

Antecedents and Consequences of Earnings Opacity:
Toward an International Contingency Theory

Ahmed Riahi-Belkaoui
College of Business Administration (M/C 006)
University of Illinois at Chicago
601 S. Morgan St.
Chicago, IL, 60607

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Abstract: This paper assumes that the phenomenon of earnings opacity internationally is not only the result of legal, religious, political, social, economic and accounting antecedents but also creates consequences for the quality of government, corporate valuation, economic growth and productivity of nations. The examination of the empirical relations between earnings opacity and its antecedents and consequences is viewed as a first step toward the development of an international contingency theory of earnings opacity.

Antecedents and Consequences of earnings Opacity: Toward an International Contingency Theory

1. Introduction

The quantity and quality of accounting information is crucial to economic and human development internationally (Belkaoui and Masky, 1985; La Porta et al., 1999; Riahi-Belkaoui, 1995, 1996, 1998, 1999). The major threat to the quality of information is the phenomenon of earnings opacity. This may be easily defined as the measure that reflects how little information there is in a firm's earnings number about its true, but unobservable, economic performance (Bhattacharya et al., 2002). The variations in earnings opacity internationally suggest the presence of local factors that act as major determinants of its level and change, as well as the potential of affecting local economic, market, and governmental conditions that define the well-being of a country. Accordingly, this paper assumes that the level of earnings opacity internationally is not only the result of legal, religious, political, economic, social and accounting antecedents but also the determinant of consequences for the quality of the government, the productivity of nations, corporate valuation, and economic growth. To validate these assumptions, the paper presents empirical evidence on the relations between earnings opacity and a set of antecedents and consequences as a first step toward the development of an international contingency theory of earnings opacity. In what follows, section 1 defines the concept and measurement of earnings opacity. The antecedents and consequences of earnings opacity are introduced in section 2. Empirical evidence on antecedents and consequences is presented respectively in sections 4 and 5. Section 6 presents a summary and conclusions.

2. Earnings Opacity: Concept and Measurement

The quality of accounting in a given country is measured by three dimensions of earnings opacity—*earnings aggressiveness, loss avoidance, and earnings smoothing*—where opacity is viewed as a complex interaction between the three factors of managerial motivation, accounting standards, and the enforcement of accounting standards (audit quality) (Bhattacharya et al. 2002). The level of earnings is opaque because: a) the motivation of managers to manipulate earnings, b) the accounting standards are either loose or just bad, and c) the enforcement is lax. The three measures of earnings opacity derived from the study by Bhattacharya et al. (2002) are explained and measured as follows:

1. Earnings aggressiveness, the opposite of accounting conservatism, results from the tendency of managers to increase reported earnings numbers (to understand these managerial motivations, see, for example Rangan (1998), Teoh et al. (1998), ShivaKumar (2002), Healy (1985), Barth et al. (1999)). Earnings aggressiveness is expected to be positively related to earnings opacity, as it may delay the realization of losses and speed the realization of gains. It is measured at a point in time as the median for country i , year t , of accruals divided by lagged assets. Scaled accruals are defined as

$$ACC_{kt} = (\Delta CA_{kt} - \Delta CL_{kt} - \Delta CASH_{kt} + \Delta STD_{kt} - DEP_{kt} + \Delta TP_{kt}) / TA_{kt}$$

Where

ACC_{kt} = Scaled accruals for firm k , year t

ΔCA_{kt} = Change in total current assets for firm k , year t

ΔCL_{kt} = Change in total current liabilities for firm k , year t

$\Delta CASH_{kt}$ = Change in cash for firm k , year t

ΔSTD_{kt}	=Change in current portion of long-term debt included in total current liabilities for firm k, year t
DEP_{kt}	= Depreciation and amortization expense for firm k, year t
ΔTP_{kt}	=Change in income taxes payable for firm k, year t
TA_{kt}	=Total assets for firm k, year t-1

The higher the median observation of scaled accruals of country i in year t, the higher is the earnings aggressiveness in country i, year t.

2. Loss avoidance behavior is the second measure of earnings opacity following evidence that U.S. firms engage in earnings management to avoid reporting negative earnings (Hayne, 1995; 1999). Loss avoidance is measured by the ratio of the number of firms with small positive earnings minus the number of firms with small negative earnings divided by their sum. The higher this ratio for country i in year t, the higher is the loss avoidance in country i, year t.
3. Earnings smoothing is the third measure of earnings opacity as artificially smoothed earnings fail to depict the swings in underlying firm performance and increase earnings opacity. It is measured by the cross-sectional correlation between the change in accruals and the change in cash flows, both scaled by lagged total assets, in country i, year t. The lower this correlation in country i in year t, the higher are the earnings smoothing in country i, year t.

4. Battacharya et al. (2002) computed these three measures of earnings opacity for a sample of 36 countries for the years 1985 through 1998. An average of the three measures is used in this study as a measure of the earnings opacity and accounting quality for each country.

3. Antecedents and Consequences of Earnings Opacity

Earnings opacity is a pervasive phenomenon internationally. Although it is mainly an accounting phenomenon, it does not necessarily happen in a vacuum and is not without consequences. Basically, what is essentially an accounting phenomenon, is in fact the product of environmental causal factors or antecedents and is certainly the cause for many environmental situations or consequences. That is the essence of a contingency theory of earnings opacity, as the accounting phenomenon is assumed to be the result of specific causes and the reason or motivation for specific consequences. Figure 1 depicts this assumed situation about earnings opacity internationally. These relationships of antecedents to earnings opacity and of earnings opacity to consequences are examined empirically as a first step to the validation of the contingency theory. The antecedents to be tested are:

- a. Law and Religiosity (Riahi-Belkaoui, 2004),
- b. Political Connectedness (Riahi-Belkaoui, 2004),
- c. Corruption (Riahi-Belkaoui, 2004), and,
- d. Elements of social, economic, and accounting order (Riahi-Belkaoui and AlNajjar, 2006)

The consequences to be tested are:

- a. Quality of Government (Riahi-Belkaoui, 2004),
- b. Stock Market Wealth Effect and Economic Growth (Riahi-Belkaoui, 2005),
- c. Productivity of Nations (Riahi-Belkaoui, 2004), and,

d. Investor Protection and Corporate Valuation (Riahi-Belkaoui, 2004),

The measurement of the antecedents, consequences, control variables and the list of countries examined are shown respectively in Tables 1-4.

4. Antecedents of Earnings Opacity Internationally

4.1 Law and Religiosity as Moral Values

Earnings Opacity may be viewed as an international misreporting of the true economic earnings, and as such may be perceived as a less than acceptable practice. As it deviates from the truth, earnings opacity is likely to be viewed as far from ethical from the legal and religious viewpoints. One may argue that the degree of law enforcement and aspects of religiosity are likely to act as a deterrent to earnings opacity.

1. Earnings opacity model

Accounting is a function of its environment (Saudagaran and Meek, 1997; Wallace and Gernon, 1991). This suggests that the technical and social aspects of accounting are intricately linked and that the technical cannot be studied by neglecting the social (Gernon and Wallace, 1995). The technical is expressed by earnings opacity. A particular focus is that the social context is related to the law and religiosity components of the environment. This emphasis can be argued by referring to earnings opacity as a far from correct business behavior and outcome that can only be tempered by the pressures brought by both law and religion. In a sense, it can be argued that fear and/or guilt induced by law or religion lead to a lesser reliance on earnings opacity. Earnings opacity reflects accounting and business cultures that are shaped by the legal and religious environment. Figure 2 indicates the relationships between earnings opacity and the main characteristics of the law and

religiosity environment. The religious environment is depicted by both church attendance and belief in heaven. The legal environment is proxied by the degree of law enforcement.

Each of these relationships is explicated as follows:

- The model posits a negative relationship between earnings opacity and religiosity as expressed by church attendance and belief in heaven.

Religiosity means any shared set of beliefs, activities and institutions premised upon faith in supernatural forces (Iannaccone, 1998). Religiosity differs from culture as it bases its beliefs, activities and institutions on faith while culture bases them on habits and rituals. Religiosity acts as a club, a moulder of behaviour and a key component of systems of beliefs (Greif, 1994). Religious people commonly strive to be truthful. It follows that if earnings management can be framed as a less than truthful outcome of the financial performance, we would expect earnings opacity to be negatively related to aspects of religiosity. However, most theorists have attempted to explain religiosity by the secularization hypothesis (Weber, 1930). According to this hypothesis, economic development causes people to become less religious, as measured by church attendance and certain religious beliefs, and causes organized religion to play a lesser role in political decision making and in social and legal processes (Barro and McCleary, 2003). It follows from the secularization hypothesis that earnings management would not be affected by religiosity. This study's suggested hypothesis of a negative relationship between earnings opacity and religiosity as expressed by church attendance and belief in heaven is an attempt to reject the secularization hypothesis. Church attendance and belief in heaven are chosen as aspects of religiosity as the first is considered an input of religion and the second is considered an output of religion.

- The model posits a negative relationship between earnings opacity and the degree of law enforcement.

The rule of law was first seen as comprising three fundamental characteristics:

- the supremacy of law as opposed to arbitrary power, i.e., the rule of law, not men
- equality before the law of all persons and classes, including government officials
- the incorporation of constitutional law as a binding part of the law of the land (Dicey, 1915).

The rule of law is assumed to have the beneficial consequence of producing both individual freedom and economic prosperity and to place inherent limitations on the size and scope of government intrusiveness in the economy and civil society. The rule of law requires that individuals be able to practically conform their behavior to the laws. In most countries the rule of law translates into a degree of law enforcement. In the context of a strong degree of law enforcement, managers feel more pressure to present information that is truthful, and therefore, resort to less opportunistic choices of accounting techniques, resulting in lower levels of earnings opacity. We predict that the degree of law enforcement predisposes to a lower level of earnings opacity.

2. Results and Discussion

To examine the determinants of earnings opacity, the following regression equation was used:

$$OEO_i = \alpha_0 + \alpha_1 LPCGNP_i + \alpha_2 MCA_i + \alpha_3 BIH_i + \alpha_4 DLE_i + \mu_i$$

where:

OEO_i = Overall earnings opacity measure for country i

$LPCGNP$ = Log per capita GNP for country i

MCA = Monthly church attendance

BIH = Belief in heaven

DLE = Degree of law enforcement

Table 5 presents results regarding the impact of the selected variables on earnings opacity.

