Influences of Corporate Governance on the Relationship between Corruption and Economic Growth--Developed Countries versus Emerging Countries

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Abstract

Several studies have proposed that corporate governance has a positive effect on anti-corruption. The paper further investigates the effects of corporate governance on the corruption-economic growth relationship at the national level. Three major corporate governance mechanisms are discussed: efficacy of corporate boards, strength of auditing and financial reporting standards, and protection of minority shareholders' interests. Using a balanced panel data set of 55 countries (26 developed countries and 29 emerging countries) between 2003 and 2011, the results show that corporate governance weakens the relationship between corruption and economic growth. More specifically, for developed countries, the efficacy of corporate boards, strength of auditing and financial reporting standards, and the protection of minority shareholder's interest help mitigate the negative impacts of corruption on economic growth. For emerging countries, strength of auditing and financial reporting standards and the protection of minority shareholder's interest help mitigate the positive impacts of corruption on economic growth.

Keywords: corporate governance, corruption, economic growth, developed countries, emerging countries

I.   Introduction

In recent years, the issues of corruption and corporate governance have attracted considerable attention in the world. The impact of corruption on economic growth has also been investigated by a great deal of scholars. There are two opposite viewpoints regarding the influence of corruption on economic growth: the "grease the wheels" stance vs. the "sand the wheels" belief.

For those taking the "grease the wheels" stance, corruption is capable of promoting economic development as it serves as a lubricant to smooth business organizations' dealing with bureaucracy (Leff, 1964; Huntington, 1968). In developing countries where government inefficiency hampers foreign investment, corruption is often practiced as a lubricant to facilitate red tape reduction and accelerate administrative processes, thereby contributing to investment efficiency and economic growth (Heywood, 1997). Some scholars view corruption as an endogenous adjustment mechanism for restoring the equilibrium between price and resource allocation (Lui, 1985).

On the other hand, there are researchers holding the opposite view that corruption is a negative factor undermining economic development. According to Gray and Kaufmann (1998), corruption tends to increase transaction costs and uncertainty, resulting in economic inefficiency, triggering rent-seeking activities, and distorting priorities of industrial and technology development. Corruption has also been found to encourage companies to engage in underground economy, thus reducing government revenue and debilitating its ability to put public goods into better uses. Moreover, corruption may turn taxpaying into a form of punishment for small, law-abiding enterprises who cannot afford the cost of corruption; such tax unfairness can seriously jeopardize

the public confidence in a government's legitimacy. In addition, as pointed out by Khumawala and Ramchand (2005), corruption leads to reduced reliability of market information, a drawback that may either diminish investors' transaction willingness or prompt them to demand a higher rate of return, which in turn raises the cost of corporate external financing.

Corruption that reflects the failure of governance has its demand side and supply side. With a focus on the demand-side of corruption, most of the extant literature proposes to curb corruption by launching a reform of nation governance structure. Examining the supply side of corruption, several studies also advocates suppressing corruption through corporate governance. Based on cross-sectional data of 72 countries, Wu (2005) indicated that the quality of corporate governance exerts a positive influence on anti-corruption. Though different from Wu's cross-sectional study, Tseng (2011) approached the same issue by analyzing panel data and reached the similar conclusion that corporate governance produces a positive effect on anti-corruption.

As it helps suppress corruption, corporate governance may also impact the relationship between corruption and economic growth. In response to the absence of previous studies investigating this issue, the paper investigates the effects of corporate governance on the corruption-economic growth relationship. Three major corporate governance mechanisms are discussed: efficacy of corporate boards, strength of auditing and financial reporting standards, and protection of minority shareholders' interests. The paper collects relevant data of 55 countries which are divided into those of developed countries and those of emerging countries for empirical analysis.

