Corruption and economic development in the Peoples' Republic of China

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A Thesis Entitled

Corruption and Economic Development in the Peoples’ Republic of China

By

Collin T. Glenn

Submitted as partial fulfillment of the requirements for
The Master of Arts in Political Science

Advisor: Renee Heberle

College of Graduate Studies

The University of Toledo

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An Abstract of
Corruption and Economic Development in the Peoples’ Republic of China

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Theoretical work has provided convincing reasons to believe that corruption undermines economic development over time. Empirical tests of these theories have tended to look for relationships between corruption and different aspects of economic development using cross-country, large-n analysis. Most studies assume, however, that all developmental models are equally impacted by corruption at all times. This paper tests the proposition that corruption inevitably undermines economic development using the Peoples’ Republic of China as a case study. The empirical results support the conclusion that thinking about corruption in context-dependent terms is valuable for helping understand the relationship between corruption and economic development.
Dedication

This thesis is dedicated to my grandmother, Marilyn McAfee. Thank you for your endless love and support.
Acknowledgements

I wish to acknowledge my committee members, Mark Denham, David Wilson, and Renee Heberle, for all of their patience, suggestions, and guidance during this process. Further acknowledgement goes to my Father, Kenneth Glenn, and close friends Seth Haddix, Dan Muszynski, Brandon Jones, and Chelsea Toneff for all their words of encouragement and support over the past ten months.
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1 – Introduction

A growing body of literature has offered convincing reasons to believe that corruption is a dysfunctional aspect of society that undermines economic development and growth over time (Myrdal, 1968; Krueger, 1974; Rose-Ackerman, 1978; Shleifer and Vishny, 1993; Mauro, 1995, 1998; Leite and Weideman, 1999; Abed and Davoodi, 2000; Al-Marhubi, 2000; Tanzi and Davoodi, 2000; Mo, 2001; Gupta, Davoodi, and Alonso-Terme, 2002; Pellgrini and Gerlagh, 2005). A smaller contingent of literature, however, contends that corruption may actually be a functional aspect of society that is beneficial to economic development by “greasing” the wheels of commerce (Leff, 1964; Bayley, 1966; Huntington, 1968; Lui, 1985; Becquart-Leclercq, 1989; Egger and Winner, 2005). There is empirical evidence to support both of these arguments. As a result, a great deal of work remains to clarify the effects of corruption, including the kinds of corruption that matter and the circumstances in which that corruption matters.

The general approach across much of the literature has been to use cross-country, large-n analysis to explore the causal relationship between measures of perceived corruption or institutional efficiency and aspects of economic development. In these studies it is usually assumed that a single growth model applies to all countries at all times with corruption having the same impact. This is highly doubtful though, because as countries undergo transition many of the processes of economic development usually involve extensive changes to the social, political, and economic environment. As a result, the institutional factors which are most important to promoting continued development
and growth may change as well. So ultimately what may matter is what Jonathan Hansen (2005) has called the conditional effect of institutions on growth, or “the effect of different institutional configurations given the stage of development in which a country lies and its social context” (2005: 1).

Building on this premise, this paper will add to the current literature by providing a better understanding of the relationship between corruption and aspects of economic development in a single large developing country. Specifically, this study analyzes the relationship between corruption and growth, investment, trade, and economic efficiency in the Peoples’ Republic of China from 1995 through 2005. The empirical findings suggest that corruption is most damaging to economic development through its impact on economic efficiency. Furthermore, the findings support the argument that thinking about corruption in context-dependent terms is valuable for helping to understand the relationship between corruption and economic development.

This paper is presented as follows. In the next section, a brief overview of economic development and corruption in the Peoples’ Republic of China is provided. In section 3, the current literature is discussed. Section 4 describes the methodology used to study the relationship between corruption and aspects of economic development. Section 5 describes, defines, and operationalizes the data used for analysis. Section 6 presents the findings. Section 7 presents a discussion of the findings. The last section provides a summary and concludes the argument.
2 – Corruption & Economic Development in the Peoples’ Republic of China

The following section provides a brief overview of China’s changes in economic policy, the growth of corruption, and resulting anti-corruption campaigns. The purpose of this section is to provide the reader with a basic understanding of the Chinese economic development model, as well as the nature of Chinese corruption. The section proceeds as follows. First, a description of changes in economic policy and economic development is provided. In section 2.2, the rise and genesis of corruption are discussed. Finally in section 2.3, Chinese treatment of corruption and anti-corruption campaigns are described.

2.1 – Changes in Economic Policy and Economic Development

Since Deng Xiaoping initiated changes in economic policy in 1978, the Peoples’ Republic of China has experienced rapid economic development and growth. The initial objective of the reforms was to achieve the goal of the “Four Modernizations,” which had been introduced by Zhou Enlai in 1975. The program was intended to rapidly modernize China’s agricultural sector, industry, science and technology, and the military, thereby making China a major power by the 21st century. The reforms originally began in the agricultural sector, but by the mid-1980’s the market model had been implemented for
urban business and industry as well. The results have been exceptional. China has quickly become the world’s workhouse, enabling it to develop into the world’s second largest exporter of goods and services. From 1980 until 2000 the size of China’s economy nearly quadrupled. As illustrated in Graph 1, GDP growth has been between eight and eleven percent throughout the late 90’s into the early 2000’s. In addition, saving rates have been exceptionally high allowing China to amass more than $1 trillion in foreign exchange reserves, the world’s largest, making it currently the single most important financier of the United States’ trade deficit. Finally, and probably most frightening to westerners, China is now the world’s second largest military power, with increases in spending recently announced. As a partial result of all of the above mentioned reasons, China has quickly become a major new factor in international politics and economics.