The results and discussions are presented as follows:

- The degree of law enforcement is negative and significant ($t = -2.77$, $p = 0.001$). This is in conformity with the thesis that the high degree of law enforcement and the resulting increase in legal monitoring makes it necessary to follow the rule of law, which decreases insiders' incentives to hide their rent-seeking activities and henceforth the level of earnings opacity. The end result is that the higher the degree of law enforcement, the lower the earnings opacity in a given country. The major input of law—the degree of law enforcement—acts as a deterrent of the opportunistic use of accounting techniques in earnings management internationally.
- The level of church attendance is negative and significant ($t = -2.732$, $p = 0.05$). This is in conformity with the thesis that church attendance as an aspect of religiosity may lead individuals to be more truthful in their behavior and actions, which decreases insiders' incentives to hide their rent-seeking activities and henceforth the level of earnings opacity. The main result is that the higher the church attendance, the lower the earnings opacity in a given country. This major input of religiosity—church attendance—also acts as a deterrent of the opportunistic use of accounting techniques in earnings management. It appears that the act of belonging as expressed by church attendance reduces the level of earnings opacity internationally.

- Belief in heaven is positive but insignificant. This is not in conformity with the thesis that belief in heaven as an aspect of religiosity may reduce earnings opacity. It appears that the act of believing has no impact on earnings opacity. The act of belonging rather than the act of believing acts as a deterrent of earnings opacity. The results on both church attendance and belief in heaven can also be used to reject the secularization hypothesis.

4.2 Political Connectedness

While earnings opacity may just be viewed as a technical accounting matter, its excesses may be connected by the enforcement of laws. This calls for two possibilities:

- a. Where the enforcement of laws may not work effectively, as in the case of political connectedness of firms that benefit from government-created rents and protection. In this case of political connectedness, management may feel more empowered to be aggressive in their choices of accounting methods leading to a higher level of earnings opacity.
- b. Where the enforcement of laws may work even with instances of political connectedness as in the presence of market discipline. Where the percentage of market capitalization of connected firms is high, a lower level of earnings opacity may be expected, as better accounting quality may be required by market participants.

1. Earnings Opacity Model Based on Political Connectedness

The political analyses of accounting [e.g. Miller, 1990; Arnold, 1991] argue that the technical and political aspects of accounting are intricately linked in the sense that the technical cannot be studied by neglecting the political (Burchell et.al. 1980; Stulz and Williamson, 2001). In the context of this study, the technical is expressed by earnings

opacity and it can only be studied in the total political context. It stems from a contingency theory of accounting that argues that accounting and its phenomenon are a function of its environment in general and the political environment in particular. (Gernon and Wallace, 1995, 1995; Wallace and Gernon, 1991). Applied to the context of this study, earnings opacity arises essentially from the political culture and environment in a particular country. Figure 3 indicates the hypothesized relationships between earnings opacity and the main characteristics of the political environment. The political environment is depicted by a) the percentage of politically connected firms, b) the connected firms as percentage of market capitalization, and c) the degree of law enforcement. Each of these relationships is explicated as follows:

1. The model posits a positive relationship between earnings opacity and the percentage of politically connected firms in a given country. Political connectedness of a firm is generally defined by the fact that a large shareholder (holding at least 10% of the votes) or top directors (i.e., CEO, president, vice-president or secretary) is a member of parliament, a minister (including the prime minister), or the Chief of the State (i.e., dictator, president, King or Queen), or is “closely-related” to a top politician. (Faccio, 2002). The situation, known as “crony capitalism”, implies that the dominant political leaders use their power to the advantages of their families and friends, individuals or firms, who benefit from government-created rents. It amounts to a form of capitalism in which politicians channel resources toward favored and connected firms, distorting incentives, misallocating investments, and increasing the extent of corruption (Shleifer and Vishny, 1994). The significance of the benefits extracted by connected firms is

supported both in the U.S. (i.e., Agrawal and Knoeber, 2001; Ang and Boyer, 2000; Knozner and Stratmann, 1998; Roberts, 1990) and abroad (Fishman, 2001; Hellman, Jones and Kaufmann, 2000; Johnson and Milton, 2002). Faccio (2002) finds that connected companies enjoy easier access to debt financing, lower taxation and stronger market power. However, in spite of these significant benefits, Faccio (2002) finds that connected firms underperform their peers on an ex-ante basis. The end result of this situation is the potential for more aggressive opportunism from managers of politically connected firms in the form of shirking and sharking (Orts, 1958), and managerial rent-seeking (Edlin and Stiglitz, 1997; Shauer, 2000). The increase in opportunism also has important economic consequences (Gallabero and Hammon, 1998). To camouflage their bad performance and feeling empowered by their political connectedness, managers will likely resort to more alternations of firms' reported economic performance leading to an increase in earnings opacity.

2. The model posits a negative relationship between the connected firms as a percentage of market capitalization and the level of earnings opacity. The principal-agent conflict between the firm's insiders and its outside investors suggests that insiders are more inclined to mask firm performance to minimize outsider and/or legal intervention and/or to present a financial picture that can be deemed as financially attractive by outsiders. This "camouflage" activity is at the essence of the concepts and techniques of earnings opacity. The main private gain is the weakening of outsiders' ability to monitor and discipline insiders as a result of information asymmetries between insiders and outsiders created by earnings opacity. The only resources left to outsiders are to a) write contracts that confer them rights to discipline insiders (e.g. to replace managers),

and/or b) to vote with their feet and reinvest their capital on less earnings management prone firms. Both actions are more likely to depend on the level of market capitalization. Firms in general, and politically connected firms in particular, are more likely to be scrutinized by outsiders on all aspects of their activities, including the level of accounting quality they provide. One may argue that earnings opacity will be more widespread in countries where the politically connected firms have a low market capitalization.

3. The model posits a negative relationship between the degree of law enforcement and earnings opacity. The degree of law enforcement was first seen as comprising three fundamental characteristics: (1) the supremacy of regular law as opposed to arbitrary power, i.e., the rule of law, not men; (2) equality before the law of all persons and classes, including government officials; and (3) the incorporation of constitutional law as a binding part of the ordinary law of the land (Dicey, 1915).¹ Law enforcement requires that individuals and firms be able to practically conform their behavior to the laws. Therefore, managers of firms, including politically connected firms, feel the legal pressure to present information compatible with the law and degree of law enforcement. The higher the degree of law enforcement, the less likely managers will resort to opportunistic choices of accounting techniques, resulting in lower levels of earnings opacity. The prediction in this study is that the degree of law enforcement predisposes to a lower level of earnings opacity.²

2. Results and Discussion

To determine the impact of political connectedness, market capitalization of connected firms, and degree of law enforcement on earnings opacity internationally, the following regression was used:

$$OEO_i = \alpha_0 + \alpha_1 PCLF_i + \alpha_2 CFMC_i + \alpha_3 DLE_i + U_i$$

where:

OEO_i = Overall earnings opacity measure for country i

$PCLF_i$ = Percentage of politically connected listed firms

$CFMC_i$ = Connected firms as percentage of market capitalization

DLE_i = Degree of law enforcement

Table 5, column 1, presents results on the impact of the selected variables on earnings opacity. The results and discussions are presented as follows:

1. The impact of the percentage of connected listed firms is positive and significant level. ($t = 2.01$, $p = 0.05$). This is in conformity with our thesis that the high level of political connectedness leads to more managerial opportunism in general and an increase in earnings opacity. Managers of politically connected firms feel more empowered to hide their rent-seeking activities and henceforth the level of earnings opacity.
2. The impact of the connected firms as a percentage of total market capitalization is negative and significant ($t = -0.037$, $p = 0.05$). This is in line with a “diversion” thesis whereby insiders are more inclined to provide better quality accounting and less earnings opacity as the likelihood of outsiders scrutinizing their activities is higher with high market capitalization of the connected firms.

3. The impact of the degree of law enforcement is negative and significant ($t = -4.96$; $p = 0.01$). This is very much in line with the thesis that the higher degree of law enforcement and the implied penalties for failing to meet the legal requirements predispose to a lower level of earnings opacity.

The model is also expanded to investigate the potential impact of accounting order. The accounting order is measured by the following three variables

- a. The relative number of auditors as a proxy for the demand for auditing discipline
- b. The amount of financial disclosure in a country as a proxy for accounting transparency
- c. The adoption of International Accounting Standards (IAS) as a proxy for demand for international accounting harmonization.

The model is also expanded by adding a dummy variable for the legal system (common law 1; civil law 0), and economic growth, measured by the real growth of GDP for 10 years.

The results of the expanded model in column 2 of Table 5 show that all the new variables added were insignificant and did not contribute to the original model. It seems that the manifestation of opportunistic use of accounting techniques, resulting in the level of earnings opacity observed is independent of the quality of accounting order, the nature of the legal system and the economic growth rate.

4.3 Corruption

The major premise of this section of the paper is that the level of corruption existing in a particular country is a major determinant of the level of earnings opacity as the illegal rents created by corruption need to be at most “camouflaged,” and that is most feasible with earnings management. Accordingly, this section investigates whether the level of corruption in a given

country affects earnings opacity in general or its components, namely, earnings aggressiveness, loss avoidance, and income smoothing.

1. Earnings Opacity and Corruption

Corruption exists in all societies and has a definite negative influence on investment, growth and the political behavior of citizens (Easterly & Levine, 1997; Ehrlich & Lui, 1999; Kaufman et al., 1999; Knack & Keefer, 1995). It has been defined as the misuse of public or business office for private gain. The general consequences of corruption are the thwarting of growth and investment (Mauro, 1995), and the creation of a serious obstacle to attempts to consolidate democratic institutions and open market economies (Schleifer, 1997; Schleifer & Vishny, 1993). One consequence largely ignored in the economic and accounting literature is the impact of corruption on the quality of accounting. The premise of this study is that the lack of corruption will decrease earnings opacity, used as a measure of the quality of accounting. Two arguments may be used to justify this thesis of a negative relationship between the lack of corruption and earnings opacity as follows:

- (1) Corruption is the misuse of a public or business office for private gains. It involves transfer payments from bribe players to bureaucrats or business people. In a world in which the actions of a policy maker or bureaucrat (as well as their consequences) are only partly observable to citizens, the former have incentives to appropriate parts of the latter's income. This rent seeking behavior needs to be as "hidden" as possible and therefore needs a system of accountability flexible enough to "camouflage" the actions and consequences of corruption. It amounts to the need for a lower quality accounting for manufacturing a higher level of corruption.