Traditionally, corporate governance has been studied mainly from a microscopic viewpoint. A substantial segment of the literature, for example, investigates the impacts of corporate governance on firms' management and performance. This paper chooses to adopt a macro point of view by examining data at national level to explore whether corporate governance has effects on the relationship between corruption and economic growth. In recent years, the issues of anti-corruption and promoting corporate governance have attracted considerable global attention. How corruption impacts economic growth has also been a hot issue in the literature. Combining these important issues, this study investigates whether corporate governance impacts the corruption-economic growth relationship which has not been discussed in the literature. Hence, it will result in incremental understandings on corporate governance, corruption, and economic growth. Through this study's cross-national analysis on this topic, this paper is expected to have the following contributions. In theory, this study provides a new thinking perspective on corporate governance to enrich the understanding about the role and the value of corporate governance. In practices, this study allows practitioners to understand the value of corporate governance. It will be able to advocate the legitimacy and necessity of corporate governance.

II.   Literature Review

In theory, the impact of corruption on economic growth includes both positive and negative views. The empirical results also showed inconsistent conclusions.

As indicated by the experiences of some countries like South Korea and Indonesia, corruption coexists with economic growth. According to Khan (2000), rent-seeking in economics can be divided into several types that produce different results, and his study suggests that certain rent-seeking activities, especially those associated with high-ranking bureaucratic systems (as in the

case of South Korea) is likely to promote economic growth.

Indonesia presents another example of the coexistence of corruption and economic growth. During the three-decade rule of President Suharto (1966-98), the country "displayed a combination of autocratic politics, pervasive corruption and rapid economic growth" (MacIntyre, 2003). In spite of the serious problem of corruption, Suharto was able to hold his power by controlling corruption at a tolerable limit for investors and coordinating the distribution of the proceeds of corruption. Most officials dared not to secretly solicit bribes from businessmen. This high degree of centralization solves the "agency problem" insurmountable in other countries, not only effectively deterring small private corruption but also optimizing the overall profit of corruption. The political framework developed under Suharto's regime further helped foreign investors better understand the rules of the game, thus building a solid foundation for the coexistence of corruption and economic growth in Indonesia (MacIntyre, 2003).

Also of interest is the study of Rock and Bonnett (2004) that examines the corruption-economic growth symbiosis in the newly industrializing economies in the greater East Asian region. Their results "provides solid empirical support to a country case literature that explains the East Asian paradox--the combination of high corruption and high growth--in terms of stable and mutually beneficial exchanges of government promotional privileges for bribes and kickbacks." If the central government can maintain a corruption network with big enterprises chronically, corruption might exert a positive impact on economic growth.

By contrast, many empirical studies have found corruption detrimental to economic development and investment. Analyzing the impacts of corruption and other indicators related to political institutions on economic growth and investment based on data from 67 countries, Mauro (1995) argued that corruption cripples investment and economic growth as it brings down the investment to GDP ratio as well as the output efficiency of investment capital. In a subsequent study on whether corruption affects economic growth by distorting government spending, Mauro (1998) reached the conclusion that corruption can hurt economic growth as it tends to reduce government spending on education, which is an important investment for economic growth.

Mo (2001) analyzed the direct and indirect effects of corruption on economic growth and found that corruption has a significantly negative impact on economic growth. However, the impact weakened after other variables were added. Political instability is an important distribution channel in the relationship between corruption and economic growth. Monte and Papagni (2001) pointed out that corruption would reduce the effectiveness of private investment and government spending, thereby hampering economic growth.

Gyimah-Brempong and De Camacho (2006) indicated that corruption has a negative impact on economic growth but significant differences exist in different regions. The study of Podobnik et al. (2008) on the association between GDP per capita growth and the Transparency International Corruption Perceptions Index indicated that the growth in annual GDP per capita rises by 1.7% in response to a one-unit increase in CPI for all countries and 2.4% for European countries during the period of 1999-2004.

Is corruption harmful to economic growth? Since answers to this question from numerous cross-

country studies remain inconsistent, other factors, such as economic freedom, democracy, and regional, have been added and discussed in the literature to expedite more subtle exploration of this issue.

Heckelman and Powell (2010) adopted the economic freedom index to look into if corruption contributes to economic growth by allowing entrepreneurs to bypass inefficient policies and regulations in countries with limited economic freedom. Their findings suggest that corruption helps economic growth when economic freedom is most limited, but the beneficial effects of corruption decrease as economic freedom increases. Moreover, decrease in the size of government and the extent of regulations appears to render corruption increasingly less beneficial. Also believing that corruption helps improve the efficiency for countries with relatively small economic freedom, Carden and Verdon (2010) pointed out that corruption in the military reduces economic growth while corruption in the educational arena increases economic growth. Their findings indicate that when economic freedom is low, certain types of corruption may work to benefit economic growth.