Seung-Wook Baek (2005) argues that the Chinese model of development has formed in a manner similar to the East Asian development model, rather than following the Western model of full economic liberalization. Of particular importance, Baek argues, has been “state control over finance, direct support for state owned enterprises (SOEs) by the government, a dual system of public and non-public ownership, high dependence on the export market, and a high rate of savings” (2005: 496). In addition, investment, both foreign and domestic, has played a pivotal role in China’s development. Throughout the 1980’s and early 1990’s, the majority of foreign investment was provided by Chinese Diaspora through Hong Kong. However, in the late 1990’s the trend began to change and multinational corporations and investors began to play a greater role in investing in China’s development. This has been an important development due to China’s need for foreign capital and expertise in new and expanding industries.
He Li (2005) focuses on the changes to the political and economic system within China over the past 29 years, examining the major features of the Chinese model, the limitations of the Chinese approach, and the implications of Chinese reforms for other developing countries (2005: 197). Li argues that the central features of the Chinese system of reform have been growth with stability, soft authoritarianism, incremental economic reform with delayed political liberalization, and an inclusionary dominant party system (2005: 198). However, Li also warns about the weaknesses of the Chinese model; a failure to pay attention to the institutional dimensions of democratization, massive flows of FDI have become a substitute for domestic entrepreneurship, and in Li’s opinion the most negative aspect, the underdevelopment of the rule of law (2005: 204). In particular, Li argues that rent-seeking and corruption have begun to become institutionalized during the transition period because political reform has lagged behind economic reforms (2005: 205). These weaknesses have led to an unequal distribution of wealth, widespread discontent over social issues, and tension within the economic system. Due to these limitations, Li argues that the Chinese model of development should not be emulated (2005: 206). In particular, “because of the different initial conditions for reform, China cannot serve as a blueprint for transitions for other developing countries’ policy makers” (2005: 209).

Detailing the problem of property rights and principle-agent relations in China, Sujian Guo (2005) has developed a Trustees of State Property (TSP) system which could transform China into a truly competitive and efficient market (2005: 208). In particular, Guo examines the evolution of property rights reform in China and divides the reforms into three stages; The Centralized and Unified System (da yi tong), The Decentralized
and Unified System (*tiao kuai feng ge*), and The Reform in Separation of Two Powers (2005: 210-11). During all three of these stages, Guo argues:

The ambiguity and impersonal character of property rights have maintained the principle-agent relationship as ‘mother-in-law and daughter-in-law’ relationship (*poxi guangxi*), or administrative jurisdiction of subordinates and superiors. Therefore, this relationship allowed the government to intervene at its pleasure. The subordinate continued to be loyal to superiors and the decision was made based on ‘ad hoc’ negotiations between the upper level of the bureaucracy and the managers of the firm. The relative bargaining position is uncertain… This is the context in which the syndrome of *soft budget constraint* emerges’ (Kornai, 1993) (Guo, 2005: 212-13).

In order “to resolve the fundamental problems of the ambiguity of property rights, soft budget constraints, lack of free entry into and exit from the market and state intervention in the operation of enterprises and fundamentally transform market socialism into an efficient and competitive economy”, Guo argues that “a natural person should not only be entrusted with power and responsibility but also be bestowed with benefit and risk to exercise ownership right on behalf of the state” (2005: 214). Overall, Guo argues that “the TSP risk and benefit mechanism ensures asymmetrical or proportioned relationships between power, responsibility, benefit, and risk (cost)” (2005:224).

### 2.2 – Corruption

Unsurprisingly, as China’s economy has grown so has the level and scope of corruption. This is because as China’s transition has taken place, greater opportunities have arisen for bureaucrats
and politicians to use their position for personal gain. This has led to a battle between reformers and conservatives over the pace and character of China’s transition from a central planned economy to a more market oriented economy. While reformers view corruption as an indication that further political and economic reforms are needed, conservatives view corruption as an indication that such reforms are tainting the social fabric of Chinese life.

Shuntian Yao (2002) argues that the long-term presence of the same privileged class combined with changes in economic policy has led to widespread corruption, where those in power have used their position to monopolize the wealth that has been created. In particular, Yao focuses on the changes in the nature of corruption and describes how corruption during the Mao era was more implicit; members of the government and their family members would be rewarded for their loyalty and given a more important role in decision making. Following the economic and political reforms enacted by Deng Xiaoping, however, corruption took a more explicit form; members of the government and their family began to use their positions to extract rents. Yao argues that “while implicit corruption makes an economy inefficient, explicit corruption could produce an extremely uneven wealth distribution in a society, creating instability and turmoil” (2002: 293).

Furthermore, as Dali Yang (2004) notes, “Deng’s push for hyper-growth and rapid liberalization,” during his 1992 Southern tour, “provided fertile soil for corruption as businesses set up by party, state, and government agencies mushroomed in much of the 1990’s” (2004: 220). As a result, corruption and smuggling appear to have grown in tandem with the nation’s stunning growth. For example, the New China News Agency
reported that more than $10 billion per year in tax revenue had been lost as a result of smuggling (Faison, 1998: A3). Not unsurprisingly, the main contraband of smugglers has been neither drugs nor illegal arms, but high-end cosmopolitan goods which face excessive import duties. As a result of these superfluous fees, customers have become willing to pay handsomely for any transport escaping inspection at the border.

Andrew Wedeman (2004) uses data from the Chinese state supervisory system, the Party discipline inspection system and the judicial procuratorial system and argues that the early reform period was characterized by a quantitative increase in the level of corruption, but the later reform period witnessed an “intensification” of corruption (2004: 895). By intensification, Wedeman means that “high-level, big-stakes corruption increased more rapidly than ordinary corruption and other forms of official malfeasance” (2004: 895). To Wedeman this implies “a qualitative shift from a situation of generalized or diffuse corruption along the rank and file to one in which it becomes increasingly concentrated at more senior levels” (2004: 896). As Wedeman points out, “according to Schliefer and Vishny (1993), the negative consequences of hierarchically organized high-level corruption ought to be less than anarchic low-level corruption because high-level corruption is generally more predictable and hence reduces risks and transaction costs” (2004: 921).

2.3 – Anti-Corruption Campaigns

As corruption became an omnipresent problem, the Chinese Communist Party (CCP) leadership began to take serious steps to crack down on wayward members of the government. Beginning in 1997, Jiang Zemin ordered the divestiture of a large number of state-owned enterprises, reducing the opportunities for corruption and smuggling. The
next year, Zemin launched the “Three Stresses” campaign, which emphasized study, politics, and rectitude. Underlining the seriousness of the problem again in 1999, Zemin confronted cadets once more and stated “if we do not fight economic crimes and corruption we will disappoint the people. Serious social disturbance would then arise, and the possibility that people will rise and strike us down cannot be ruled out” (Yang, 2004:221). Throughout his reign, Jiang used traditional methods to deal with members of the government that were prone to corruption and ideological deviation.