(2) Corruption creates an unethical atmosphere that forces individuals to accept the appropriation of other people's income as acceptable. The low level of corporate ethics, resulting from corruption, extends easily to other activities involving the collection and dissemination of information in general and accounting information in particular. One would expect a low quality of accounting from a country that tolerates or fails to reduce corruption.

The two arguments imply that the level of accounting quality is a direct result of the level of corruption. One obvious manifestation of a low level of accounting quality is the high level of earnings opacity (Bhattacharya et al., 2002). Earnings opacity, like earnings management, may be defined as the alteration or design of a firm's reported economic performance by insiders to either "mislead some stakeholders" or "to influence contractual outcome" (Healy & Wahlen, 1999). It is conditional on the level of corruption prevailing in a particular country. Accordingly, to estimate the causes of variations in earnings opacity, we use the following regression model:

$$\text{Earnings Opacity Index} = \alpha_0 + \alpha_1 \text{ lack of corruption index} + \alpha_3 \text{ control variables} + \varepsilon_1 \quad (1)$$

The model assumes a negative relationship between the level of earnings opacity and the level of the lack of corruption in a given country.

The following stack of control variables is introduced to test the robustness of our measures:

- (1) "Economic Development," measured through the log of gross national product.
- (2) "Human Development," measured by the U.N. Human Development Index (HDI) for 1998.
- (3) "Size of Government,"

(4) “Economic Freedom.”³

The regression model in Eq. (1) was used to develop the following five models for estimating earnings opacity:

$$\text{Earnings Opacity Index}_{\text{EAG}} = B_0 + B_1\text{CORR} \quad (3)$$

$$\text{Earnings Opacity Index}_{\text{LA}} = B_0 + B_1\text{CORR} \quad (4)$$

$$\text{Earnings Opacity Index}_{\text{ES}} = B_0 + B_1\text{CORR} \quad (5)$$

$$\text{Earnings Opacity Index}_{\text{AVR}} = B_0 + B_1\text{CORR} \quad (6)$$

Where: EAG = earnings opacity as measured by earnings aggressiveness; LA = earnings opacity as measured by loss avoidance; ES = earnings opacity as measured by earnings smoothing; AVR = average of EAG, LA, and ES; CORR = indicator of subjective perceptions of public corruption.

$$\text{Earnings Opacity Index} = B_0 + B_1\text{CORR} + B_2\log\text{GNP} + B_3\text{HDI} + B_4\text{EFI} + B_5 \frac{\text{GE}}{\text{GDP}} \quad (7)$$

where: log GNP = measure of economic development; HDI = United Nations Human Development Index; EFI = Economic Freedom Index; GE/GDP = size of government as measured by government expenditures/GDP.

The first four models were used to test individual measures of earnings opacity based on earnings aggressiveness (EAG), loss avoidance (LA), earnings smoothing (ES), and the average of EAG, LA, and ES (AVR). The fifth model was used to test an overall measure of earnings opacity adding the control variables log GNP, HDI, EFI, and GE/GDP to CORR as dependent variables.

2. Results and Discussion

The results for model 1 through 4 are shown in Table 7. These results show that the individual earnings opacity measures based on earnings aggressiveness (EAG), loss

avoidance (LA), earnings smoothing (ES), and average earnings opacity (AVR), have a significant negative relationship with the lack of corruption variable with an R^2 ranging from a low 12.7% in the case of loss avoidance to a high of 27.83% in the case of the average earnings opacity. As hypothesized, the earnings opacity is negatively related to the lack of corruption in a given country.

Model 5 introduces the four control variables to assess the robustness of the previous results. Economic development as measured by log GNP, economic freedom as measured by an index of economic freedom, and size of government as measured by the level of government expenditures/GDP have a negative and statistically significant relationship with earnings opacity indicating that the quality of accounting is increasing in the size of the economy, the level of economic freedom, and the size of the government. However, human development as measured by the UN Human Development Index has a positive and significant relationship indicating that the quality of accounting is decreasing in human development. Model 5 registers a high R^2 of 40.98%. The F statistics for the five models range from a low of 5.83 to a high of 14.98. The RESET (regression specification error list) as suggested by Ramsey (1969) and Thursby (1981,1985), and the Hausman test as suggested by Hausman (1978), were also used as specification tests. The results of the RESET test, used to check for omitted variables, incorrect functional form, and non-independence of regressors, show that the model used in this study was not mis-specified.

4.4 Elements of Social, Economic and Accounting Order

1. Earnings Opacity Model

The socio-cultural and organizational analyzes of international accounting [e.g. Burchell et al., 1980; Hopwood, 1983] argue that the technical and social aspects of accounting are intricately

linked in the sense that the technical cannot be studied by neglecting the social (Gernon and Wallace, 1995, p.58). In the context of this study, the technical is expressed by earnings opacity and it can only be studied in the total social context. The contingency theory approach offers a systematic approach toward the conceptualization of the economic, social and accounting variables which may have a significant bearing on the differences in earnings opacity internationally. It stems from the general theory that accounting and its phenomena are a function of its environment (Saudagaran and Meek, 1997; Wallace and Gernon, 1991). Applied to the context of this study, earnings opacity arises from the accounting and business cultures that are shaped by the economic, social and accounting environment in particular country. Figure 4 indicates the relationships between earnings opacity and the main characteristics of the economic, social and accounting environment. The economic environment is depicted by the economic growth and the economic freedom variables. The social world is depicted by the rule of law, the level of corruption and the quality of life variables. Finally, the accounting world is depicted by the level of reporting disclosure, the number of auditors and the adoption of international accounting standards. Each of these relationships is explicated as follows:

1. The model posits a positive relationship between earnings opacity and economic order as expressed by economic growth and economic freedom variables.
 - a. Economic growth creates not only opportunities for firms with good investment opportunity sets but also more competition. The increase in competition raises the probability of liquidation, may reduce the firm's profits and make high managerial effort less attractive (Schmidt, 1997; Hermalin, 1992; Scharfstein, 1998). The end result is the potential for more opportunism from managers in the form of shirking

and sharking (Orts, 1998), managerial rent-seeking (Edlin and Stiglitz, 1997; Shauer, 2000), and demands for golden parachutes (Falaschelti, 2002). The increase in opportunism has not only important economic consequences (Gaballero and Hammom, 1998) but also specific effects on the cash compensation of executives (Matolcsy, 1999). It will likely lead to more alteration of firms' reported economic performance by insiders and an increase in earnings opacity.

- b. The model posits a potential relationship between economic freedom and the level of earnings opacity. The principal-agent conflict between a firm's insiders and its outside investors suggests that insiders are more inclined to mask firm performance to minimize outsider and/or legal intervention and /or to present a financial picture that can be deemed as financially attractive by outsiders. This "camouflage" activity is at the essence of the concepts and techniques of earnings opacity. The main private gain is the weakening of outsiders' ability to monitor and discipline insiders as a result of information asymmetries between insiders and outsiders created by earnings opacity. The only resources left to outsiders are to a) write contracts that confer them rights to discipline insiders (e.g. to replace managers), and/or b) to vote with their feet and reinvest their capital on other less earnings management prone firms. Both actions are more likely to depend on the level of economic freedom. The level of economic freedom is found to cause economic growth and to facilitate the exercise of human and economic rights (Ali, 1977; Farr and Wolfenberger, 1988). Therefore, earnings opacity activities in the context of economic freedom call for two competing hypotheses as follows:

1. One may argue that earnings opacity will be more widespread in countries with a low level of economic freedom. This “diversion” hypothesis is based on the thesis that insiders are more inclined to mask firm performance as the likelihood of outsiders exercising their economic rights is low.
 2. Similarly, one may argue that earnings opacity will be more widespread in countries with a high level of economic freedom where greater expected penalties are possible. This “penalty” hypothesis is based on the thesis that the higher penalties existing in countries with a high level of economic freedom motivate insiders to hide their rent seeking activities.
2. The model posits a potential relationship between earnings opacity and the social environment as expressed by the rule of law, the level of corruption and the quality of life variables.
- a. The rule of law was first seen as comprising three fundamental characteristics: (1) the supremacy of regular law as opposed to arbitrary power, i.e., the rule of law, not men; (2) equality before the law of all persons and classes, including government officials; and (3) the incorporation of constitutional law as a binding part of the ordinary law of the land (Dicey, 1915).⁴ The rule of law is assumed to have the beneficial consequence of producing both individual freedom and economic prosperity and to place inherent limitations on the size and scope of government intrusiveness in the economy and civil society. The rule of law requires that individuals be able to practically conform their behavior to the laws. However, in most countries the laws enacted for economic regulation of businesses create unnecessary burdens and accentuate the difficulty of doing business within the law

(De Soto, 2000). In these contexts, managers feel more pressure to present information compatible with the excessive laws, and therefore, resort to opportunistic choices of accounting techniques, resulting in higher levels of earnings opacity. The prediction in this study is that the rule of law predisposes to a higher level of earnings opacity.

- b. The main result of ineffectiveness of government is the existence of corruption. Corruption is the misuse of the public offices for private gain. It involves transfer payments from bribe players to bureaucrats. In a world in which the actions of a policy maker or bureaucrat (as well as their consequences) are only partly observable to citizens, the former have incentives to appropriate parts of the latter's income (Adsera et al. 2001). This rent seeking behavior made possible by and/or calls for "manipulating" the accountability measures used to evaluate the bureaucrat. Corruption appears as the result of a low level of accountability and accounting quality maintained in a particular country. Earnings opacity, a result of earnings management process, implies a low level of accountability and accounting quality. As a result, both managers in private firms and bureaucrats in public office benefit from the low accountability situation and the lack of transparency to engage in rent seeking behavior. Basically, insiders (i.e., managers and controlling stakeholders) engage in earnings management to mask their diversion and rent seeking activities from outsiders (Leuz, Nanda and Wysocki, 2001).
- c. Accounting quality in general and earnings opacity in particular is a "good" created by the firm with the intent of influencing investor market and societal behavior. A question needs to be answered: "Is the quality of accounting an ordinary

consumption good which managers should be free to select at will, or is it in some important sense a true ‘public good’?”⁵ I maintain that the quality of accounting is both a consumption good for investors and a public good for everyone else. The society as a whole has an interest in ensuring the quality of accounting because everyone experiences the impact on their affairs and henceforth on their quality of life. Thus, having chosen a certain level of quality of life, a society will demand an appropriate level of accounting quality. This study advances the thesis that quality of life is negatively related to earnings opacity. The higher is the level of earnings opacity, the lower is the level of quality of life.