Scholars have long suspected that political process such as democracy and corruption are important determinants of economic growth. However, studies have shown that democracy is only an indirect factor on economic growth, while scholars generally accept that corruption has a direct and negative impact on economic performance. According to Drury, Krieckhaus and Lusztig (2006), though unable to eliminate the practice of corruption, democracy does benefit economic growth in an indirect manner by alleviating the harmful effects of corruption as democratically elected officials and politicians are more likely to refrain from engaging in corrupt activities for the sake of political survival. Although corruption appear to have no significant effect on economic growth in democracies in their time-series cross-section study on more than 100 countries during the period of 1982-97, non-democratic countries are found to experience significant economic harm caused by corruption.

Kutan, Douglas and Judge (2009) used data drawn from the Middle East, North African and Latin American countries during the period of 1993 to 2003 to explore the impact of corruption on economic development. Their findings show that corruption and economic improvement have no significant relationship in the Middle East, North Africa and Latin America. The results differ from the findings by Guetat (2006), Gyimah-Brempong and De Camacho (2006) which reveal that corruption hinders economic growth in the Middle East, North Africa and Latin America. Kutan et al. (2009) pointed out that international business managers may face corruption. However, the relationship between corruption and economic development is different in different regions, thus raising an issue that deserves further study.

Because of the inconsistent views and empirical findings regarding the corruption-economic growth relationship, scholars have continued tackling this issue. With the hope to enrich existing understanding, this paper directs its attention to the influence of corporate governance on the corruption-economic growth relationship.

III.   Hypotheses Development
Studying a New Zealand context, Hirsch and Watson(2010) demonstrated that the corporate structure itself as well as the existence of poor corporate governance practices may aggravate the

susceptibility of corporations to corrupt behavior. However, the fact that the practice of corruption requires participation from both the demand side (government officials) and the supply side (corporate executives) has not received adequate attention from many previous studies which focus primary on how to rectify the demand side of corruption by strengthening the governance of government agencies and public institutions. Aware of the need to take into account of corporate governance in an effective governance-based anti-corruption initiative, a couple of studies (Wu, 2005; Tseng, 2011) have switched the focus onto the supply side of corruption by exploring the influences of corporate governance on corruption.

In his study investigating the effects of corporate governance on corruption based on a cross-sectional data of 72 countries in 2002, Wu (2005) adopted two corporate governance measures taken from the Global Competitiveness Report (GCR): the efficacy of corporate boards in representing outside shareholders and the quality of accounting practices. After controlling gross domestic product (GDP) per capita, the openness of countries, the percentage of population professing Protestant faith, whether a country was once a British colony, whether a country has been a democracy continuously since 1950, and whether a country is a federal state, Wu (2005) reached the conclusion that corporate governance is capable of mitigating corruption.

Based on Wu (2005)'s research, Tseng (2011) conducted an empirical study using a panel data drawn from 92 countries during the period from 2003 to 2009. With the findings indicating that corporations with stronger board functions, more rigorous accounting and financial reporting standards, and better minor shareholder protection tend to have a lower level of corruption, Tseng (2011) confirmed the important role of corporate governance in combating corruption. Indeed, both public institutions and private corporations need to work together to achieve the goal of anti-corruption.

Certain common corporate governance measures, such as controls on the exercise of power by directors and the adoption of accounting and audit controls, are directly associated with the prevention and detection of corruption and bribery (Carr and Outhwaite, 2011). In order to further explore the impacts of corporate governance on the relationship between corruption and economic growth, corporate governance is measured in this study by the following three items: board functions, auditing and financial reporting standards, protection of the interests of minority shareholders.

Representing and safeguarding the benefits of a firm's shareholders, board of directors is held accountable for the governance of the firm and fulfills this responsibility by supervising and preventing the management or insiders from engaging in opportunistic and corrupt behaviors (including bribery) for immediate or personal profits. In addition, a responsible and powerful board of directors would require the management to make the firm's commitment to zero tolerance for bribery clear to any government officials the firm may need to deal with. Once a firm is known for sticking to a strict anti-bribery policy, government officials expecting to receive bribes would understand that they are facing a greater risk of being exposed; blackmail from government officials can thus be deterred. The robust and rigorous governance of a responsible board of directors can therefore be expected to minimize incentives for corruption and curtail potential corrupt activities.