Corruption and economic crimes within China are handled under a dual system of tanwu huilu and tanwu shouhui. Tanwu huilu are cases in which state workers have misappropriated public property by diverting funds, theft, or swindling and are handled by the Central Discipline Inspection Committee (CDIC). Tanwu shouhui are cases in which state workers have used their position to extort or to accept bribes and are prosecuted via the courts. More recently, campaigns have grown wider in scope and have consisted of end-of-office audits, anti-corruption ‘blitzes,’ and hotlines where the public can secretly report corrupt cadets.

Andrew Wedeman has analyzed the effectiveness of China’s anticorruption campaigns using a combination of formal modeling and empirical data (2005: 93). Wedeman argues that qualitative changes to the nature of corruption are a “result of a combination of structural changes associated with the deepening of reform that have decreased the opportunities for low-level, ‘petty’ corruption while increasing opportunities for high-stakes corruption” (2005: 95). Wedeman’s analysis suggests that the fear of campaigns may deter members of the government from accepting relatively ‘modest’ bribes but is unlikely to deter them from accepting large bribes (2005:114).
3 – Corruption in the Literature

The following section offers a brief overview of the literature pertaining to corruption and its impact on aspects of economic development. This section provides a basic understanding of the current literature and frames a context within which to understand the relationship between corruption and aspects of economic development in the Peoples’ Republic of China. While this section is not exhaustive, it provides a basic overview of the most referenced literature. As a starting point, the relationship between institutional efficiency and economic development is described. In section 3.2, the functional aspects of corruption are illustrated. Section 3.3, discusses the relationship between corruption and growth. Section 3.4 discusses the relationship between corruption and investment. Section 3.5 discusses the relationship between corruption and trade. Finally, section 3.6 describes the relationship between corruption and economic efficiency.

3.1 – Institutions and Development

In *The Stages of Economic Growth: A Non-Communist Manifesto*, W.W. Rostow describes five states of economic growth: the traditional society, the preconditions for take-off, the take-off, the drive to maturity, and the age of high mass consumption. During each stage, officials and government leaders must focus on different aspects of the growth process. In Rostow’s opinion the most important task is to ensure the takeoff, which is marked by an increase in levels of investment, the development of high-growth sectors, and the creation of an institutional framework capable of supporting and guiding growth. It is after these conditions are met that a nation can expect sustainable growth and move on to the more developed stages. Furthermore, Rostow emphasizes the importance of non-economic social, political, and cultural factors in assisting and
structuring sustainable economic development. Effectively, Rostow sets up a framework in which economic growth must be viewed within a specific context, in regards not only to the current stage of development but also within a social-cultural-political environment.

Corruption represents an institutional failure, and institutional efficiency and quality have been found to play a pivotal role in economic development over time (North, 1990; Knack and Keefer, 1995; Fjeldstad and Tungodden, 2003; Hanson, 2005). In Institutions, Institutional Change, and Economic Performance, Douglass North (1990) attempted to solve the problem of inefficient economic institutions. For North, the problem was a result of the differences among institutions and the interaction between them that shaped the direction of institutional change (1990:7). In particular, North argued that reliable institutions are important determinants of economic development and growth because of their constraints on human behavior, their ability to reduce transaction costs, and their importance to property rights.

Knack and Keefer (1995) studied the relationship between property rights and economic growth and find that the quality of government institutions affects investment and growth as much as any other variable, including civil liberties, political violence, and freedom from political persecution. Similarly, Fjeldstad and Tungodden argue that “sustained development cannot occur in an institutional framework that fosters corruption and extra-legal tax enforcement” (2003: 1459). In contrast, Jonathan Hansen argues, “what matters is the effect of different institutional configurations given the stage of development in which a country lies and its social context: the conditional effect of institutions on growth” (2005: 1).
3.2 – Corruption’s Helping-Hand

Although corruption has been consistently viewed as a problem, serious research on its effect on economic performance did not begin until the 1960’s. Before then, the majority of research had been conducted by political scientists, sociologists, and public administrators who had treated corruption as a socio-political issue. Beginning with Nathaniel Leff, however, researchers began to give more attention to the economic implications of corruption. Leff (1964) argued that corruption could function as “grease money,” lubricating the seized wheels of a rigid administration. In particular, Leff hypothesized that corruption could act as “grease money” in at least three ways. First, corruption could help innovators left out of the development process obtain licenses and permits. Second, corruption could act as a facilitation payment allowing businesses to bypass cumbersome delays and regulations. Third, corruption could act as a commission for poorly paid civil servants, creating enticement for workers to seek investment. In particular, Leff felt that “if the government has erred in its decision, the course made possible by corruption may well be the better one” (1964: 11).

This argument was soon echoed by David Bayley and Samuel P. Huntington. Huntington believed that “in terms of economic growth, the only thing worse than a society with a rigid, over-centralized, dishonest bureaucracy is one with a rigid, over-centralized, honest bureaucracy” (1968: 386). This is because, as Bayley points out, even though corruption represents a failure of public administration, raises the price of public administration, lowers respect for authority, reduces tax revenue and leads to bureaucratic delay, it may also play a role within transitional societies which is important enough that “if it was not played the consequences might severely undermine the pace, but more
importantly the character, of the development effort” (1966:732). For instance, using a Nash equilibrium Francis Lui (1985) has demonstrated that bribes tend to reduce the waiting costs associated with queuing, thereby making public administration more efficient. Similarly, after studying corruption in France, Becquart-Leclercq (1989) argues that by acting as a functional substitute for direct participation in power and increasing the effectiveness with which power is exercised corruption has an important redistributive effect within society.

