the market. After analyzing the FCPA cases involving multinational companies in the Chinese healthcare market, we suggest that there are at least two strategies MNCs can adopt to mitigate the risk of corruption.

First, a clear tone from the top is necessary. In many cases under the FCPA, a subsidiary of a multinational company was involved in bribery without the knowledge of the headquarters. In these cases, the parent

companies usually revealed the misconduct and initiated the investigations. Weak ethical signals from the top combined with strong pressures to “make the numbers” for sales can lead to a high possibility of a “black corner,” where MNCs’ subsidiaries in China facilitate bribery schemes to satisfy headquarters’ performance targets. Second, firms need a high standard of accounting. Transparency in reporting accounting information can help combat corruption by increasing the difficulty of hiding bribery payments. It also helps to fortify internal controls and monitoring systems within the firm.

B. *China’s Recent Reforms*

China started a wave of healthcare reform in 2005 that led to a growth of government participation (Li, Chen, and Powers 2006)⁵² that coincided with a dramatic increase in the overall demand for healthcare.⁵³ The government aimed to reduce the overall cost of medicine by launching a national medicine selection system. In August 2009, the Chinese Ministry of Health published an Essential Drug List (EDL) of 307 basic drugs that would be available in all public health facilities at rural and urban levels free of charge to those poor enough to qualify. These drugs are now competitively tendered at the provincial levels on a regular basis (Chen and Han 2013). The EDL is a subset of the national reimbursed drug list (NRDL).⁵⁴ Some drugs are not on any list so they are sold at unsubsidized prices. Although being put on the NRDL is positive for a drug producer, it also means higher scrutiny of its prices, given that the government pays part of the cost.

Many high-tech and imported medicines are on the NRDL, and the central government stated that it would begin a program of centralized

52. A report by the Development Research Center under the State Council harshly criticizes health sector reforms and concludes that reforms over the past decade were “basically unsuccessful.” See Development Research Center of P. R. China, CHINA’S REFORM OF THE MEDICAL AND HEALTH SYSTEM (2005) reviewed by *Medical Reform* “*Basically Unsuccessful*”, China Daily (Jul. 30, 2005), http://www.chinadaily.com.cn/english/doc/2005-07/30/content_464795.html.

53. Thus, hospital bed utilization rates rose from a low of 60% in 1998 to a high of 88.5% in 2011, the last year when data are available from the Ministry of Health. Overall spending rose (figure 1 and table 2), and government expenditures as a percentage of total health expenditures increased from 17.9% in 2005 to 30.4% in 2011 (China Ministry of Health data, reported in a 2013 Swedish Agency for Growth Policy Analysis 2). Not surprisingly, average days in the hospital fell from 13.1 in 1998 to 10.3 in 2011. This was not enough to hold back the overall increase in spending. In the eighties both utilization rates and hospital stays were also high but on a much smaller base of hospital beds.

54. That list has two parts. The NRDL-A list of 503 drugs includes the basic pharmaceuticals that employee insurance plans cover at 100%. The NRDL-B list includes 791 additional drugs, including innovative ones, which the provinces can modify within certain limits. They are reimbursed at 70-80% for those who qualify for Urban Employee Basic Medical Insurance (UE-BMI). Those who are too well-off to qualify for the basic health plan and who are not employed in a covered workplace must pay out-of-pocket or seek reimbursement from their private insurance provider.

purchasing to control costs that involved public tenders, bidding, and auction processes. Beginning in 2005, the government organized a group of leading physicians, researchers, and government officials to evaluate and approve importation of high-tech medicines and medical devices. The aim was to decrease the cost of imported medicines by giving the government more power during negotiations with suppliers. China's National Development and Reform Commission (NDRC), the price watchdog, holds regular drug price review rounds and adjusts maximum price ceilings. According to the Ministry of Health in 2008, central purchasing programs for high-priced medical equipment, such as CT and MRI systems, on average reduced prices by 20% (Ministry of Health, 2008). The latest round of price cuts of around 17% affected 95 drugs on the list. News reports suggest that the price cuts were quite substantial.⁵⁵ Furthermore, competition between MNCs and local firms have put further pressure on prices. According to Chen and Han (2013), the average price drop of drugs sold by MNCs was 11% between 2006 and 2012. The prices of mass market generics on the EDL list fell by an average of 25%, and generics not on the list fell by 23%.