Information asymmetry exists not only between a firm and its investors or between a board of directors and its authorized management but between virtually all the opposite sides in agency relations. In a capital market, most investors rely on published or disclosed information about companies for investment decisions. With the outbreak of corporate scandals in recent years, information disclosure has become a spotlight of corporate governance worldwide. Transparency of accounting information increases the odds of identifying corruption and bribery, while rigorous auditing and accounting standards make it difficult for managers who engage in bribery against the wishes of shareholders to perpetuate or hide their corrupt activities. Enhanced reporting of accounting information and more stringent disclosure requirements strengthen internal control and monitoring systems. Comprehensive information disclosure and robust auditing/accounting standards, like the good governance of a responsible board of directors, help reduce the incentives for and impose restraints on "Xunsi" (bending the law and committing bribery for one's own profit) frauds.

In 2001, the minority shareholders of Samsung accused the conglomerate's board chairman and directors of bribery, providing a case in point illustrating the issue of agency conflict in a bribery incident. When investors, especially minority shareholders, are accorded more and better legal protection, managers or internal shareholders who plan to practice corruption or bribery at the expense of the interests of minority shareholders would find themselves confronted by greater risks of violating the laws and regulations concerning investor protection. In light of the increased cost of corruption and bribery, better protection of shareholders' interests can be expected to reduce the occurrence of corrupt behaviors.

To sum up the points raised above, greater efficacy of a corporate board helps curtail the occurrence of corruption; more rigorous auditing and accounting standards enhance information transparency and expedite the detection of corruption and bribery; and better investor protection raises the legal risk and the cost of corrupt activities that sacrifice the interest of minority shareholders for gaining short-term or personal profits. Solid corporate governance is thus an effective measure for combating corruption.

For developed countries, the literature has shown a negative corruption-economic growth relationship. When corporate corruption in a developed country is effectively reduced, the problem of market disorder caused by rampant rent-seeking behaviors can be alleviated. The increased transaction cost and uncertainty caused by corruption will be reduced and the credibility of market information improved, propping up investors' purchase intention, trimming down their expected rate of return, and making it easier for firms to secure external funding. Moreover, government spending and administrative capacity will no longer be distorted by widespread corruption; private and foreign firms are more likely to raise their investments. All these positive effects of successful corruption reduction will certainly benefit a developed country's long-term economic development.

It is thus reasonable to deem corporate governance capable of curtailing corruption and making positive contributions to economic development for developed countries. Based on the belief that corporate governance helps mitigate the negative impacts of corruption on economic growth, we present the following hypotheses to be tested in this study:

Hypothesis 1. For developed countries, boards with better efficacy ease the negative impacts of corruption on economic growth.

Hypothesis 2. For developed countries, more robust and rigorous auditing and financial reporting standards ease the negative impacts of corruption on economic growth.

Hypothesis 3. For developed countries, better protection of minority shareholders' interests eases the negative impacts of corruption on economic growth.

On the contrary, several studies show that corruption and economic growth coexist in some emerging countries. As mentioned above, improved corporate governance will decrease corruption; this, however, does not seem to benefit the economic growth of emerging countries. It is thus expected that corporate governance will weaken the positive impacts of corruption on economic growth for emerging countries. The following hypotheses are proposed and tested in this study:

Hypothesis 4. For emerging countries, corporate boards with better efficacy ease the positive impacts of corruption on economic growth.

Hypothesis 5. For emerging countries, more robust and rigorous auditing and financial reporting standards ease the positive impacts of corruption on economic growth.

Hypothesis 6. For emerging countries, better protection of minority shareholders' interests eases the positive impacts of corruption on economic growth.

In sum, corporate governance tends to weaken the corruption-economic growth relationship for all counties.