3.3 – Corruption and Growth

In the first systematic cross-country empirical analysis relating indicators of bureaucratic honesty and efficiency to economic growth, Paolo Mauro (1995) finds that corruption is negatively associated with the annual growth rate of gross domestic product (GDP) per capita. After looking at a large number of countries, but excluding China, Mauro found that a one-standard-deviation increase in the corruption index is associated with a 0.8 percentage point decrease in the annual growth rate of GDP per capita (1995: 700). Similar results have been produced by Pellegrini and Gerlagh (2005) who find that corruption substantially impacts economic growth and income over time; a one-standard-deviation increase in the corruption index is associated with a decrease in economic growth of one percent per year, and a decrease in the long-term income level by about 140 percent (2005: 434). However, as Lambsdorff (1999) explains, even though many studies have found a strong negative correlation between corruption and GDP per capita, inferring causality is difficult. For example, could it be that the existence of low growth in some underdeveloped or developing countries has caused the population to become excessively corrupt, or is it that the excessive corruption has led to low growth.
Lambsdorff (1998a) argues that changes in the nature of corruption, and not the level of corruption, are the important determinants of economic growth. This is because as the nature of corruption changes so do the rules of the game.

After studying the relationship between corruption and growth in capitalist and totalitarian regimes, Braguinsky (1996) argued that in an overall competitive market, corruption will likely play a functional role in economic growth. On the other hand, he argued that within a totalitarian setting, corruption will become deeply rooted in the socio-economic system and eventually lead to a breakdown of that system. This, in turn, greatly enhances opportunities for corruption and makes it especially difficult to either maintain or increase economic growth (1996: 14).

In contrast, Li, Xu and Zou find that a one-standard-deviation increase in corruption is accompanied by a reduction in the growth rate by 1.18 percent in the western world, but only 0.14 in Asia (2000: 173). Similarly, Rock and Bonnett (2004” 1010) have found that corruption is less likely to be as damaging to investment and growth in small developing countries as opposed to large ones. In particular, they find that corruption tends to slow growth and investment in most developing countries but increases growth in the large East Asian newly industrialized economies. More recently, Mendez and Sepulveda (2005: 88) have found evidence of a non-monotonic relationship between levels of perceived corruption and growth; low-levels of corruption being beneficial for growth and high-levels being detrimental.

3.4 – Corruption and Investment

In his ground breaking empirical study, Mauro (1995: 695) finds that corruption is negatively associated with investment; a one-standard-deviation increase in the
The corruption index is associated with a 2.9 percent of GDP increase in the investment rate. Mauro’s analysis provides only weak support, however, for the hypothesis that corruption reduces growth by leading to inefficient investment choices. Rather, it seems that corruption impacts growth by reducing the total amount of investment (1995: 705). Similar results have been produced by Pellegrini and Gerlagh (2005) who also found that corruption has the most devastating impact on the decision to invest; a one standard deviation increase in corruption is associated with a decrease in investments by 2.46 percentage points, which in turn decreases economic growth by 0.34 percent per year (2005: 438). Interestingly, Campos, Lien, and Pradhan find that the level of corruption is not the most important aspect of corruption that affects investment. Instead, the authors argue that it is the nature of corruption: “corruption regimes that are more predictable, in the sense that those seeking favors from government do obtain those favors, have less negative impact on investment than those that are less predictable” (1999: 1059).

Concerning foreign direct investment (FDI) in particular, Wei (2000) finds a negative relationship between it and corruption. Similar results have been obtained by Harms and Upsprung (2002), who found that FDI increases as a country’s degree of political risk decreases. Similarly, in a cross-section of eighty-nine developed and less developed countries, Habib and Zurawicki (2002) find that corruption tends to impede FDI. In contrast, using a sample of seventy-three developed and less developed countries for the time period spanning 1995 to 1999, Egger and Winner (2005) find a positive relationship between corruption and FDI.
3.5 – Corruption and Trade

Using a large-n cross-country growth analysis, Pellegrini and Gerlagh (2005) found that corruption’s impact on trade openness is the second-most affected transmission channel for growth; a one-standard-deviation increase in corruption is associated with a decrease in the openness of a country by 0.19, which in turn decreases growth by 0.3 percent per year (2005: 440). This finding is in line with Krueger (1974) and Southgate, Salazar-Canelos, Camacho-Saa and Stewart (2000) who argue that trade licenses and import restrictions provided fertile ground for the extraction of rents by government officials.

3.6 – Corruption and Economic Efficiency

In contrast to the helping-hand argument put forth by Nathaniel Leff and others, Myrdal (1968), Krueger (1993a, 1993b) and De Soto (1989) have proposed that corruption may actually lead to bureaucratic delay and poor policy formation as officials create more red-tape in hopes of extracting higher rents. Likewise, Rose-Ackerman (1978) warns that there are severe difficulties in limiting corruption to those areas of governance where it may be economically beneficial, and as Murphy, Shleifer and Vishny (1991) have shown, countries that misallocate talent to rent-seeking activities tend to grow more slowly. In particular, Shleifer and Vishny (1993) argue that “the illegality of corruption and the need for secrecy make it much more distortionary and costly than its sister activity, taxation” because “contracts are not enforceable in court” (1993: 599). More recently, Li, Xu and Zou (2000) find that corruption raises the Gini coefficient in an inverted U-shaped way; high or low levels of corruption are associated with low income inequality, while an intermediate level of corruption is associated with high income inequality (2000: 165).
4 – Methodology

The following section discusses the methodology that is used to explore the relationship between levels of perceived corruption and aspects of economic development. Throughout the majority of the literature, researchers have chosen to use growth regression to study the relationship between corruption and factors of economic development. In contrast, the study utilizes use simple bivariate linear regression to analyze the relationship. While not as complex as growth regression, this methodology provides a basic, but useful, understanding of the general relationship. Furthermore, the intention of the current study is to come to a fuller understanding of which factors or aspects of economic development are more closely related to levels of perceived corruption in a large developing country and bivariate linear regression will provide such an understanding. In addition to simple bivariate linear regression, Pearson correlation coefficients are provided in Appendix A to quantify the strength of the linear relationship. This will compliment the findings provided by linear regression and allow a fuller understanding of the strength of the relationship between levels of perceived corruption and aspects of economic development.