Beginning in 2009 the Ministry of Health sought to transform the current public-financed system into an insurance-based one. The reform intended to assure that every citizen has equal access to affordable basic healthcare insurance by 2020. The Chinese government announced that in the next couple of years, it would invest over 850 billion RMB (USD 125 billion) on expanding insurance coverage and increasing government spending on public health services. The central government asserted a continuing role in the healthcare system, while at the same time encouraging the use of market mechanisms (Yip and Hsiao 2009).

Among its announced policies, one is likely to change the incentive structure facing multinational healthcare companies. The Ministry of Health issued a statement that, starting in 2009, provincial committees would select suppliers through a competitive bidding process and then distribute the products to all hospitals under their jurisdiction. This change went along with new government procurement laws and regulations, and increasing transparency for procurement processes overall. The 2007 Open Government Information Regulations in Article 10(6), for

55. From some news sources, it is reported that central purchasing programs at the provincial level have reduced drug prices by 30% in Beijing, see Wen Ru, *北京519种药品将降价3成 基本药物集中采购启动*, SOHU NEWS (Sep. 22, 2012), <http://news.sohu.com/20120922/n353726981.shtml>; 41% in Hebei, see Geng Jian, *河北首次药品网上集中采购降价明显*, XINHUA NEWS (Dec. 16, 2010), http://news.xinhuanet.com/health/2010-12/16/c_12888150.htm, 46% in Shandong, see Wang Ki, *山东试点县医院常用药品集中采购 平均降价46.7%*, PHOENIX NEWS (Jul. 19, 2013), http://sd.ifeng.com/news/fengguanqilu/detail_2013_07/19/1010704_0.shtml, 15% in Zhejiang and 25% in Henan, see *Great Wisdom*, *江苏省高值医用耗材集中采购: 降价风雨欲来*, BIOON NEWS (Nov. 11, 2013), <http://www.bioon.com/industry/instrument/585936.shtml>.

example, call for proactively disclosing centralized procurement project requirements.⁵⁶

In addition, China has cracked down on corruption at the agency charged with approving drugs and medical devices for sale and with overseeing their manufacture. This second effort demonstrates that law enforcement efforts are not solely directed at MNCs. One reason for the crackdown was major health and safety lapses in the domestic industry that undermined public confidence. Furthermore, the large number of drug approvals drove down the prices of domestic drugs in a vicious cycle of declining quality and heightened competition (Liu 2010: 120-121, Song 2014, Yang 2009: 151). Recall that MNCs benefitted from the public's greater confidence in their quality. Thus a reformed drug and medical equipment approval process is essential to the revival of the domestic industry.⁵⁷

The greater centralization of purchasing, although designed, in part, to limit corruption risks in hospital procurement, may create new corruption risks that are equally harmful. A central selection committee has monopoly power, and firms have an incentive to capture control or to influence decisions—if necessary by bribery and other illicit means. First of all, the selection criteria for committee members should exclude those with ties to the healthcare industry, both domestic and foreign, and stress personal integrity and technical competence. Otherwise, such a committee may just lower the cost of unethical conduct for firms. With fewer people in control and higher benefits from success, suppliers might find corruption less costly. A more centralized decision maker might lower the risk of exposure and the expected losses of being revealed. At the same time, it is much easier to negotiate payoffs with only a limited number of key decisions makers than it is to discuss kickback levels with each hospital or even each doctor.⁵⁸ If no appropriate regulatory policy is put

56. See the government website, including a tender posted January 3, 2014 in Jiangsu province calling on international companies to tender for hospital medical equipment at 中国政府采购网, <http://www.ccgp.gov.cn/cggg/dfbx/gkzb/> and http://www.ccgp.gov.cn/cggg/dfbx/gkzb/201401/t20140103_3251643.shtml. In addition, see calls for greater transparency in the process in 全面推进信息公开和行为规范提升政府采购风险控制与防范水平, (Dec. 22, 2011), http://www.ccgp.gov.cn/zycg/ldzx/201112/t20111222_1942034.shtml. See also the NDRC notice cited above on information disclosure in the tendering process.