IV.   Empirical Model

Aiming to explore the impacts of corporate governance on the relationship between corruption and economic growth, the study adopts the empirical model as follows.

$$EG_{i,t} = \beta_1 + \beta_2 COR_{i,t} + \beta_3 COR_{i,t} * CG_{i,t} + \beta_4 INV_{i,t} + \beta_5 LG_{i,t} + \beta_6 HC_{i,t}$$
$$+ \beta_7 PE_{i,t} + \beta_8 TO_{i,t} + \varepsilon_{i,t}$$

where i denotes countries (i=1, 2, …, N) and t stands for year (t=1, 2, …, T); β_1 is the intercept term; $\varepsilon_{i,t}$ is the random error term. EG is economic growth, and COR, CG, INV, LG, HC, PE, and TO represent respectively corruption, corporate governance, investment ratio, labor growth, household consumption, public expenditure, and trade openness. Operational definitions of these variables in the model are described below:

Economic growth (EG): This study uses the real GDP growth rate as a measurement of economic growth.

Corruption (COR): The corruption variable in this study is based on Transparency International's Corruption Perception Index (CPI) ranking countries by "their perceived levels of corruption, as determined by expert assessments and opinion surveys." Defining "corruption" in a general

manner as "the misuse of public power for private benefit," the CPI published annually by Transparency International since 1995 has become the most widely used measure of corruption among the world's socio-economic indicators. In recent years, the CPI has been used extensively as a proxy for measuring the degree of corruption in related studies by researchers like Mo (2001), Rock and Bonneett (2004), Wu (2005), and Gyimah-Brempong and De Camacho (2006). CPI scores range from 0-10 points. The higher the score, the more honest the country is. In response to its focus on corruption, the paper uses 10 to subtract a country's original CPI score to obtain an adjusted CPI score. For example, New Zealand, the most honest country in 2011 with an original CPI score of 9.5, receives an adjusted CPI score of 0.5 in this study. In other words, for this study, a country with a higher adjusted CPI score presents a more serious case of corruption.

Corporate governance (CG): The first measure of corporate governance--efficacy of corporate boards (Board)--is based upon the question "How would you characterize corporate governance by investors and boards of directors in your country?" (1 = management has little accountability to investors and boards; 7 = investors and boards exert strong supervision of management decisions.

The second measure of corporate governance--strength of auditing and financial reporting standards (Audit)--is based upon the question "How would you rate the auditing and financial reporting standards for corporate financial performance in your country?" (1 = extremely weak; 7 = extremely strong)

Protection of minority shareholders' interests (Protection), the third measure of corporate governance, is based upon the question "To what extent are the interests of minority shareholders protected by the legal system in your country?" (1 = not protected at all; 7 = fully protected)

In this paper, corporate governance variables are drawn from the WEF (World Economic Forum) Global Competitiveness Report covering approximately 75 major economies around the world. Other than this comprehensive coverage, the report is consulted for the following additional advantages: Its investigations are continuous, its corporate governance measurement is further divided into three sub-items, and its questionnaire is designed to solicit the opinions of elites and leaders in the field of business administration from different nations. These are strengths not found in other similar surveys. For instance, La Porta et al (1998) constructed a national governance indicator focusing on legal aspects (e.g. shareholder protection), and the CLSA (Credit Lyonnais Securities Asia) survey ranks corporate governance based on the viewpoints of institutional investors and incorporates only a limited number of countries (mostly emerging markets).

Investment (INV): According to Levine and Renelt (1992), investment to GDP ratio is significantly associated with economic growth. Examining the economic growth in developed countries during the period of 1970-1985, Ram and Zhang (2002) also found fixed capital formation exerting a positive influence on economic growth. The study accordingly follows the mainstream practice revealed in the literature by using the ratio of gross domestic investment to GDP to measure investment.

Labor Growth (LG): Mencinger (2003) pointed out that continuous rise in employment benefits economic growth in the countries of the Middle East. In this paper, the growth rate of employment is used as a proxy for labor growth, which is expected to promote economic growth.

Household consumption (HC): Household consumption is measured by household consumption over GDP. This variable is used to measure the purchasing power of an economy.

Public Expenditure (PE): The study follows the definition of Attila (2011) to measure public expenditure by the share of government expenditure in final consumption in the GDP, which is adopted to control the degree of public intervention in the economy.