3. The model posits a potential relationship between earnings opacity and accounting order. The accounting order is expressed by three variables: a) the amount of public financial disclosure in a country as a proxy for accounting transparency, b) the relative number of auditors as a proxy for the demand for auditing discipline, and c) the adoption of international accounting standards (IAS) as a proxy for demand for international accounting harmonization. Briefly, the model uses the empirical findings of related research to posit that earnings opacity will be decreasing in disclosure level, number of auditors and adoption of IAS (Saudagaran and Meek, 1997; Wallace and Gernon, 1991; Gernon and Wallace 1995).

2. Quality of Life

Three known approaches are used to construct a composite index of the quality of life: a) the Borda rules, b) the Copeland rules and c) the Paul Rues (Borda, 1785; Copeland, 1951; Paul, 1988; 2002). They are as follows:

A. The Borda score of country i is given by

$$S_i = \sum_{k=1}^m S_i^k = \sum_{k=1}^m (n - a_i^k)$$

Where a_i^k is rank order of country i in respect of attribute k . A country performing best is given a rank of 1 and the one with worst performance is given a rank of n . On each attribute k a country which is performing best gets a score of $n-1$, performing second best gets a score of $n-2$, and so on until the worst performing country gets a score of zero. The scores are summed for all the attributes resulting in a Borda score for each country. These scores are then ranked to lead to a measure of quality of life based on the Borda rules. (Sen, 1981; Dasgupta and Weale, 1992).

B. The Copeland rule ranks countries by their Copeland scores based on the majority criterion. If for a majority of attributes, the country i performs better than j , i is given a score of 1. If for majority of attributes, the country j performs better than i , i is given a score of -1. A tie leads to a score of zero. The sum of all the scores when i has compared with every j ($J \neq i$) results in the Copeland score for i , i.e.

$$S_i = \sum_{j \neq i} S_{ij}$$

where

$$\begin{aligned} S_{ij} &= 1 \text{ if } a_i^k < a_j^k \text{ for a majority of } k \\ &= -1 \text{ if } a_i^k > a_j^k \text{ for a majority of } k \\ &= 0 \text{ if a tie occurs.} \end{aligned}$$

C. The Paul rule (1998; 2002) uses the following scoring function:⁶

$$\begin{aligned} S_{ij}^k(a_i^k, a_j^k) &= a_j^k - a_i^k \text{ if } a_i^k < a_j^k \\ &= 0 \text{ if } a_i^k \geq a_j^k \end{aligned}$$

Summing over all j gives the score of country i in respect of attribute k, and summing over all the attributes gives the total score of country i:

$$S_i = \sum_{k=1}^m S_i^k(a_i^k) = \sum_{k=1}^m \sum_{j=1}^n S_{ij}^k(a_i^k, a_j^k)$$

The countries are then ranked on the basis of their final score with the highest score ranking first. The three rules are used by Paul (2002) for an international comparison of the quality of life of 109 countries based on 9 important attributes of well being: a) per capita GDP, b) life expectancy in birth (years), c) adult literacy rate (percentage), d) infant mortality rate (per 1000), e) number of people per doctor, f) radios and televisions per 100 people, g) telephones per 100 people, h) index of political liberties and i) index of civil liberties. The rankings provided by Paul (2002) are used in this study as alternative measures of quality of life.

3. Results and Discussion

To examine the determinants of earnings opacity, the following regression equation was used:

$$OEO_i = \alpha_0 + \alpha_1 RO L_i + \alpha_2 AU_i + \alpha_3 DISC_i + \alpha_4 IAS_i + \alpha_5 EF_i + \alpha_6 EG_i + \alpha_7 Qualityoflife_i + M_i$$

Where:

OEO_i = Overall earnings opacity measure for country i

RO L_i = Rule of law score for country i

AU_i = Auditors per 100,000 population

DISC_i = Disclosure level from the Center for International Financial Analysis and Research

IAS_i = Dummy variable for IAS use by a country i.

EF_i = Economic freedom score for country i

EG_i = Average annual growth of GDP per capita over the 1985-1998 period

Quality of Life i = Quality of life for country i measured as

- a) PR, using the Paul rules
- b) BR, using the Borda Rules, and
- c) CR, using the Copeland rules

Table 8 presents results regarding the impact of the selected variables on earnings opacity.

The results do not differ between model 1, 2, and 3 where quality of life is measured either by the Paul rules, the Borda rules and the Copeland rules. The results will be discussed using the statistics provided in column 1 of table 7. The results and discussion are as follows:

1. The impact of the rule of law is positive and significant ($t = 3.58$, $p = 0.01$). This is in conformity with our thesis that the high level of the rule of law and the resulting increase in regulation make it difficult to conduct business, to innovate and to meet profit targets, which increase insiders' incentives to hide their rent-seeking activities and henceforth the level of earnings opacity (De Soto, 2000).
2. The impact of the accounting order is positive but insignificant when measured by the number of auditors ($t = 1.06$), the level of disclosure ($t = 0.11$), and the adoption of IAS ($t = 0.87$). It seems that the manifestation of opportunistic use of accounting techniques, resulting in the level of earnings opacity observed, is independent of the quality of accounting order in terms of a) the amount of public financial disclosure as a proxy of accounting transparency, b) the number of auditors as a proxy for demand for auditing, and c) the adoption of IAS as a measure of accounting harmonization with the rest of the world.
3. The impact of economic freedom is negative and significant ($t = 3.85$, $p = 0.01$). Given that economic freedom is higher with higher scores, the results indicate that earnings

opacity is more widespread in countries with a low level of economic freedom. This is in support of the “diversion” hypothesis whereby insiders are more inclined to mask firm performance as the likelihood of outsiders exercising their economic rights is low.

4. The impact of economic growth is positive and significant ($t = 1.99$, $p = 0.10$). The results are in line with the thesis that the opportunism created by a more competitive environment, resulting in more alteration of firms’ reported economic performance by insiders and an increase in earnings opacity.
5. The impact of the quality of life is negative and significant ($t = 2.19$, $p = 0.05$). Given that the quality of life is rank ordered, the results are in line with thesis that the higher level of accounting quality attained in a country, the higher is the demand for accounting quality and the lower is the earning opacity. Accounting quality is a public good that is sought by countries seeking to preserve a given quality of life.
6. The impact of corruption is negative and significant ($t = 2.19$, $p = 0.05$). Given that the measure used reflects lack of corruption, the results are in line with thesis that the higher is the level of corruption in a country, the higher is the level of earnings opacity. Basically, management benefits from the low accountability created by earnings opacity to engage in rent seeking behavior and corruption.

The results of table 8 rely on White’s (1980) adjusted standard error estimates to deal with heteroscedasticity. The Wald test for joint significance is reported in the table. In addition, for the three regressions used, there is no evidence of serious multicollinearity among the independent variables. The RESET (regression specification error test) as suggested by Ramsey (1969) and Thursby (1981, 1985) and the Hausman test (1978), as suggested by Wu (1973) and Hausman (1978), were used as specification tests. The results

of the RESET test, used to check for omitted variables, incorrect functional form, and nonindependence of regressors, show that the models used in this study are not misspecified (see diagnostic check statistics in Table 8).

5. Consequences of Earnings Opacity Internationally

5.1 Quality of Government

The quality of government refers to good government performance. Government performance can be measured using, for example, measures of government intervention, public sector efficiency, public good provision, size of government, and political freedom as in La Porta, Silanes, Shleifer and Vishny (1999), or using measures of political accountability as in Adsera, Boix, and Payne (2001). Whatever the measures used, there is strong evidence of different government performances among countries calling for research on the possible determinants of the quality of government. Previous research relied on three theories of determinants of institutional and more specifically government performance: economic, political, and cultural (La Porta et al., 1999). Each of these theories can provide theoretical and empirical validation for the choice of the determinants of the quality of government (North, 1981; Landes, 1998; Ohlson, 1993). A variable that may serve as a basis for the success of the cultural, political and economic determinants is the quality of information in general and the quality of earnings in particular. Briefly, an accounting order generating quality earnings information is essential to the cultural, political and economic order and therefore may play a pivotal role in the setting of government quality. Accounting may provide a clear determinant of the quality of government through the salient role of the quality of earnings generated by economic firms in a particular country. To investigate this accounting relativism to the quality

of government, we investigate the relationship between various measures of government effectiveness and the level of earnings opacity internationally.

1. Quality of Government: An Earnings Opacity Model

Theories of institutional development in general and quality of government in particular fall in three broad categories: economic, political and cultural. (La Porta et al., 1999). The focus is on social efficiency needs in the case of economic theories, redistribution towards powerful groups in the case of political theories, and social beliefs in the case of cultural theories. The main argument of the accounting relativism is that the three theories implicitly assume the positive role of accounting in general and the quality of earnings in particular.

The thesis can be argued as follows:

1. The economic theory of institutions assumes that institutions are efficient (Demsetz, 1967; North, 1981) and contribute to the quality of government. The argument is valid as long as the efficiency of institutions is defined by an accounting order, a high level of quality of accounting information, and an accounting monitoring process (Prakash and Rappaport, 1975). Inefficient institutions are reflected in the lack of quality of accounting information in general and earnings in particular. Therefore, earnings opacity leads to inefficient institutions and to “bad” government.
2. The political theory of institutions argues in general that some group in society becomes powerful enough to shape policies to its own rather than social advantage. The quality of government is then shaped by the ability of these players in extracting rents (DeLong and Shleifer, 1993). To be able to extract rents without affecting political order and create unrest, these players need to “camouflage” their activities. Offering a lower level quality of accounting information in general and earnings quality in particular creates a more

favorable environment to the extraction of rents by influential players, leading to a lower level of quality of government.