57. One result of the recent Chinese investigations of MNCs may be a reduction in their presence in China. For example, GSK announced in September 2013 that its sales in China had fallen sharply, and in April 2014 it cut back its staff in China by approximately 150 people. See *Bribery Claims Dent GSK Sales in China*, FINANCIAL TIMES, Sept. 24, 2013; *GSK Cuts 150 China Staff for Improper Sales Practices*, China Compliance Digest, Apr. 14, 2014. For the general issue of MNC pharmaceutical sales in China see Andrew Jack and Patti Waldmeir, *Bribery Fears Infect Drug Dealings in China*, FIN. TIMES, SEP. 24, 2013 (PREDICTING PRICE CUTS).

58. According to Meagher (2006), the risks outlined in the text occurred in Bulgaria when it set up a central committee to license drugs for sale. According to him, the Bulgarian pharmaceutical selection process was a breeding ground for corruption. In Bulgaria, for a drug to be sold on the market, it had to be included as an essential

in place to curb the selection committee's monopoly power, there might be a surge in multinational companies' involvement in bribery cases targeting key government decision makers in the selection process.

The reforms outlined above have been initiated over the last few years, but the corruption problems in procurement appear to be a continuing concern. In late 2013 the Chinese central government responded, not only through the legal crackdowns, but also with a set of "amended and improved" regulations on the "Establishment of Commercial Bribery Records in the Purchase and Sale of Medicines" and through the issuance of "Nine Prohibitions for Strengthening Ethical Conduct in the Healthcare Industry."⁵⁹ The former is a reporting scheme for Commercial Bribery Records that would blacklist "manufacturers, operators or distributors" involved in commercial bribery for a number of years, and instructs "administrative departments for health and family planning" to discipline responsible persons, including physicians (who can lose their licenses). The Nine Prohibitions include many of the practices we describe as well as some similar techniques. The list covers kickbacks, other benefits from suppliers, and illegal payment from patients. The document shows that the central government has a clear idea of the nature of the problem, but it remains to be seen if these policies will have real bite at the provincial and local levels where they would need to be enforced.

C. *Public Policy Recommendations*

We are encouraged by some of the reform initiatives reported by Chinese authorities. However, the 2013 list of "Nine Prohibitions" suggests that the reforms outlined above may not have been implemented effectively, leaving in place many of the pathologies we have highlighted with their corresponding incentives for corrupt dealings.

drug that could be procured or reimbursed by public sector agencies and by state-financed healthcare units. A national selection committee evaluated all drugs to see if they could be admitted to the state-financed market. The drug selection committee was, therefore, a gatekeeper with huge monopoly power over access to the potentially large national market for drug suppliers. Meagher's research shows that the central selection process opened up a two-way channel for multinational companies to actively seek a larger market and for government officials to seek rents in the form of payoffs.

59. NATIONAL HEALTH AND FAMILY PLANNING COMMISSION, REGULATIONS ON THE ESTABLISHMENT OF COMMERCIAL BRIBERY RECORDS FOR THE PURCHASE AND SALE OF MEDICINE (December 27, 2013), 关于建立医药购销领域商业贿赂不良记录的规定. See also NATIONAL HEALTH AND FAMILY PLANNING COMMISSION, NINE PROHIBITIONS FOR STRENGTHENING ETHICAL CONDUCT IN THE HEALTHCARE INDUSTRY (December 26, 2013), 加强医疗卫生行风建设 "九不准" and *China Issues New Rules for Blacklisting Healthcare Companies Engaging in Commercial Bribery* COVINGTON & BURLING LLP, (December 21, 2013), http://www.cov.com/files/upload/Blog_Insert_Blacklist_Rules_and_Ethics_Code_of_Conduct_2013-12_EN.pdf.

Unofficial translations of the Commission documents were prepared by Covington & Burling and can be found at http://Alert_Insert_NHFPC_National_Blacklist_Healthcare_2013-12_CN_EN.pdf and http://Alert_Insert_NHFPC_Nine_Prohibitions_Notice_2013-12_CN_EN.pdf.