One weakness of the methodology is relying on a small-N to provide reliable findings. As mentioned previously, other studies have focused on large-N cross-country analysis, which supposedly provides more robust and accurate findings. This may not be true though, because these studies assume that all countries are impacted by corruption in a similar manner and to a similar degree. While my study’s findings may not be as robust, they will provide information regarding the specific trend within the Peoples’ Republic of China between 1995 and 2005.
5 – Description of Data

The following section discusses the data that is used to explore the relationship between levels of perceived corruption and aspects of economic development. The data for this analysis comes from two sources covering the period between 1995 and 2005. This period was chosen for two reasons. First, data is available for all the variables used. Second, numerous domestic reforms and anti-corruption campaigns took place during this period which should provide a significant amount of variation among both the corruption and economic development variables. The section proceeds as follows. As a starting point, a definition of corruption is provided, along with a description of Transparency International’s Corruption Perception Index. Next in section 5.2, a definition of economic development is provided, along with a description of the World Bank’s World Development Indicators. Section 5.21 describes and defines the data used to study the impact on growth. Section 5.22 describes and defines the data used to study the impact on investment. Section 5.23 describes and defines the data used to study the impact on trade. Finally, section 5.24 describes and defines the data used to study the impact on economic efficiency.

5.1 – Corruption

Corruption is the intentional malfunctioning of the administrative process, through which public administrators and government officials use their position for personal gain. As a result, officials have a vested interest in keeping such transactions secret. This makes developing a scale of actual corruption levels very difficult. Therefore, this study instead uses levels of perceived corruption and data used for the corruption variable is drawn from Transparency International’s Corruption Perception Index (CPI). Transparency
International was founded in Germany in 1993, and has since been the leading non-governmental organization building coalitions and developing tools to combat corruption. Transparency International currently has nearly one hundred national chapters and continues to grow every year. The organization has played a vital role in elevating the fight against corruption to a global level, and partially as a result of their work the World Bank and International Monetary Fund now view corruption as a serious threat to sustainable economic development.

Transparency International has published the CPI every year since 1995 and it has become the most commonly used measure for scientific research since. The CPI is formed by experts and is a composite index based on multiple studies from multiple institutions. The index takes into account both the magnitude and frequency of corruption and scores range from 0, high amounts of corruption, to 10, low amounts of corruption. In the present paper, the values of the original index have been subtracted from 10. As a result, a rise in the corruption variable will indicate an increase in the amount of corruption.

There are at least four valid criticisms of Transparency International’s CPI. First, because the index is based on polls of experts, countries with fewer observations are less likely to be reliable. Second, the use of the index in time-series analysis is problematic due to the way it is calculated. This is because the same numbers of surveys are not always used, nor are the same experts. Third, the index may work as a self fulfilling prophecy where members of countries perceived to be highly corrupt feel they cannot deal with the problems legally and therefore turn to corruption. Finally, some have claimed that the index favors those countries with institutions more similar to the west.
Despite these concerns, the CPI has been chosen because as mentioned above it is the most widely referenced and publicized measurement of corruption. Furthermore, the CPI can be thought to be the most accurate measure due to its use by leading non-governmental and international organizations. As a result, it can be assumed that most people get their information on the level of corruption within a country from this index.

5.2 – Economic Development

Economic development is the process through which populations increase the standard level of economic living, and is typically difficult to measure. As a result, this study instead focuses on the impact of corruption on specific variables that are consistently associated with economic development. These aspects are growth, investment, trade, and economic efficiency. They have been selected due to their importance to the Chinese model of development. All macroeconomic data used is drawn from the World Bank’s World Development Indicators Database. The World Bank, in collaboration with other international organizations, government agencies, and non-governmental organizations, has compiled annual statistics for World Development Indicators since 1978 to measure the progress and effectiveness of development programs. The information can be thought to be the most accurate measure due to its use by leading non-governmental and international organizations.

5.21 – Economic Growth

Economic growth is typically considered to be the increase in the value of goods and services produced by an economy. Corruption has been found to undermine economic growth, but the impact has been small (Mauro, 1995; Pellgrini and Gerlagh, 2005). In
order to gain a better understanding of the relationship between corruption and economic growth, this study expands the channel of economic growth beyond gross domestic product growth rates\(^1\) and includes market capitalization of listed companies\(^2\) and stocks traded\(^3\) in its analysis. In the most widely cited literature, the latter two variables have not been taken into account, but are extremely important to the economic development of a mature market. This is because as China’s economy continues to mature and become more integrated with the international political economy, investors and world players will begin to see low-levels of market capitalization of listed companies and stocks traded as indicators that the Chinese Communist Party is still heavily interfering in the running of the market. While this interference may be appropriate, or at least acceptable, during the early stages of growth, as time goes on it will become a weak point for economic relations and ultimately sustainable growth.

**5.22 – Investment**

Investment is the addition of capital, human or material, to an economy. Corruption has been found to have a significant negative impact on the decision to invest (Mauro, 1995; Pellgrini and Gerlagh, 2005). In contrast, some authors have found that corruption is positively correlated with foreign direct investment (Egger and Winner, 2005). In order to gain a better understanding of the relationship between corruption and investment, this

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\(^1\) Annual gross domestic product growth rates are the annual percentage growth rate of gross domestic product at market prices based on constant local currency. Aggregates are based on constant 2000 U.S. dollars. Gross domestic product is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. World Bank World Development Indicators.

\(^2\) Market capitalization of listed companies (also known as market value) is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country’s stock exchange at the end of the year. Listed companies does not include investment companies, mutual funds, or other collective investment vehicles. World Bank World Development Indicators.

\(^3\) Stocks Traded refers to the total value of shares traded during the period. This indicator compliments the market capitalization ratio by showing whether market size is matched by trading. World Bank World Development Indicators.
study focuses on gross capital formation\(^4\) and foreign direct investment\(^5\) in its analysis. By focusing on both domestic and foreign investment, the findings should provide insight into the relationship between government officials and investors. Furthermore, it will provide evidence whether officials are more likely to seek rent from citizens or foreigners.

### 5.23 – Trade

Trade is the exchange of goods and services that take place between economies. As mentioned previously, Pellegrini and Gerlagh (2005) find that the trade-openness channel is the second most affected by corruption. In order to gain a better understanding of the relationship between corruption and trade, the current paper focuses on trade\(^6\), imports of goods and services\(^7\) and exports of goods and services\(^8\) in its analysis. By focusing on

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\(^4\) Gross capital formation is the annual growth rate of gross capital formation based on constant local currency. Aggregates are based on constant 2000 U.S. dollars. Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and “work in progress.” According to the 1993 SNA, net acquisitions of valuables are also considered capital formation. World Bank World Development Indicators.