3. The cultural theory of institutions argue that good government may be the result of pervasive and persistent beliefs and ideas generally referred to as “culture” (Putman, 1993; Coleman, 1990; Fukuyama 1995; Landes, 1998). For example, Putman’s theory states that trust in strangers facilitates collective action and the provision of public goods, while Landes argues that cultures of intolerance, xenophobia, and close-mindedness may retard development. Accounting relativism may argue that the quality of accounting information and the practice of public and fair disclosure may create a “cultural” environment more conducive to high trust and tolerant societies. In short, the quality of government is a result of cultural factors shaped by the role, importance and quality of accounting information in general and the quality of earnings in particular.

Accordingly, the following hypothesis is proposed:

“The quality of government is negatively related to the level of earnings opacity in a particular country.”

The control variables used include measures for market performance, economic freedom, newspaper circulation, and emerging versus developed countries. These variables are expected to control for economic, political and cultural factors assumed to affect the level of the quality of government.

2. Results and Discussion

Tables 9 to 14 present the results of the regression analyses. Each of these tables includes five models and a two year analysis for each model corresponding to the measurement of the dependent variable in 2001 and 1998.

Model 1 in each of these tables examines the relation between one of the measures of the quality of government and the level of earnings opacity. The results show a strong negative relation between the level of earnings opacity and each of the six measures of the quality of government. These results are in line with the accounting relativism thesis advocated in this paper in the sense that countries that have a high level of earnings opacity, implying a low level of accounting quality, will exhibit a low level of quality in each of six government performance measures used. Basically, countries with low level of earnings opacity and high quality of accounting have more efficient governments in the sense of high voice and accountability, high political stability, high government effectiveness, high regulatory quality, high rule of law and high control of corruption.

Models 2 to 5 include the control variables of market return, economic freedom, newspaper circulation/population and emerging developing countries. Without exception, all these variables introduced separately show a positive and significant impact on each of the six measures of government performances. The negative effect of earnings opacity on the six measures of government performance persists after the inclusion of these control variables.

5.2 Stock Market Wealth Effect and Economic Growth

The marked difference in growth rates among countries raises the empirical question, “What determines the rate of economic growth?” The debate on the question, taking place mainly in the economic literature, produced a variety of explanations ranging from macroeconomic stability, to openness to international trade, institutional development, economic freedom and ethnic diversity (c.f Al Najjar, 2002; Karras, 2002). Research has also considered the impact of the level of accounting disclosure (Ndubizu, 1992; Riahi-Belkaoui, 1995; Larson, 1992). The

research to date has not considered the single or combined effect of stock market wealth and earnings opacity, where earnings opacity is a measure that reflects how little information there is in a firm's earnings number about its true, but unobservable, economic performance (Battacharya, Daouk and Welker, 2001).

Economic research assumes either that stock market wealth effect and earnings opacity, as a measure of accounting quality, are given or that the impact of both variables is inconsequential or both (Talaga and Ndubizu, 1986; Vishwanath and Kaufmann, 1999; Stiglitz, 1975; Demirguc-Kunt and Maksimovic, 1998). We are warranted in using both earnings opacity (as a measure of accounting quality) and stock market performance (as a measure of the wealth effect) because accounting quality affects both stock market performance and overall economic growth (Prakash and Rappaport, 1975; Vishwanath and Kaufmann, 1999). Accordingly, I chose to address this issue by modeling and testing two related questions: 1) How does earnings opacity affect stock market wealth? 2) Is there then a causal link between stock market wealth and economic growth? The results of this empirical study on data from 34 countries indicate that a) earnings opacity is negatively related to stock market wealth and b) The exogenous component of stock market wealth—the component defined by earnings opacity—is positively associated with economic growth. The direct effect of earnings opacity on economic growth was negative but insignificant.

1. Growth Model

The quality of accounting information plays an important role in the workings and efficiency of the capital markets by determining the supply and demand of securities (Prakash and Rappaport, 1975). Figure 5 indicates the relationships between accounting quality, stock

market performance and economic growth. Four links comprise the model. They are explained next:

- A. The first link is between conventional growth determinants and economic growth. Standard growth models and their economic representations typically model real per capita GDP growth, ECG, as a function of a number of growth determinants. These growth determinants universally include initial income and initial level of human development (or education) to capture conditional convergence and the importance of human capital and other relevant variables, such as government expenditures (Levine and Servos, 1998; Levine, 1999).
- B. The second link implies a positive effect of market wealth on economic growth. Various models emphasize that well-functioning financial intermediaries and markets ameliorate information and transaction costs and thereby foster efficient resource allocations, faster efficient resource allocation and hence faster long-run growth (Bencivenga and Smith, 1991; Bencivenga, Smith, and Starr, 1995; King and Levine, 1993). This premise of a positive impact of banks and markets on economic growth is widely and empirically supported (Levine and Zervos, 1998; Arestis Demetriades and Lwintel, 2000; Rousseau and Wachtel, 2000; Atje and Jovanovic, 1993; Harris, 1997; Levine, 2001; Bekaert, Harvey and Lundblad, 2002; Henry, 2000).
- C. The third link implies a negative relationship between earnings opacity and economic growth. Earnings opacity, as a measure of the lack of accounting quality, is assumed to be an important negative determinant of economic growth. This hypothesis is based on the following arguments: (Riahi-Belkaoui, 1995)

- a. Information quality produced by the accounting system serves the economy by allowing for increases in the efficiency of resource allocation among competing interests (Talaga and Ndubizu, 1986; Larson, 1992).
- b. An important element of the efficient capital market is the existence of a sophisticated accounting infrastructure comprised of the facilities of quality information production, the framework of information monitoring, and contract enforcement (Lee, 1987).
- c. Quality of accounting information disclosed stimulates economic growth through its beneficial effect on the efficient capital market allocations of scarce resources (Ndubizu, 1992)
- d. Quality of accounting is vital to the planning, decision making, performance evaluation and data-structuring process of various economic institutions vital to economic growth (Prakash and Rappaport, 1975)
- e. Three alternative perspectives on accounting method choice—the opportunistic behavior, efficient contracting, and information perspectives—may be relevant to the accounting information quality thesis (Hothausen, 1990; Healey, 1985). The efficient contracting hypothesis implies that accounting methods are chosen in order to minimize agency costs among the various parties to the firm, hence resulting in maximizing the value of the firm (Watts, 1977). According to the opportunistic behavior perspective, the same choice allows managers to behave opportunistically to transfer wealth (Watts and Zimmermann, 1978). Finally, the information perspective implies that the accounting methods are selected to provide information about the future cash flows of the firms but do not affect

them directly (Holthausen and Leftwich, 1983). The opportunistic behavior and efficient contracting hypotheses link accounting to cash flows and wealth transfer implying that accounting ultimately affects economic growth. Thus, countries with higher accounting information adequacy in terms of quality may be expected to experience greater economic growth.

D. The fourth link implies a negative relationship between earnings opacity and the characteristics of stock market performance. Evidence on this relationship exists in the pricing of accruals literature (Subramanian, 1996; Bowen, Burghastahler, and Daley, 1987; Dechow, 1994). In the pricing of specific discretionary items, DeAngelo, DeAngelo and Skinner (1993) and De Chow(1994) document that the exclusion of special items improves the ability of earnings to explain returns. An emerging literature also presents international evidence on the relationship between earnings opacity and characteristics of stock market performance. Bhattacharya et al. (2002) document that an increase in earnings opacity is linked to a decrease in trading in the stock market of that country. Bushman and Smith (2001) state that the cross-country differences in earnings opacity can be linked meaningfully to the cross-country differences in economic efficiency and institutional factors. This study extends this research and posits that the negative effect of earnings opacity on stock market performance influences the positive effect of the latter on economic growth. In other words, the exogenous component of the stock market wealth effect—the component defined by earnings opacity—is positively associated with economic growth.

E. A standard growth equation is used in this study (Levine and Servos, 1998; Levine, 1999_). Standard growth models and their economic representations typically model real per capital GNP growth, ECG, as a function of a number of growth determinants. Similarly to other studies, the growth determinants used include initial income and the initial level of human development to capture conditional convergence and the importance of human capital. To control for macroeconomic stability, government expenditures are included as a growth determinant. These variables are measured as follows:

1. Initial income as measured by the log of 1998 per capita GNP.
2. Initial level of human development as measured by the log of 1998 U.N. Human Development Index (United Nations, 2001). It is generally a more realistic measure of human development than mere GNP per head (Riahi-Belkaoui, 2000).
3. Government expenditures are measured by the proportion of government expenditures over gross national product for the 1998-01 period.

2. Earnings opacity as a determinant of market effect

To examine the impact of earnings opacity (a measure of accounting quality) on the stock performance (a measure of wealth effect), the following regression equation was used:

$$LMMR_i = \alpha_0 + \alpha_1 LPGNP + \alpha_2 LDYDG_i + \alpha_3 LODO_i + \mu_i \quad (1)$$

Where

$LMMR_i$ = Logarithm of one plus mean monthly returns scaled by the standard deviation of returns for country i for 1986-98.

$LPGNP_i$ = Logarithm of 1998 per capita GNP for country i

LDYDG_i = Logarithm of one plus mean monthly dividend yield over dividend growth for country i for 1986-98.

LOEO_i = Logarithm of overall earnings opacity measure for country i

Both LPGNP and LDYDG were included in the equation to control for both country size and dividend policies and are expected to be positively significant (Harvey, 1995; Levine, 1999; Asquith and Mullins, 1983; Brickley, 1983; Bhattacharya, 1979). Table 5 presents results regarding the empirical connections between earnings opacity and stock market performance. Consistent with our predictions, countries with higher earnings opacity tend to have lower stock market performance. The coefficient of earnings opacity is equal to -0.1474, has a t-value of -2.14, which is significant at a 0.01 level. The relative impact of earnings opacity is evident by the 8% increase in R² from model 1 to model 2. As predicted, both control variables (LPGNP and LDYDG) are positive and significant.