We present several linked reform proposals that are directly related to the corruption incentives in the procurement of pharmaceutical and medical equipment. The basic point is that the root of the current corruption problem is the failure of outdated and distorted government policies as they interact with healthcare providers. The recommendations offered here are not exhaustive, and some have already been espoused by Chinese reformers, but some are additional measures that may help Chinese policy-makers evaluate the current market structure and explore what policies are suitable for the development of a well-functioning healthcare market.

1. Increased Subsidies and Better Targeting of Government Healthcare Insurance Programs

On both a relative and an absolute basis, China's government spending on healthcare is low compared to that of advanced market economies. The low level of public spending in the past has limited the government's power to shape the overall healthcare marketplace and to aid the low-income population. An increase in government spending is necessary, but the increased funds should not be used to subsidize the supply side of healthcare directly. Instead, the government needs to reduce subsidies to healthcare institutions and further fund the demand side under a well-targeted scheme. This change will aid the poor and give patients more bargaining power in choosing the hospitals that provide the most appropriate services at the most competitive prices. However, regulation will be necessary if government insurance schemes cover more patients. China will face the dilemma facing any state that provides health insurance: the more generous the coverage, the more serious is the problem of moral hazard—that is, of excessive demands for costly care. Giving patients more choice can help improve quality and patient satisfaction, but it needs to be combined with background constraints on providers, administered through the reimbursement protocols of the insurance system.

Currently, a number of healthcare insurance programs cover specific groups: rural residents under the New Rural Cooperative Medical Scheme (NSMS), urban employees under the Urban Employees Basic Medical Insurance (UE-BMI), urban unemployed residents under the Urban Residents Basic Medical Insurance (UR-BMI), plus special programs for the military and for government and party cadres (Süssmuth-Dyckerhoff and Wang, 2010). Although some of these programs have many low-income beneficiaries, others cover the relatively well off. Even those directed at low-income households are poorly funded. Thus, central and local governments subsidize NSMS and UR-BMI, but both programs have witnessed a substantial increase in the individual premium contributions. For UE-BMI, the central government fixed the annual premium at 8% of payroll, with employers paying 6% and employees paying 2%. This is insufficient; the World Health Organization has estimated that the fund would need

to collect RMB200-300 (US\$29.4-44.1) per person annually to effectively provide catastrophic coverage for rural residents (World Health Report 2010).⁶⁰ However, as of the end of 2011, the NCMS program only subsidized an annual premium of RMB110 (US\$176). Thus, there are two problems with the existing system: The individual programs are inadequately funded, and assuming that a comprehensive national health insurance plan is not feasible at this point, overall coverage is not well targeted on the poor (Brixi, et al., 2011).

Furthermore, government insurance plans only reimburse expenditures at public hospitals. This privilege, together with their tax exemption and direct government subsidies, makes it difficult for other types of hospitals to compete. Patients with insurance coverage turn to the large public hospitals for medical care, even when their medical problems are not serious. The creation of a fair competitive environment requires the end of such privileges as well as policies that make it easier to establish private or hybrid institutions. At present, however, subsidized patients appear to be more of a burden than a benefit to hospitals because of low reimbursement rates.

Thus, an increase in government spending on healthcare insurance programs should allocate the funds to the following two areas: first, increase per person benefits for each insurance program, and second, expand insurance reimbursement to cover all types of hospitals. Such reforms, as noted above, would need to be combined with the regulation of insurance reimbursements to limit the costs of moral hazard leading to cost inflation.

Of course, these proposals would need to be paid for. In practice, both the cost of insurance to private individuals and the level of public subsidy would need to increase. Finding a feasible way to share the burden is clearly important. We do not discuss this issue in detail here; our central point is simply that the current system is very inefficient as well as inequitable. Better-off households will likely need to bear a greater insurance cost burden, but this needs to be done in a way that not only benefits those at low end of the income distribution but also solves some of the system's deep inefficiencies and limits corrupt incentives.