\(^5\) Foreign direct investment is the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows in the reporting economy and is divided by GDP. World Bank World Development Indicators.

\(^6\) Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product. World Bank World Development Indicators.

\(^7\) Imports of goods and services is the annual growth rate of imports of goods and services based on constant local currency. Aggregates are based on 2000 U.S. dollars. Imports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They excluded labor and property income (formerly called factor services) as well as transfer payments. World Bank World Development Indicators.

\(^8\) Exports of goods and services is the annual growth rate of exports of goods and services based on constant local currency. Aggregates are based on 2000 U.S. dollars. Exports of goods and services represent the value of all goods and other market services received from the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They excluded labor and property income (formerly called factor services) as well as transfer payments. World Bank World Development Indicators.
imports and exports independently the findings should provided insight into whether officials are more likely to protect domestic enterprise.

5.24 – Economic Efficiency

Economic efficiency is how efficient an economy is organized and run. Corruption has been found to undermine economic efficiency over time (Murphy, Shleifer and Vishny, 1991; Li, Xu and Zou, 2000). In order to gain a better understanding of the relationship between corruption and economic efficiency, the current study focuses its analysis on tax revenue, GDP deflator inflation, consumer prices inflation, real interest rates, lending interest rates, deposit interest rates, domestic credit provided to private sector, and domestic credit provided by banking sector. By focusing on tax revenue, the findings should indicate whether the presence of corruption undermines the government’s ability to tax businesses and individuals. By comparing the findings for GDP deflator inflation with those of consumer price inflation, it should become apparent

9 “Tax revenue refers to compulsory transfers to the central government for public purposes. Certain compulsory transfers such as fines, penalties, and most social security contributions are excluded. Refunds and corrections of erroneously collected tax revenue are treated as negative revenue.” World Bank World Development Indicators.
10 “Inflation, GDP deflator is inflation as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.” World Bank World Development Indicators.
11 “Inflation, consumer prices is inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a fixed basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.” World Bank World Development Indicators.
12 “Real interest rate is the lending rate adjusted for inflation as measured by the GDP deflator.” World Bank World Development Indicators.
13 “Lending interest rate is the rate charged by banks on loans to prime customers.” World Bank World Development Indicators.
14 “Deposit interest rate is the rate paid by commercial or similar banks for demand, time, or saving deposits.” World Bank World Development Indicators.
15 “Domestic credit provided to private sector refers to financial resources provided to the private sector, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment.” World Bank World Development Indicators.
16 “Domestic credit provided by banking sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. The banking sector includes monetary authorities and deposit money banks, as well as other banking institutions where data are available (including institutions that do not accept transferable deposits but do incur such liabilities as time and savings deposits).” World Bank World Development Indicators.
who, citizens or the country as a whole, is more affected by corruption. Similarly, by comparing the findings for real interest rates, deposit interest rates, and lending interest rates it should become apparent whether the haves or have-nots are more impacted by the presence of corruption.

6 – Findings

This section reports the results of an analysis of the relationship between corruption and aspects of economic development. The empirical findings indicate that tax revenue, real interest rates, domestic credit provided by banking sector, and domestic credit provided to private sector are negatively associated with levels of perceived corruption. On the other hand, inflation, lending interest rates, and deposit interest rates are positively associated with corruption. Overall, corruption seems to impact economic development most severely through its impact on economic efficiency, with evidence that the banking sector is the most affected.
<table>
<thead>
<tr>
<th>Row</th>
<th>Dependent Variable</th>
<th>Unstandardized Constant Coefficient</th>
<th>Unstandardized Corruption Coefficient</th>
<th>R Squared</th>
<th>Sig.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>GDP Growth</td>
<td>-2.332 (3.884)</td>
<td>1.642 (.561)</td>
<td>.550</td>
<td>.022</td>
<td>11</td>
</tr>
<tr>
<td>2*</td>
<td>Market Capitalization of Listed Companies</td>
<td>169.161 (47.938)</td>
<td>-20.368 (6.928)</td>
<td>.553</td>
<td>.022</td>
<td>11</td>
</tr>
<tr>
<td>3</td>
<td>Stocks Traded</td>
<td>95.565 (68.628)</td>
<td>-9.256 (9.918)</td>
<td>.111</td>
<td>.382</td>
<td>11</td>
</tr>
<tr>
<td>4</td>
<td>Gross Capital Formation</td>
<td>11.611 (29.956)</td>
<td>-.217 (3.896)</td>
<td>.000</td>
<td>.957</td>
<td>11</td>
</tr>
<tr>
<td>5*</td>
<td>Foreign Direct Investment</td>
<td>-6.034 (2.993)</td>
<td>1.437 (.433)</td>
<td>.612</td>
<td>.013</td>
<td>11</td>
</tr>
<tr>
<td>6</td>
<td>Trade</td>
<td>60.556 (32.995)</td>
<td>-2.543 (4.768)</td>
<td>.039</td>
<td>.610</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>Imports of Goods and Services</td>
<td>89.106 (45.327)</td>
<td>-10.767 (6.550)</td>
<td>.278</td>
<td>.144</td>
<td>11</td>
</tr>
<tr>
<td>8</td>
<td>Exports of Goods and Services</td>
<td>88.925 (53.198)</td>
<td>-10.515 (7.688)</td>
<td>.211</td>
<td>.214</td>
<td>11</td>
</tr>
<tr>
<td>9*</td>
<td>Tax Revenue</td>
<td>21.259 (6.062)</td>
<td>-2.130 (.876)</td>
<td>.458</td>
<td>.045</td>
<td>9</td>
</tr>
<tr>
<td>10**</td>
<td>Inflation, GDP Deflator</td>
<td>-51.440 (11.788)</td>
<td>7.902 (1.703)</td>
<td>.755</td>
<td>.002</td>
<td>11</td>
</tr>
<tr>
<td>11**</td>
<td>Inflation, Consumer Prices</td>
<td>-76.087 (10.699)</td>
<td>11.456 (1.546)</td>
<td>.887</td>
<td>.000</td>
<td>11</td>
</tr>
<tr>
<td>12</td>
<td>Real Interest Rate</td>
<td>27.741 (10.117)</td>
<td>-3.391 (1.462)</td>
<td>.435</td>
<td>.053</td>
<td>11</td>
</tr>
<tr>
<td>13**</td>
<td>Lending Interest Rate</td>
<td>-25.398 (3.656)</td>
<td>4.725 (.528)</td>
<td>.920</td>
<td>.000</td>
<td>11</td>
</tr>
<tr>
<td>14**</td>
<td>Deposit Interest Rate</td>
<td>-35.772 (6.616)</td>
<td>5.793 (.956)</td>
<td>.840</td>
<td>.001</td>
<td>11</td>
</tr>
<tr>
<td>15*</td>
<td>Domestic Credit Provided to Private Sector</td>
<td>356.048 (69.708)</td>
<td>-34.580 (10.074)</td>
<td>.627</td>
<td>.011</td>
<td>10</td>
</tr>
<tr>
<td>16**</td>
<td>Domestic Credit Provided by Banking Sector</td>
<td>266.341 (34.779)</td>
<td>-23.146 (5.026)</td>
<td>.867</td>
<td>.002</td>
<td>11</td>
</tr>
</tbody>
</table>