3. Causality: Earnings Opacity, Stock Market Effect and Economic Growth

The first part of the section examines the impact of earnings opacity on stock market performance. This part of the section uses the earnings opacity as an instrumental variable for stock market performance and examines two research questions: a) Whether the exogenous component of stock market performance is positively associated with economic growth and b) whether earnings opacity also has a direct and negative association with economic growth.

a. *Stock Market Effect and Economic Growth*

The first research question is examined by running the following regression

$$ECG_i = \alpha_0 + \alpha_1 LGNP_i + \alpha_2 LHDI_i + \alpha_3 \frac{LGC}{GDP_i} + \alpha_4 ELMMR_i + \mu_i \quad (2)$$

Where

ECG_i = GNP growth for the 1998-01 period for country i

$LGNP_i$ = Log of 1998 per capita GNP for country i

$LHDI_i$ = Log of 1998 human development index for country i

LGC/GDP_i = Log of government expenditures over GDP for the 1998-01 period for country i

$ELMMR_i$ = Estimated stock market performance from equation (1)

The choice of the 1998-01 period for the measurement of GNP growth is motivated by the thesis that the impact of earnings opacity on economic growth is lagged (Riahi-Belkaoui, 2002; 2003)

As shown in Table 15 the estimated stock market performance enters the growth regression significantly at the 0.01 level. Thus, the data are consistent with the view that the quality of accounting, as measured by earnings opacity, induces improvements in the stock market performance that accelerate economic growth.

b. *Direct Earnings Opacity on Economic Growth*

Equation (2) does not include the hypothesized negative effect of earnings opacity on economic growth. This possible relationship is examined by an extension of equation (2) as follows:

$$ECG_i = \alpha_0 + \alpha_1 LGNP_i + \alpha_2 LHDI_i + \alpha_3 \frac{LGC}{GDP_i} + \alpha_4 ELMMR_i + \alpha_5 LOEO_i + \mu_i \quad (3)$$

Equation (3) extends equation (2) by including the potential direct effect of earnings opacity on economic growth. Table 6 presents results that confirm the earlier findings, namely, that stock market effect has a positive association with economic growth.

However the coefficient of earnings opacity, although negative as expected, is not significant. The data rejects the hypothesis of a significant negative relationship between lack of accounting quality and economic growth. The regression was also run with alternative measures of the financial reporting en lieu of earnings opacity. The results were insignificant with the use of a) the number of auditors per 100,000 population (Sandagaran and Diga, 1997), b) a disclosure level variable (Center for International Financial Analysis and Research, 1995) and c) the extent of compliance with international accounting standards (Choi, Frost and Meek, 1999).

4. Sensitivity Analysis

A first concern in this study is with the choice of a lagged relationship between economic growth and both wealth effect and earnings opacity. The regressions were run again with economic growth measured for the 1985-1998 period to correspond to the same period of measurement of stock market performance and earnings opacity. The results were insignificant in support of the lagged relationship. Similarly, a dummy variable used to distinguish between developed and emerging countries was found to be insignificant for all the regressions used in Tables 5 and 6.

The second concern in this cross-country analysis is with country fixed effects resulting from the omission of an important variable, which is really driving the observed results. Following previous economic growth studies, I included the following explanatory variables to test the robustness to changes in the standard set of economic determinants: a) economic freedom index from *Economic Freedom of the World* (Gwartney, Lawson and Block, 1995), b) estimates of unofficial economy (Friedman, Johnson, Kaufman and Zoido-Lobation, 2000) and c) six basic governance concepts: voice and accountability, political

instability and violence, governmental effectiveness, regulatory burden, rule of law and graft or corruption (Kaufman, Kray and Zoido-Lobatin, 1999). Each of these variables is used to examine the robustness of this study's results by controlling for a) lack of economic freedom, b) level of unofficial economies, and c) governmental effectiveness. Including these additional explanatory variables did not alter this study's findings that a) the exogenous component of stock market development as defined by earnings opacity is positively associated with economic growth, b) and that the direct and negative effect of earnings opacity on economic growth is statistically insignificant.

The results of both Tables 15 and 16 rely on White's (1980) adjusted standard error estimates to deal with heteroscedasticity. The Wald test for joint significance is reported in both tables. In addition, for all the regressions used, there is no evidence of serious multicollinearity among all the independent variables. The RESET (regression specification error test), as suggested by Ramsey (1969) and Thursby (1981, 1985) and the Hausman test (1978), as suggested by Wu (1973) and Hausman (1978), were used as specification tests. The results of the RESET test, used to check for omitted variables, incorrect functional form, and nonindependence of regressors, show that the models used in this study are not misspecified (see diagnostic check statistics in both Tables 15 and 16).

5.3 Productivity of Nations

Productivity, in terms of output per worker, differs from one nation to another. One fundamental challenge of economic research is to explain the large differences in productivity internationally.

Our hypothesis is that differences in output per worker are fundamentally related to differences in earnings opacity across countries. A low earnings opacity as a result of high

accounting quality provides an environment that supports productive activities and encourages capital accumulation, skill acquisition, and technology transfer.

What are the implications of earnings opacity? We believe that the results of this study make a strong case that the ability of accounting quality, resulting from a low earnings opacity, to correctly and fairly portray the output of individual productive units and to reduce opportunistic behavior by management are important. Earnings opacity results from insiders (i.e., managers and controlling shareholders) engaging in earnings management to mask their diversion and rent-seeking activities from workers and outsiders. Accounting is assumed to protect against these activities of diversion, but it all too often constitutes the chief vehicle of diversion in the economy.

Across 34 countries, we find negative association between output per worker and earnings opacity in a given country. Countries with low earnings opacity scores produce much more output per worker.

Important insights into differences in output per worker can also be obtained by fitting a production function (Mankiw et al., 1992; Jones and Hall, 1997). The differences in output per worker among countries are attributed to differences in physical capital, human capital, and productivity. The impact of earnings opacity on capital intensity, human capital per worker and productivity was also significantly negative. Earnings opacity with the addition of control variables explains more than 58% of the variations in output per worker, more than 18% of capital intensity, more than 44% of human capital per worker, and more than 16% of productivity. The analysis of the determinants of differences in economic performance among countries can be summarized as follows:

Output per worker ← (Inputs, Productivity) ← Earnings Opacity

1. Earnings Opacity Model

The main danger to productive activities is predation or diversion. Where predation or diversion are prevalent, the individuals and/or the firms will spend more of their time protecting their assets rather than using them for productive activities. Where diversion is socially controlled, the main benefits are better rewards for producers and more resources devoted to production. The main assumption in the economic literature is that social action through government is essential to the promotion of output per worker (see example, Ohlson, 1965; 1982; Baumol, 1990; North, 1990; Grief and Kandel, 1995; and Weingast, 1995). Theoretical models of equilibrium assume protection against predation is incomplete and workers choose between production and diversion (See for example, Murphy, Shleifer and Vishny, 1991; Acemoglu, 1995; Schrag and Scotchmer, 1993; Ljungqvist and Sargent, 1995; Grossman and Kin, 1996). Poor equilibrium is possible with little payoff for production and high payoff for diversion if enforcement is ineffective. Good equilibrium is possible for high payoff for production and little payoff for diversion if law enforcement is effective (Rapaczynski, 1987). To suppress diversion that takes place in the form of rent seeking, Jones and Hall (1997) advocate the creation of a good social infrastructure, meaning the institutions and government policies that constitute the economic environment within which individuals accumulate skills, and firms accumulate capital and produce output (Jones and Hall, 1997, p. 1). Their empirical results show that a high-productivity country a) has institutions that favor production over inversion, b) has a low rate of government consumption, c) is open to international trade, d) has at least some private

ownership e) speaks an international language, and f) is located in a temperate latitude far from the equator. The essence of the argument is that a favorable social infrastructure helps a country both by stimulating the accumulation of human and physical capital and by raising total productivity.

This study takes the view that accounting equality is an essential element of the social infrastructure. Basically where social actions by government may prove ineffective in dealing and suppressing diversion, accounting quality is paramount in providing the information needed to restore confidence and promote productive activities. Where managers of firms engage in the alteration of firms' reported economic performance to either mislead some stakeholders or to influence contractual outcomes (Healey and Wahlen, 1999), earnings opacity results. With earnings opacity, insiders can camouflage their diversion and rent-seeking activities, and in the process create conditions less favorable to production. Where workers may feel that they are not getting their just rewards as a result of earnings opacity, they may act in non-productive ways. Basically with earnings opacity, poor equilibrium is possible with little payoff for production and high payoff for diversion. This study analyzes the relationship between economic performance and earnings opacity. The main expectation is of negative relationships between earnings opacity and each of the following measures of economic performance: a) output per worker, b) capital intensity, c) human capital per worker and d) productivity. Our analysis of the determinants of differences in economic performance among countries can be summarized as follows:

Output per worker ← (Inputs, Productivity) ← Earnings Opacity

Our analysis is based on a dataset of measures of output per worker, capital intensity, human capital per worker, productivity and control variables in 34 countries.

The dependent variables were based on output per worker from the Summers and Heston data. The output per worker data was decomposed into inputs and productivity based on a Cobb-Douglas approach. The production function in terms of output per worker, Y/L is written as

$$Y / L = \frac{(K_i)^{\alpha(1-\alpha)}}{Y_i} h_i A_i$$

Where: h = H/L = human capital per worker

K_i = the stock of physical capital

H_i = the amount of human capital-augmented labor used in production

A_i = labor-augmenting measure of productivity

$(K/Y)^{\alpha/1-\alpha}$ = Capital intensity

This study used Y/L , H/L , $(K/Y)^{\alpha/1-\alpha}$ and A as the dependent variables denoting respectively output per worker, human capital per worker, capital intensity and productivity.

For the main independent variable of earnings opacity, we rely on the data used by Bhattacharya et al. (2001). They computed three measures of earnings opacity for a sample of 34 countries for the years 1985 through 1988. These measures are as follows:

- a) earnings aggressiveness which results from the tendency of managers to increase reported earnings.

- b) Loss avoidance behavior following evidence that firms engage in earnings management to avoid reporting negative earnings.
- c) Earnings smoothing as artificially smoothed earnings fail to depict the savings in underlying firm performance and increase earnings opacity.

An average of these three measures is used in this study as a measure of earnings opacity. The control variables used include ethnic fractionalization and company law. These variables are expected to control for major aspects that can affect the social infrastructure of a country (La Porta et al., 1999; Jones and Hall, 1997).

2. Regression Results and Discussion

Tables 17-20 present respectively the results of the regression analysis on the impact of earnings and selected control variables on output per worker, capital intensity, human capital per worker, and productivity. Each of the tables includes a column on the sample impact of earnings opacity and a second column that adds the impact of the control variables.