Trade Openness (TO): As argued by Sachs and Warner (1995), trade openness contributes to economic growth. Greater openness to the international market tends to result in an economy's higher growth rate. In this study, trade openness is measured as the sum of exports and imports over GDP.

The real GDP growth rate and labor growth rate are collected from the International Financial Statistics (IFS). Corruption is from the Transparency International (TI). Relevant corporate governance indicators are obtained from the Global Competitiveness Report published by the World Economic Forum (WEF). Investment ratio, household consumption, public expenditure, and trade openness are drawn from the World Development Indicators (WDI) by the World Bank.

V.   Empirical Results

The section first presents the descriptive statistics for the variables and proceeds to discuss the influences of corporate governance on the corruption-economic growth relationship.

A. Descriptive Statistics

A balanced panel data set of 55 countries during the period from 2003 to 2011 was established. Descriptive statistics for the variables can be seen in Panel A of Table 1. The mean for economic growth is 0.082%, and those for investment ratio, labor growth rate, household consumption, public expenditure, and trade openness are 0.227, 0.011, 0.595, 0.169, and 0.969, respectively. Corruption is measured by adjusted CPI, whose mean is 4.374. Corporate governance is measured by the scores of efficacy of corporate boards, strength of auditing and financial reporting standards, and protection of minority shareholders' interests; the means for the three variables are respectively 4.858, 5.159 and 4.731.

Empirical studies have pointed out that corruption and economic growth showed the coexistence phenomenon in some emerging countries. Therefore, this paper divides the sample into emerging countries and developed countries. According to World Bank Atlas, if a country's 2001 gross national income (GNI) per capita is more than U.S. $ 9,206 is viewed as high income economies. Referring to this criterion, we divide the sample as emerging countries and developed countries. After classification, 26 countries are as developed countries and 29 countries are as emerging countries.

Panel B of Table 1 shows the means of variables for the developed countries and emerging countries as well as the results of t-difference tests for variables between the two groups.

Emerging countries report greater economic growth, corruption, investment ratio, and household consumption than those in the developed group whereas the differences are significant at the 1% level. The developed group has greater corporate governance scores than its emerging counterpart, and the differences are significant at the 1% level. Moreover, the developed group also has greater public expenditure and trade openness than its emerging counterpart, and the differences are significant. The labor growth rate has no significant difference between emerging countries and developed countries.

Correlation analysis is conducted for the developed countries and the emerging countries respectively. For the developed countries, economic growth is negatively correlated with corruption and positively correlated with corporate governance measurements. On the opposite, for merging countries, economic growth is positively correlated with corruption and negatively correlated with corporate governance measurements. Corruption is negatively correlated with corporate governance for both of the developed countries and the emerging countries.

Refer Table 1

B. Influences of Corporate Governance on the Corruption-Economic Growth Relationship
The results of the economic growth model for the developed countries and emerging countries are shown in Panels A-B of Table 2 respectively. The present analysis focuses on the interaction term between corporate governance and corruption. Corporate governance is measured by three items: efficacy of corporate boards (Board), strength of auditing and financial reporting standards (Audit), and protection of minority shareholders' interests (Protection).

In Panel A for the developed countries, as shown in Columns 1-3 of Table 2, the three corruption coefficients are all negative and significant at least at the 10% level, suggesting that corruption is harmful to economic growth for developed countries and supporting the "sand the wheels" viewpoint. In Column 1 of Table 2, the coefficient of the interaction term between corruption and "Board" is significantly positive at the 10% level, thus supporting the first hypothesis (*Hypothesis 1*) that enhanced efficacy of corporate boards helps mitigate the negative impacts of corruption on economic growth. In Column 2, the coefficient of the interaction term between corruption and "Audit" appears to be significantly positive at the 1% level, indicating that the second hypothesis (*Hypothesis 2*)--more robust and rigorous auditing and financial reporting standards ease the negative impacts of corruption on economic growth--is well supported by the empirical results. In Column 3, the coefficient of the interaction term between corruption and "Protection" appears to be significantly positive at the 1% level, indicating that the third hypothesis (*Hypothesis 3*)--better protection of minority shareholders' interests helps ease the negative impacts of corruption on economic growth--is well supported by the empirical results.