** Regression is significant at the 0.01 level. * Regression is significant at the 0.05 level.
7 – Discussion

The following section discusses the findings. As mentioned previously, the findings indicate that corruption is most damaging to economic development in the Peoples’ Republic of China through its impact on economic efficiency. The section proceeds as follows. First, the relationship between corruption and growth is discussed in section 7.1. Next, section 7.2 discusses the relationship between corruption and investment. Section 7.3 discusses the relationship between corruption and trade. Finally, section 7.4 discusses the relationship between corruption and economic efficiency.

7.1 – Corruption and Growth

Based on the findings, it appears as though corruption has a mixed impact on growth. Corruption and GDP growth are positively related; an increase in the corruption level by one standard deviation is associated with an increase in the annual GDP growth rate by approximately 2.8 percent per year. This does not support the findings of Mauro (1995) and Pellegrini and Gerlagh (2005), but offers some support for the findings of Rock and Bonnett (2004). In particular, it seems as though corruption has facilitated GDP growth during the early stages of China’s transition. This may seem counterintuitive, but within China the system of guangxi or relations is very important. While this may constitute a form of corruption, it isn’t necessarily a form that undermines growth. In fact, it could be an integral part of the Chinese model as those with assets, both physical and informational, utilize their position and relations to gain entrance into the Chinese market bringing the capital needed to jumpstart development.

17 From Appendix A, I multiply the standard deviation for corruption (.4613) with its coefficient (.606), and find 0.279
In contrast, corruption and market capitalization of listed companies are negatively related; an increase in the corruption level by one standard deviation is associated with a decrease in market capitalization of listed companies by approximately 3.1 percent per year.\textsuperscript{18} As development continues, market capitalization of listed companies and stocks traded will become more important aspects of growth than GDP growth rates alone. This is because in a developed economy, market mechanisms become more important to maintaining growth. If international investors and trade partners begin to feel as though China is not playing fairly, the results could be detrimental to sustainable growth and economic relations. As a result, the negative relationship between corruption and market capitalization of listed companies is the most significant finding.

\textbf{7.2 – Corruption and Investment}

Based on the findings, it appears as though corruption has also had a mixed impact on investment. Corruption and FDI indicate a positive and significant relationship; an increase in the corruption level by one standard deviation is associated with an increase in foreign direct investment by approximately 3.6 percent per year\textsuperscript{19}. This finding does not support the findings of Mauro (1995), Wei (2000), Habib and Zurawicki (2002), or Harms and Upsprung (2002), but offers some support for the finding of Egger and Winner (2005). Although corruption is positively correlated with FDI this does not necessarily indicate that corruption is beneficial for attracting FDI. In particular, the relationship may indicate that corrupt officials are feeding off the investment of foreigners rather than domestic investors. As a result, foreign firms that could offer

\textsuperscript{18} From Appendix A, I multiply the standard deviation for corruption (.4613) with its coefficient (-.744), and find -0.343.

\textsuperscript{19} From Appendix A, I multiply the standard deviation for corruption (.4613) with its coefficient (.774), and find 0.357.
capital and advancements in technology may decide not to invest in China, denying the Chinese economy investment in those sectors which it needs most to sustain its take-off. Therefore, the positive relationship between corruption and FDI is the most significant finding.

7.3 – Corruption and Trade

Based on the empirical findings, it appears as though corruption has had an insignificant impact on trade. This finding offers little support for the arguments of Krueger (1974), Southgate, Salazar-Canelos, Camacho-Saa and Stewart (2000), and Pellegrini and Gerlagh (2005). In particular, the findings indicate that corrupt officials may be more inclined to levy red tape and fees against imports, but the level of significance is too low for the results to be very accurate. As a result, further research is needed.

7.4 – Corruption and Economic Efficiency

Based on the findings, it appears as though corruption has had the most devastating impact on economic efficiency. This finding supports those of Myrdal (1968), Rose-Ackerman (1978), Krueger (1993a, 1993b), De Soto (1989), Murphy, Shleifer and Vishny (1991), Shleifer and Vishny (1993), and Li, Xu and Zou (2000). In particular, it appears as though the variables closely related to the financial sector are the most affected by corruption. For instance, real interest rates are insignificantly related with corruption, while lending and deposit rates are positively and significantly related. An increase in the corruption level by one standard deviation is associated with an increase in lending interest rates by approximately 4.4 percent per year.20 While, an increase in the

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20 From Appendix A, I multiply the standard deviation for corruption (.4613) with its coefficient (.955), and find 0.440.
corruption level by one standard deviation is associated with an increase in deposit interest rates by approximately 4.2 percent per year\textsuperscript{21}. This seems to support the claim made by Shuntian Yao (2002) that those in power have used their position to monopolize the wealth that has been created. It seems, in particular, that by artificially increasing the rate of return on money lent or deposited, corrupt officials have been able to maximize their wealth at the expense of others.