As expected and in conformity with our thesis, the level of earnings opacity in a country has a significantly negative impact on output per worker, capital intensity, human capital per worker and productivity. It also explains more than 39% of the level of output per worker, more than 10% of capital intensity, more than 18% of human capital per worker, and more than 18% of productivity.

The impact of the control variables is mixed. In the case of the level of output per worker, the control variables of ethnic fractionalization and legal origin are significantly

negative. Combined with earnings opacity, they explain 58% of the level of output per worker.

In the case of capital intensity, only the ethnic fractionalization is negatively significant. The control variables, combined with earnings opacity, explain more than 18% of capital intensity.

In the case of human capital per worker, both control variables are negatively significant. Combined with earnings opacity, they explain more than 44% of the level of human capital per worker.

In the case of productivity, the control variables are not significant. The negative impact is restricted to earnings opacity.

The basic results as reported in Tables 17-20 support our hypothesis that a low earnings opacity is critical to economic success, whether it is measured by the output per worker, or capital intensity, human capital per worker, and productivity. This economic success can be intensified by a reduced ethnolinguistic fractionalization and the choice of a legal system more compatible with common law rather than civil law.

5.4 Investor Protection, Earnings Opacity and Corporate Valuation

Investor protection has been examined in the accounting and finance literature as either a determinant of corporate value and/or earnings opacity.

The finance literature presents results suggesting that the legal protection of outside investors is a key determinant of market development, capital and ownership structures, dividend policies, and private control benefits around the world (for surveys see Schleifer and Vishny, 1997 and La Porta et al., 2000a). Of interest to this study is the evidence of a positive

relationship between investor protection and corporate valuation. More specifically, La Porta et al., (2002) find evidence of higher valuation of firms in countries with better protection of minority shareholders and in firms with higher cash flow ownership by the controlling shareholder.

The accounting literature examined and found evidence on the relation between outside investor protection and earnings management (Leuz et al., 1999), accounting and auditing (Francis et al., 2001) and corporate transparency (Bushman et al., 2001).

Investor protection was expressed in terms of either the nature of legal systems, common versus civil law, and/or in terms of specific measures used such as an index of anti-director rights. This section argues that earnings opacity is a function of the specific measures used to protect investors rather than of the nature of the legal system while corporate valuation is a function of both the nature of the legal system while corporate valuation is a function of both the nature of the legal system as a measure of investor protection and earnings opacity as a measure of accounting quality. Accordingly, I choose to address this argument by modeling and testing two related questions 1) How does investor protection as measured by an anti-director rights index affect the level of earnings opacity? 2) Is there then a causal link between earnings opacity and corporate valuation? The results of this empirical study on data from 24 countries indicate that a) anti-director rights is positively related to earnings opacity in line with a penalty hypothesis, and b) the exogenous component of earnings opacity—the component defined by anti-director rights—is negatively related to corporate valuation. The direct effect of civil law on corporate valuation was also negative and significant.

1. Corporate Valuation Model

Both investor protection, as measured by the nature of the legal system and an anti-director rights index, and accounting quality, as measured by earnings opacity, are assumed to have an impact on corporate valuation.

Figure 5 indicates the potential relationships between investor protection, earnings opacity and corporate valuation. Three links comprise the model. They are explicated next:

- A. The first link is between corporate valuation and the nature of the legal system. This follows from the findings that systematic differences among countries in the structure of laws and their enforcement, such as the historical origin of their laws, account for the differences in financial development (La Porta et al. (1997, 1998). A law system geared to the protection of the rights of investors and the limitation of expropriation is bound to lead outside investors to pay more for financial assets such as equity and debt, raising in the process the price that such securities fetch in the marketplace. Consistent with this thesis, La Porta et al. (2002) find evidence of higher valuation of firms in countries with better protection of minority shareholders and in firms with higher cash flow ownership by the controlling shareholder. Given the evidence that countries with the common law legal origin have better protection of minority shareholders than do countries with civil law legal origin (La Porta et al. 1998)⁷, and better corporate valuation (La Porta et al. 2002), this study hypothesizes that corporate valuation will have a negative relationship with a variable depicting a civil law legal origin.⁸
- B. The second link implies a negative relationship between earnings opacity and corporate valuation. Evidence on this relationship exists in the pricing of accruals literature (Bowen, Burghastahler, and Daley, 1987). In the pricing of specific discretionary items, DeAngelo, DeAngelo and Skinner (1993) and Dechow (1994) document that the

exclusion of special items improves the ability of earnings to explain returns. An emerging literature also presents international evidence on the relationship between earnings opacity and characteristics of stock market performance. Bhattacharya et al. (2002) document that an increase in earnings opacity is linked to a decrease in trading in the stock market of that country. Bushman and Smith (2001) state that the cross-country differences in earnings opacity can be linked meaningfully to the cross-country differences in economic efficiency and institutional factors.⁹ This study extends this research and tests the negative effect of earnings opacity on corporate valuation.

- C. The third link is between anti-director rights, as a measure of investor protection and the level of earnings opacity. The principal-agent conflict between firm's insiders and outside investors suggests that insiders are more inclined to mask firm performance to minimize outsider and/or legal intervention, and/or present a financial picture that can be deemed as financially attractive by outsiders. This "camouflage" activity is at the essence of the concepts and techniques of earnings opacity. The main private gain is the weakening of outsiders' ability to monitor and discipline insiders as a result of information asymmetries between insiders and outsiders created by earning opacity. The only resources left to an outsider are a) to write contracts that confer to them rights to discipline insiders (e.g. to replace managers), and/or b) to vote with their feet and reinvest their capital in other less earnings opacity prone firms. Both actions are likely to depend on the level of investor protection in general and of anti-director rights in particular. The level of anti-director rights typifies the level of the quality of enforcement of investor protection that potentially affects insiders' incentive to manage

accounting earnings.¹⁰ Therefore, earnings opacity activities in the context of anti-director rights call for two competing hypothesis as follows:

1. One may argue that earnings opacity will be more widespread in countries with low level of anti-director rights. This “diversion” hypothesis is based on the thesis that insiders are more inclined to mask firm performance as the likelihood of outside investors exercising their protection rights is low.
2. Similarly, one may argue that earnings opacity will be more widespread in countries with high level of anti-director rights. This “penalty” hypothesis is based on the thesis that the higher penalties existing in countries with a high level of anti-director rights motivate insiders to hide their rent seeking activities.

This extends prior research on the relationship between investor protection and earnings opacity (Francis et al. 2001) by testing that the positive or negative effect of anti-director rights on earnings opacity influences the negative effects of earnings opacity on corporate valuation. In other words, the exogenous component of the earnings opacity effect—the component defined by anti-director rights—is negatively associated with corporate valuation.

The dependent variable of corporate valuation is Tobin’s q provided by La Porta et al. (2002) for their sample of 539 firms.

Two variables were used for the measurement of investor protection, namely the nature of the legal system and an anti-director rights index (La Porta et al. 2002). The nature of the legal system was measured by a dummy variable equal to one if a country’s company law or commercial code is of civil origin, and zero otherwise.

Because of the small sample size, no distinction was made between French, German, and Scandinavian civil laws origin. The second measure of investor protection is the index of anti-director rights from La Porta et al. (1998) and La Porta et al. (2002).

The quality of accounting in a given country is measured by three dimensions of earnings opacity, earnings aggressiveness, loss avoidance, and earnings smoothing.

2. Anti-director Rights as a Determinant of Earnings Opacity

To examine the impact of anti-director rights (as a measure of investor protection) or the level of earnings opacity as a measure of accounting quality, the earnings opacity score was regressed against the anti-director rights score and the three control variables of a) market share of world's capital, b) number of auditors per 100,000 population and c) disclosure level. The three control variables were included in the regression based on the thesis that the larger the market capitalization compared to the world's market, the level of the auditing force and the level of disclosure adequacy, the lower will be the level of earnings opacity (Francis et al., 2001).

Table 21 presents results regarding the empirical connections between earnings opacity and anti-director rights. The results show a positive relation between anti-director rights and earnings opacity. The higher is the control on directors, the higher is the level of earnings opacity. This is in line with the penalty hypothesis whereby the higher penalties associated with higher anti-director rights motivate insiders to hide their rent seeking activities, resulting in higher levels of earnings opacity. As expected, the control variables of market share of world's capital, the number of auditors per 100,000 population and the disclosure level were negative and significant at 0.05 level.

3. Causality: Corporate Valuation, Earnings Opacity, and Investor Protection

To examine the impact of earnings opacity and investor protection on corporate valuation, two models were tested.

Model 1 regresses the dependent variable of Tobin's Q on a) civil law, b) estimated earnings opacity from the regression results presented in Table 21 and c) the interaction between civil law and the estimated earnings opacity model. This model is used to test if both civil law and the exogenous component of earnings opacity—the component defined by anti-director rights—are negatively related to Tobin's Q. Consistent with our predictions, Table 22 presents results indicating negative significant relations between Tobin's Q and both civil law and estimated earnings opacity at a 0.01 level. As expected, the interaction effect is positive and significant at 0.01 level. Thus, the results are consistent with the view that both the civil law origin and the level of earnings opacity have a negative effect on corporate valuation measured by Tobin's Q.

Model 2 adds the anti-director rights as an independent variable to test the incremental and direct impact of this variable. Col 2 of Table 22 presents results that confirm the earlier findings, namely, earnings opacity leads to lower valuation. However the coefficient of anti-director rights is not significant, rejecting the thesis of a potential direct impact on corporate valuation.

4. Sensitivity Analysis

The main concern in this cross-country analysis is with country fixed effects resulting from the omission of an important variable which is really driving the observed

results. Following previous studies, I included the following explanatory variables to test the robustness to changes in the standard set of economic determinants: a) economic freedom index from *Economic Freedom of the World* (Gwartney, Lawson and Block, 1995), b) estimates of unofficial economy (Friedman, Johnson, Kaufman and Zoido-Lobation, 2000) and c) six basic governance concepts: voice and accountability, political instability and violence, governmental effectiveness, regulatory burden, rule of law and graft or corruption (Kaufman, Kray and Zoido-Lobation, 1999 a, b). Each of these variables is used to examine the robustness of this study's results by controlling for a) lack of economic freedom, b) level of unofficial economies, and c) governmental effectiveness. Including these additional explanatory variables did not alter this study's findings that a) the exogenous component of earnings opacity as defined by anti-director rights is positively associated with corporate valuation b) and that the direct and of anti-director rights in corporate valuation is statistically insignificant.