In Panel B for the emerging countries, as shown in Columns 4-6 of Table 2, the three corruption coefficients are all positive and two of them are significant at the 1% level, suggesting that corruption is helpful to economic growth for emerging countries and supporting the "grease the wheels" viewpoint. In Column 4 of Table 2, the coefficient of the interaction term between corruption and "Board" is insignificantly positive at the 10% level, thus not supporting the fourth hypothesis (*Hypothesis 4*) that enhanced efficacy of corporate boards helps mitigate the positive impacts of corruption on economic growth. In Column 5 of Table 2, the coefficient of the

interaction term between corruption and "Audit" appears to be significantly negative at the 5% level, indicating that the fifth hypothesis (*Hypothesis 5*)--more robust and rigorous auditing and financial reporting standards ease the positive impacts of corruption on economic growth--is well supported by the empirical results. In Column 6 of Table 2, the coefficient of the interaction term between corruption and "Protection" appears to be significantly negative at the 1% level, indicating that the sixth hypothesis (*Hypothesis 6*)--better protection of minority shareholders' interests helps ease the positive impacts of corruption on economic growth --is well supported by the empirical results.

When we divided the sample as developed countries and emerging countries, we found interesting finding that the influences of corruption on economic growth differ for the two groups. Corruption sands the wheels for developed countries and greases the wheels for emerging countries. Generally speaking, corporate governance weakens the relationship between corruption and economic growth for both groups.

Refer Table 2

To expand the observations, we use an unbalanced data set to do a robustness test. The sample is expanded from 55 countries to 90 countries. After classification, 29 countries are as developed countries and 61 countries are as emerging countries. The findings are robust. In sum, the influences of corruption on economic growth differ for developed countries and emerging countries and corporate governance can weaken the corruption-economic growth relationship for both of the groups. For the space limitation, we do not show the results here which are available on a request.

VI.   Conclusion

The goal of this study is to examine the influences of corporate governance on the relationship between corruption and economic growth. For developed countries, the "sand the wheels" viewpoint is supported. It is found that three corporate governance mechanisms--corporate board efficiency, auditing and financial reporting standards, and protection of minority shareholders' interests--do help reduce the negative impacts of corruption on economic growth. For emerging countries, the "grease the wheels" viewpoint is supported. The empirical results show that two corporate governance mechanisms--auditing and financial reporting standards and protection of minority shareholders' interests--do help reduce the positive impacts of corruption on economic growth. In sum, the influences of corruption on economic growth differ for developed countries and emerging countries. Sound corporate governance can decrease corruption and further weakens the corruption-economic growth relationship.

We find corruption harmful to economic growth in developed countries, where it plays a role of "sand" in economic development. After taking into account of the corporate governance variables, we observe that, for developed countries, the negative corruption-economic growth relationship has been weakened. Strengthening corporate governance can reduce corruption. It also reduces the negative impact of corruption on economic growth. The paper thus argues that corporate governance can have a positive impact on economic growth by reducing corruption. The research implication of this argument is summarized as follows. As corporate governance helps fight corruption and indirectly benefits economic growth, there is a need to further fortify corporate governance for developed countries.

On the other hand, for emerging countries, the coexistence of economic growth and corruption is observed, a finding consistent with the one reported in the literature. In some emerging countries, poor institutional environment renders corruption a lubricant in economic development. After taking into consideration of the corporate governance variables, the coexistence of corruption and economic growth in emerging countries appears to be weakened. Enhanced corporate governance helps reduce corruption, but also on the wane is the positive impact of corruption on economic growth. As a result, reduced corruption may adversely affect economic growth for emerging countries. The question then is whether emerging countries can afford not to improve corporate governance that seems to harm economic development.

In the short term, corruption plays the role of lubricant facilitating economic growth when a healthy and comprehensive institutional environment has yet to be established in emerging countries. In the long run, however, as an emerging country progresses into a developed economy, corruption will eventually start to sand the wheels of economic growth. We find that corruption and economic growth coexists in emerging countries. However, with strengthened corporate governance, this phenomenon of coexistence between corruption and economic development will be weakened, indicating that, by enhancing corporate governance, emerging countries can reduce their reliance on corruption to boost economic growth. Hence, in the long run, there is still a need for emerging countries to enhance corporate governance. No emerging country should allow itself to continue relying on corruption for economic development because, after all, the cost of corruption can be extremely steep.