As further evidence, domestic credit provided by banking sector and domestic credit provided to private sector are also negatively and significantly associated with the level of perceived corruption; an increase in the corruption level by one standard deviation is associated with a decrease in domestic credit provided by banking sector by approximately 4 percent per year\textsuperscript{22}; an increase in the corruption level by one standard deviation is associated with a decrease in domestic credit provided to private sector by approximately 3.7 percent per year\textsuperscript{23}. This indicates that as corruption has decreased opportunities for the domestic population to acquire the capital needed to start up new ventures has increased. Similarly, consumer price inflation is more strongly related with corruption than GDP deflator inflation. An increase in the corruption level by one standard deviation is associated with an increase in GDP deflator inflation by approximately 3.5 percent per year\textsuperscript{24} While, an increase in the corruption level by one standard deviation is associated with an increase in consumer price inflation by

\textsuperscript{21} From Appendix A, I multiply the standard deviation for corruption (.4613) with its coefficient (.910), and find 0.419.
\textsuperscript{22} From Appendix A, I multiply the standard deviation for corruption (.4613) with its coefficient (-.864), and find 0.398.
\textsuperscript{23} From Appendix A, I multiply the standard deviation for corruption (.4613) with its coefficient (-.795), and find -0.366.
\textsuperscript{24} From Appendix A, I multiply the standard deviation for corruption (.4613) with its coefficient (.762), and find 0.351.
approximately 4.2 percent per year. This seems to imply that the costs of corruption have been put on the average consumer more significantly than society in general.

Finally, tax revenue is negatively and significantly related with the level of perceived corruption; an increase in the corruption level by one standard deviation is associated with a decrease in tax revenue by approximately 3.1 percent per year. As a result, government programs are undermined by the presence of corrupt officials. It seems that corrupt officials benefit at the expense of public services and goods. As the Chinese economy matures, this could have serious repercussions, undermining the pace and character of development.

8 – Conclusion

In this paper, I have used data on the Peoples’ Republic of China, consisting of Transparency International’s Corruption Perception Index and the World Bank’s macroeconomic data, to empirically study the relationship between corruption and certain aspects of economic development. The findings indicate that although corruption has not lowered economic growth, it has had a serious impact on economic efficiency. This impact seems to have been severe enough to cause the CCP leadership to continue with reforms to combat new forms of economic crime and corruption. As a result, it is not necessary to view corruption as being inherently or completely destructive to development. In particular, corruption may act as a catalyst, causing rigid leaders to enact reforms otherwise thought to be unnecessary. Ultimately, the findings indicate that thinking about corruption in context-dependent terms is valuable for helping to understand the relationship between corruption and economic development. This is

\[25\text{ From Appendix A, I multiply the standard deviation for corruption (}.4613\text{) with its coefficient (}.911\text{), and find 0.420.}\]

\[26\text{ From Appendix A, I multiply the standard deviation for corruption (}.4613\text{) with its coefficient (}.677\text{), and find 0.312.}\]
because the specific context in which corruption has taken place in China has had serious implications for the effects of such corruption. While corruption has not undermined growth, it has had a severe impact on economic efficiency and the banking sector in particular.

Further research is still needed to fully understand the relationship between corruption and economic development. In particular, research on the impact of corruption on income distribution could provide greater insight into whether corrupt officials are benefiting at the expense of the greater population. Similar work needs to be done concerning poverty, unemployment, and property rights. Another important research project would be to develop a method that can control for exogenous factors. Currently, most researches use an ethnolinguistic fractionalization index to control for such concerns, but these indices are harder to locate, if they even exists, for more recent analysis. Finally, more research needs to be undertaken to account for the recent rise and genesis of corruption in China. While some research provides useful insight, there is still much more that can be done to come to a better understanding of the causes and consequences of corruption in the Peoples’ Republic of China.
References


## Appendix A: Pearson Correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparency International Corruption Perception Index</td>
<td>1</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>Deposit interest rate (%)</td>
<td>.910(**)</td>
<td>.000</td>
<td>11</td>
</tr>
<tr>
<td>Domestic credit provided by banking sector (% of GDP)</td>
<td>-.864(**)</td>
<td>.001</td>
<td>11</td>
</tr>
<tr>
<td>Domestic credit to private sector (% of GDP)</td>
<td>-.795(**)</td>
<td>.006</td>
<td>10</td>
</tr>
<tr>
<td>Exports of goods and services (annual %)</td>
<td>-.490</td>
<td>.126</td>
<td>11</td>
</tr>
<tr>
<td>Foreign direct investment, net inflows (% GDP)</td>
<td>.774(**)</td>
<td>.005</td>
<td>11</td>
</tr>
<tr>
<td>Foreign direct investment, net outflows (% GDP)</td>
<td>-.263</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP growth (annual %)</td>
<td>.606(*)</td>
<td>.048</td>
<td>11</td>
</tr>
<tr>
<td>Gross capital formation (annual %)</td>
<td>-.066</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measure</td>
<td>Method</td>
<td>Correlation</td>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>---------</td>
<td>-------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Transparency International Corruption Perception Index</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gross fixed capital formation (annual %)</td>
<td>Pearson</td>
<td>-.250</td>
<td>.458</td>
</tr>
<tr>
<td>Imports of goods and services (annual %)</td>
<td>Pearson</td>
<td>-.547</td>
<td>.081</td>
</tr>
<tr>
<td>Inflation, consumer prices (annual %)</td>
<td>Pearson</td>
<td>.911(**)</td>
<td>.000</td>
</tr>
<tr>
<td>Inflation, GDP deflator (annual %)</td>
<td>Pearson</td>
<td>.762(**)</td>
<td>.006</td>
</tr>
<tr>
<td>Lending Interest Rate (%)</td>
<td>Pearson</td>
<td>.955(**)</td>
<td>.000</td>
</tr>
<tr>
<td>Market capitalization of listed companies (% of GDP)</td>
<td>Pearson</td>
<td>-.744(**)</td>
<td>.009</td>
</tr>
<tr>
<td>Real Interest Rate (%)</td>
<td>Pearson</td>
<td>-.403</td>
<td>.219</td>
</tr>
<tr>
<td>Stocks traded, total value (% of GDP)</td>
<td>Pearson</td>
<td>-.344</td>
<td>.301</td>
</tr>
<tr>
<td>Trade (% GDP)</td>
<td>Pearson</td>
<td>-.276</td>
<td>.440</td>
</tr>
<tr>
<td>Tax revenue (% of GDP)</td>
<td>Pearson</td>
<td>-.677(*)</td>
<td>.045</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).