2. Modify the Price Regulation

As we discussed above, price regulation is a major contributing factor to the current misguided incentive structure. The price of primary care is collaboratively determined by the National Development and Reform Commission (NDRC) in the State Council and the Ministry of Health, without any input from healthcare institutions. This centralized mechanism frequently sets the prices of primary medical services below their costs to the hospitals. The government then makes up hospitals' losses by directly subsidizing them and by opening a back door for them

60. "Health Insurance Systems in China: A Briefing Note," 2010. http://www.who.int/healthsystems/topics/financing/healthreport/37ChinaB_YFINAL.pdf.

to charge higher fees on high-end medical services. Both practitioners and policy-makers recognize that price regulation has created incentives for hospitals and doctors to prescribe high-end drugs and medical services even when they are not medically necessary.

Despite the consensus that price regulation operates poorly, little progress has been made to address its dysfunctional operation. Policy-makers worry that if they remove price controls, hospitals will collude and charge higher fees on all their services, and patients will, therefore, see a sharp increase in their healthcare expenditures. They worry that the surge in prices will cause turmoil in society and expose the government to organized protests. However, these concerns seem over-blown in spite of the well-known imperfections of an unregulated healthcare market outlined above. First, so long as patients have some degree of choice, even an imperfect market will put pressure on hospitals to improve the quality of their services, to reduce their operating costs, and also to charge reasonable fees for drugs and other medical procedures. Second, for such a large and complex market, it is difficult for hospitals to collude on a uniform set of high prices for their services. The incentive for each hospital to break a price-fixing agreement is large, making a cartel inherently unstable. Regional cartels might be sustainable, but with 20,000 general hospitals in China, there will be outside pressure on even a regional cartel. Furthermore, the very lack of comprehensive private insurance, which is a serious failure on one dimension, gives households a strong reason to monitor healthcare costs and quality because they pay a good deal out of their own pockets.

Finally, even if full-scale price reform is not politically feasible, the government could take the modest step of increasing the transparency of the price setting process and opening it up to public hearings and other forms of direct public participation. These reforms would both better inform the public officials who set prices and help to limit favoritism in the process by making it more transparent to ordinary citizens and industry groups.

3. Adjust Physicians' Salary Structure

Physicians are only one part of the corrupt system, but improving their incentives could help reduce payoffs overall. During the past decade, physician remuneration in China has not reflected their heavy work load and responsibilities. The government has been using a low basic salary plus bonuses tied to hospital profits to motivate physicians. However, this incentive structure is one of the major contributors to corrupt procurement practices and red-envelope bribery solicitations from patients. The low basic salary pushes doctors to solicit kickbacks to boost their income, and the profit-linked bonus structure further leads them to overprescribe unnecessary high-tech medical services. Even if individual physicians do not receive payoffs from suppliers, their incentives to overprescribe feed the corrupt system. The reform documents issued

by the government in December 2013 seek to outlaw bonuses tied to treatment, but that reform will accomplish little unless it is tied to overall improvements in salaries—a change that has been recommended by the NDRC.⁶¹ Adjustments need to be made by both the government and hospitals. First, the government should increase physicians' base salaries. Part of the increased public budget should then be distributed according to each hospital's performance. Hospitals would then try to improve their performance to achieve more government funding to increase their doctors' earnings. Second, at the hospital level, bonuses should no longer be linked to profits, but instead should be pegged to physicians' performance in treating patients. International experience has demonstrated that performance pay is an efficient way to incentivize doctors to focus on improving service quality. Performance can be evaluated based on clinical protocols, patients' satisfaction, and hospital efficiency, rather than on hospital profits.

4. Limit Contact with Intermediaries

One significant feature of Chinese healthcare corruption is the prevalence of intermediaries. Intermediaries facilitate corruption by establishing a wall between companies and corrupted physicians or hospital officials. This "Chinese Wall" successfully immunizes MNCs from anti-corruption investigations because it provides them with the excuse of ignorance. Multinational companies' policies require their own employees to limit direct selling and even limit sales by distributors—policies that lead to the use of intermediaries. Companies use this mechanism to protect themselves from involvement in corruption scandals without losing business.