Corporate governance can reduce the impact of corruption on economic growth which reveals the value of corporate governance. When there are more companies paying more attentions to corporate governance practices in a country, the more decreases of corruption influence on economic growth. Therefore, policy makers should continue to strengthen the legislation of corporate governance, and the management authorities should really execute the operations of corporate governance.

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Table 1 Descriptive statistics

Panel A :*entire sample (55 countries)*				
Variable	Mean	Maximum	Minimum	Standard deviation
EG	0.082	0.471	-0.187	0.076
COR	4.374	8.1	3	2.311
Board	4.858	6.1	3.4	0.573
Audit	5.159	6.6	3.3	0.785
Protection	4.731	6.4	2.5	0.824
INV	0.227	0.404	0.106	0.045
LG	0.011	0.320	-0.285	0.028
HC	0.595	0.878	0.373	0.086
PE	0.169	0.298	0.062	0.050
TO	0.969	4.468	0.221	0.704
Panel B: *developed countries (26 countries) vs. emerging countries (29 countries)*				
Variable	developed (Mean)	emerging (Mean)	difference	T statistic
EG	0.040	0.119	-0.079	13.658***
COR	2.384	6.107	-3.723	29.726***
Board	5.149	4.598	0.550	12.041***
Audit	5.682	4.691	0.991	18.053***
Protection	5.256	4.261	0.995	16.795***
INV	0.216	0.237	-0.021	5.336***
LG	0.012	0.011	0.001	0.588
HC	0.560	0.627	-0.067	9.394***
PE	0.193	0.148	0.045	11.263***
TO	1.054	0.892	0.162	2.473**

EG (economic growth), COR (corruption), Board (efficacy of corporate boards), Audit (strength of auditing and financial reporting standards), Protection (protection of minority shareholders' interests), INV (investment ratio), LG (labor growth), HC (household consumption), PE (public expenditure), TO (trade openness). *** Significant at 1 percent; ** significant at 5 percent; * significant at 10 percent.

Table 2 Empirical results

Variable	Panel A: developed countries			Panel B: emerging countries		
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
COR	-0.015*	-0.028***	-0.002***	0.009	0.027***	0.029***
	(-1.89)	(-4.29)	(-3.44)	(1.06)	(4.43)	(5.57)
COR*Board	0.003*			0.001		
	(1.77)			(0.83)		
COR*Audit		0.006***			-0.003**	
		(4.22)			(-2.48)	
COR*Protection			0.004***			-0.004***
			(3.35)			(-3.87)
INV	0.304***	0.331***	0.350***	0.394***	0.421***	0.463***
	(6.14)	(6.96)	(7.14)	(4.19)	(4.55)	(5.02)
LG	0.365***	0.358***	0.341***	-0.055	-0.405***	0.039
	(3.88)	(3.95)	(3.68)	(-0.33)	(-3.77)	(0.244)
HC	-0.049**	-0.063***	-0.068***	0.016	0.043	0.057
	(-2.01)	(-2.63)	(-2.74)	(0.40)	(1.00)	(1.36)
PE	-0.045	-0.051	-0.043	-0.448***	-0.405***	-0.493***
	(-1.04)	(-1.23)	(-1.01)	(-4.12)	(-3.77)	(-4.65)
TO	0.002	0.001	0.002	-0.020	-0.011	-0.013
	(1.09)	(0.57)	(1.00)	(-1.57)	(-0.85)	(-1.08)
Adjusted R^2	0.26	0.30	0.28	0.17	0.19	0.22

Dependent variable: EG (economic growth). COR (corruption), Board (efficacy of corporate boards), Audit (strength of auditing and financial reporting standards), Protection (protection of minority shareholders' interests), INV (investment ratio), LG (labor growth), HC (household consumption), PE (public expenditure), TO (trade openness). The t-statistics are given in parentheses. *** Significant at 1 percent; ** significant at 5 percent; * significant at 10 percent. The observations for the entire sample, developed group, and emerging group are 495, 234, and 261, respectively.

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