The government can respond to this increasingly popular corruption mechanism by limiting contact with intermediaries. Hospitals should be required to only sign purchasing contracts with MNCs' regional distributors or even with the head office because much corruption involves complicit local intermediaries. Registered regional distributors are generally much larger and more stable firms, and they usually follow stricter accounting and auditing procedures than intermediaries. Government central purchasing bodies should only sign contracts with the multinational companies themselves. MNCs are subject to relatively well-enforced anti-corruption laws and regulations in their home countries as well as in China, and their direct involvement ought to limit payoffs.

This policy change would destroy the Chinese wall that exists in the current system. If bribery happens between hospitals and regional distributors or at the national level, it will be much harder for multinational

61. See Zhuang Pinghui, *China Considers Higher Patient Fees to Fund Salary Boost for Doctors*, SOUTH CHINA MORNING POST, May 2, 2014, <http://scmp.com/news/china/article/1502551/doctors-paid-less-barbers-may-see-salaries-rise-china-mulls-increasing> (The article, however, does not give details about how the increases would be financed short of higher prices for services financed out-of-pocket or through insurance.).

companies to justify their lack of knowledge. Unlike temporary, low-level intermediaries, firms have stable, long-term cooperative arrangements with regional distributors, and they must manage, monitor, and oversee those firms.

5. Increased Transparency

Overall reforms should improve the transparency of the system. The government should publish pricing schedules and the terms of basic procurement contracts for drugs and equipment. Such information would allow patients, concerned citizens, and competitors to check for questionable contracts across the country. It could permit a firm that loses a bid and suspects corruption to challenge the result as unfair and inefficient. It could allow hospitals with good records to use their successes as ways to attract patients with good insurance coverage.

Healthcare will always be a service that relies on professionals with expertise to make judgments about treatment options. However, with greater transparency, patients could compare service provision in different hospitals and clinics, and journalists and other outsiders could play a role in helping citizens understand the options as well as in uncovering corrupt and self-serving behavior. Thus, greater transparency can help honest firms, reputable providers, and patients. It would, however, need to be combined with a respected process for vetting complaints. One may worry that heightened enforcement of anti-corruption laws, based on whistleblowers' reports, could be a device for weeding out internal critics rather than for achieving underlying structural reform.

VIII. CONCLUSION

Several factors have driven the intensification of corruption in the Chinese healthcare industry. Hospitals' transition from state-financed institutions to profit-seeking organizations, under public or private ownership, has created pressure to pursue revenues and profits. Incomplete healthcare reforms and misguided government policies further distorted the market. The rapid growth of Chinese healthcare spending attracted the attention of multinational companies looking for new markets. Many of these firms then sought to win the competition for business through any methods available, even if the practices were illegal. The intertwining of three parties—the government, hospitals, and companies—has led to the current corruption scandals.

Our findings suggest that to curb corruption in the markets for drugs and equipment, efforts are needed by both companies and the government. MNCs and domestic producers have obligations to refrain from corruption and to espouse strong ethical standards. By strengthening their internal control and monitoring systems, firms can help combat corruption in the marketplace.

Chinese government spending on health is now rising sharply after years at extraordinarily low levels compared to other countries. Further

increases may come in the years ahead, and Chinese authorities need to initiate a discussion about its allocation to assure a fairer distribution of the benefits. Fortunately, China's strong economic growth, fiscal stability, and huge financial reserves make it one of the few countries in the world that will be able to increase support to the healthcare sector without large effects on development priorities. However, as we documented above, China needs to manage this surge so that it improves the healthcare available to the population and avoids mainly enriching suppliers and healthcare administrators.

China's fight against corruption needs to move beyond individual prosecutions to reduce the underlying corrupt incentives. So far, the regime's anti-corruption efforts have, at least, been successful in keeping corruption under control, but they are still insufficient. Over time corruption will distort the market and could lead to a crisis in the future. Chinese authorities need to focus on anti-corruption efforts directed toward both foreign and domestic entities. More collaboration with international institutions and foreign anti-corruption agencies can help China establish its own standards of monitoring, investigation, and punishment. The trade-off between an open economy and a clean administration requires the government to find a balance. China has benefited from foreign investments and international trade in many respects, but these benefits will be undermined if weak anti-corruption efforts cannot contain the harm caused by corruption.

Our basic message is that law enforcement is not enough and will be counter-productive if citizens view it as biased and used for political purposes. Rather we have argued that structural reforms that reduce corrupt incentives ought to be the centerpiece. Laws against paying and accepting bribes are a necessary background condition, but they cannot have a lasting positive impact unless coupled with underlying institutional and policy reform.

APPENDIX I

Co-author Yingqi Tan conducted interviews with 23 sales representatives from healthcare companies and 23 physicians or hospital officials from large hospitals. Among all the 23 sales representatives, some of them are employees of multinational companies and their subsidiaries in China, some work at MNCs' regional distributor companies, and the rest come from small intermediary firms. She first approached the sales representatives from multinational companies, and they later introduced her to the other practitioners. The 23 surveyed doctors are from the five largest hospitals in China, ranging from junior attending physicians, to department heads, and to directors of hospitals. She called most of them, and they answered interview questions on the phone. Two people who were not available for phone calls answered the questionnaire by email. The purpose of the survey is solely for academic understanding of the current problems in China's healthcare sector. All interviewees required

their names and their firms' names not be revealed. Below are the lists of questions that these two groups of people were asked.

For sales representatives:

1. What do you see as the fundamental driver for the epidemic of corruption practices in the Chinese healthcare industry?
2. Has your company ever sponsored any academic-related activities for doctors?
3. Have you ever heard about any bribery mechanisms that are employed by firms in the market?
4. What is the compliance policy of anti-corruption investigations in your company?
5. As the anti-corruption efforts intensify both domestically and internationally, how do multinational companies respond?
6. Why do multinational companies need to use bribery to guarantee businesses?
7. What policy recommendations do you have for the government to improve the market integrity?

For physicians:

1. What do you see as the fundamental driver for the epidemic of corruption practices in the Chinese healthcare industry?
2. Have you ever been approached by multinational companies offering bribes at least once in your career?
3. What is the mechanism of evaluating tendering proposals in your hospital?
4. What are some of the most popular implicit payments that companies use to bribe doctors?
5. What is your view of the salary structure of physicians?
6. What policy recommendations do you have for the government to improve the market integrity?

APPENDIX 2: DRUG PRICE COMPARISON

One of the authors (Tan) asked a local chain pharmacy in New Haven CT to give her price information for the generic drugs listed below in September 2013. Her contact in China priced the same list of domestically produced drugs at a hospital pharmacy in a large Chinese city in September 2013. Of course, actual prices may vary in each country by geographical region, by pharmacy, and over time, but the differences are large enough for all the drugs to suggest that this pattern would hold up under a more comprehensive survey.

	U.S. Price			China Price		
	Price (\$)	Quantity	Price (¥) / g	Price (¥)	Quantity	Price (¥) / g
Amoxicillin	32.63	0.25g*100	7.99	9.60	0.25g*24	1.60
Azithromycin	505.83	0.25g*100	123.83	9.00	0.25g*6	6.00
Noroxin	559.79	0.4g*100	85.65	7.50	0.1g*20	3.75
Metronidazole	45.25	0.25g*100	11.08	6.05	0.2g*100	0.30
Aciclovir	43.98	0.2g*100	13.46	17.00	0.2g*12	7.08
Aspirin	9.99	0.325g*100	1.88	3.50	0.3g*100	0.12
Quetiapine	642.59	0.1g*100	393.27	61.00	0.1g*30	20.33
Estazolam	85.89	1mg*100	5256.47	1.20	1mg*20	60.00
Nifedipine	93.99	10mg*100	575.22	5.80	10mg*30	19.33
Dexamethasone	47.89	0.75mg*100	3907.82	4.50	0.75mg*30	200.00
Levothyroxine Sodium	27.30	50ug*100	33415.20	33.00	50ug*60	11,000.00

Note: U.S. price/g is converted with the current exchange rate, 6.12.

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Pacific Basin Law Journal, 32(1)

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Acknowledgements:

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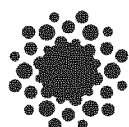
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