The results of Tables 21 and 22 rely on White's (1980) adjusted standard error estimates to deal with heteroscedasticity. The Wald test for joint significance is reported in both tables. In addition, for all the regressions used, there is no evidence of serious multicollinearity among the independent variables. The RESET (regression specification error test) as suggested by Ramsey (1969) and Thursby (1981, 1985) and the Hausman test (1978), as suggested by Wu (1973) and Hausman (1978), were used as specification tests. The results of the RESET test, used to check for omitted variables, incorrect functional form, and nonindependence of regressors, show that the models used in this study are not misspecified (see diagnostic check statistics in both tables).

6. Summary and Conclusions

This paper views the empirical relations between earnings opacity and its antecedents and consequences as a first step towards the development of an international contingency theory of earnings opacity. The main findings and conclusions are shown in figure 6 and explained as follows:

1. Law and Religiosity: It appears that the inputs of both law and religiosity-namely the degree of law enforcement and church attendance are negatively related to earnings opacity. Basically, the fear of the law and the act of belonging to a religion played a deterrent effect on earnings opacity internationally as a result of a decrease in insiders' incentives to hide their rent seeking activities. Belief in heaven, the output of religiosity, did not have a significant impact on earnings opacity pointing to a greater role of the act of belonging than the act of believing.

The main implication of the findings is that the moral and penalty constraints created by law and religiosity appear to be more conducive to the supply of more accountability and higher quality of earnings. The answer to the problem of the quality of earnings internationally rests more with creating the 'right' religious and legal imperatives in a society.

Future research could also extend our findings in a number of directions. One extension would be to use cultural variables in addition and in lieu of religiosity variables to sort out the differential effects of culture and religiosity on earnings opacity. Another extension would be to assess the differential effects of religiosity and political and social indicators, including measures of electoral rights, civil liberties, and economic freedom.

2. Political Connectedness: An investigation of the determinants of earnings opacity in 32 countries yielded unexpected results. First, elements of accounting order do not seem to affect earnings opacity. It is the political context rather than the technical that explicates better the level of accounting quality in general and the level of earnings opacity in particular in a given country. Second, earnings opacity is higher as a result of political connectedness of firms and lower as a result of a high degree of law enforcement and market capitalization of connected firms. What appears from the second results is that creating a culture based on law enforcement and market discipline is conducive to demand for more accountability and high quality of accounting. However, the constraints created by political connectedness are more conducive to the supply of less accountability and lower quality of accounting. The answer to the problem of the quality of accounting internationally rests more with creating the “right” morals of a political society, than with toying with the limited technical discourse rituals offered by accounting.
3. Corruption: We have explored the causes that underlie the wide variations in earnings opacity internationally. Our explanation rests on the impact of corruption as it uses the lack of accounting quality to “camouflage” the ill-gained results. High corruption uses or creates a low quality accounting that is compatible with the unethical behavior of rent misappropriation or is a direct result of the unethical atmosphere. In effect, this study presents empirical results on the impact of corruption on different measures of earnings opacity. Based on a data set from 34 countries, the results of a regression model show a negative relationship between earnings opacity and the lack of corruption after controlling for economic development, human development, size of government and economic

freedom. Where corruption is lower, the demand for earnings opacity is lower. Corruption creates a climate conducive to a low quality accounting.

4. Elements of Social, Economic, and Accounting Order: an investigation of the determinants of earnings opacity in 34 countries yielded unexpected results. First, elements of accounting order do not seem to affect earnings opacity as much as social and economic characteristics. It is the economic and the social context rather than the technical that explicates better the level of accounting quality in general and the level of earnings opacity in particular in a given country. Second, earnings opacity is higher as a result of higher rule of law, economic growth, and level of corruption, and lower as result of higher level of economic freedom and quality of life. What appears from the second results is that creating a culture based more on economic freedom and quality of life considerations are conducive to demands for more accountability and high quality of accounting. However, the constraints created by heavy rule of law, competitive economic growth and corrupt rent-seeking behavior are more conducive to the supply of less accountability and lower quality of accounting. The answer to the problem of the quality of accounting internationally rests more with creating the “right” morals of an economic and social society, then with “toying” with the limited “technical” discourse rituals offered by accounting.
5. Quality of Government: We assess the quality of government using proxies for voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption. We investigate the relationship between these measures and a composite measure of earnings opacity. The accounting relativism thesis implied is that the quality of government is negatively affected by the quality of accounting in general and the level of earnings opacity in particular. The data on 34 countries show that, using these

measures of government performance, the differences in the quality of government internationally were indeed negatively related to the level of earnings opacity. Countries with low level of earnings opacity had better governments than countries with higher levels of earnings opacity. These results persist after controlling for market performance, economic freedom, newspaper circulation/population and emerging vs. developed countries.

These results present clear evidence of systematic influence of the quality of accounting on government performance. Government performance is surely in part determined by economic development, but it is also shaped by systematic variations in the earnings opacity in individual countries. The results call for a strengthening of the role and quality of accounting internationally as a way of promoting and achieving better quality from governments. In short, the accounting relativism of government performance adds to the economic, political and cultural relativisms.

6. Stock Market Wealth Effect and Economic Growth: This section examined how accounting quality, as measured by earnings opacity, may affect economic growth both directly and indirectly through the effect of stock market performance or economic growth. The results based on data from 34 countries indicate that the exogenous component of the stock market wealth effect-the component defined by earnings opacity-is positively associated with economic growth. However, the direct effect of earnings opacity on economic growth is negative as expected but statistically insignificant. Basically, cross-country differences in accounting quality affect the stock market performance. Countries with better accounting quality create a better condition for market performance, which in turn induce a rapid acceleration in long-run economic growth.

The results are subject to various limitations. The 1998-01 period used for the measurement of economic growth is short and reflects both high and low growth rates in various countries. In addition, other indicators can be used for all the variables used for the measurement of earnings opacity and stock market performance. Future research needs to investigate the impact of both longer periods for the measurement of economic growth and other indicators of earnings opacity and stock market performance on the relationship between economic growth, wealth effect and earnings opacity.

7. Productivity of Nations: A fundamental and proven thesis in economics is that a high level of output per worker is possible when countries achieve high rates of investment in physical capital and human capital, and because a high level of productivity is matched to these investments. Our empirical analysis suggests that success on each of these fronts is driven by the quality of accounting in general, and the level of earnings opacity in particular. This is in conformity with the thesis the quality of the accounting environment in which individuals produce and transact enables individuals to capture as a private return the marginal social benefit of their actions. The significant impact of ethnic fractionalization and legal origin points to the necessary conditions of a good social infrastructure from our earnings opacity results.

Three main conclusions can be made in terms of a country with high output per worker.

- a) First, the country has adopted an accounting system based on low earnings opacity that protects outsiders from diversion and therefore favors production over diversion. It probably takes the form of mandated accounting techniques and a level of morality and ethics that support “good” accounting. By providing

quality accounting, these countries channel talented people to produce rather than seek careers of rent seeking or corruption.

- b) Second, the level of ethnolinguistic fractionalization is low and/or reduced. The citizens of the country prefer to associate themselves with their state and country rather than their ethnicity and language.
- c) Third, the legal system favors common law over civil law. This follows from findings that systematic differences among countries in the structure of laws and their enforcement, such as the historical origin of their laws, account for differences in financial development (La Porta et al., 1997, 1998). Countries with the common law legal origin have better protection of stakeholders than do countries with civil law legal origin (La Porta et al., 1998), and better corporate valuation (La Porat et al. 2002).

8. Investor Protection and Corporate Valuation: This paper examines how investor protection may affect corporate valuation both directly and indirectly through the effect of earnings opacity. The results based on data from 24 countries indicate that a) earnings opacity is positively affected by the level of anti-director rights in line with a “penalty hypothesis” because insiders’ incentives to hide their rent seeking activities are stronger when outsiders can effectively penalize them, and b) the exogenous component of earnings opacity—the component defined by anti-director rights—is negatively associated with corporate valuation. The direct effect of civil law origin on corporate valuation is as expected, negative and significant. Basically, investor protection as measured by the anti-director rights affects positively the level of earnings opacity. Countries with a high level of anti-director rights are “plagued” by higher earnings opacity, which in turn lead to a lower

corporate valuation. The role of investor protection appears more complex than presented in previous studies (e.g. La Porta et al. 2002). While the impact of civil law origin leads to lower corporate valuation as shown in previous studies, the impact of limiting director rights, as one form of investor protection, may lead investors to hide their rent seeking activities, resulting in higher levels of earnings opacity and lower corporate valuation. The control of the opportunistic use of accounting information that results in higher levels of earnings opacity internationally requires more than the imposition of investor protection laws. The evidence in this study expands our understanding of the dual role of investor protection and earnings opacity in shaping corporate finance, by clarifying the different roles of accounting and the law in delivering value to outside shareholders.

Notes

1. The core and traditional definition of rule of law in the U.S. still contains three basic values or concepts: (1) constitutionalism; (2) rule-based decision making; and (3) a commitment to neutral principles, such as federalism, separation of powers and textualism.
2. The law enforcement index used was found to be correlated with the “efficiency of the judicial system” score provided by La Porta et al. (1998), the law and order indicator provided by the International Country Risk Guide (ICRG), and the level of litigiousness in a country from Wingate (1997). The Pearson correlations of the law enforcement index used in the study with the three other legal enforcement indexes described earlier are high, ranging from 0.4632 to 0.6931.
3. The economic freedom index is made possible by the meticulous work of the Fraser Institute, the results of which were published in *Economic Freedom of the World 1975-1995* by James D. Gwartney et al. (1996). The index of economic freedom has 17 components that are allocated to four major areas: (1) money and inflation; (2) government operations and regulations; (3) takings and discrimination taxation; and (4) international exchange. In aggregating these components of economic freedom into a summary index, various alternatives are used to attach different weights to the components. This results in five possible summary indices: (a) an equal impact index: Ie; (b) a survey of knowledgeable people based index: Is1; (c) a survey of a large number of people based index: Is2; (d) an average of the above three indices: AVG; and (e) a letter grade index: GRADE. AVG will be used in this study to measure the economic freedom of the countries investigated.
4. The core and traditional definition of the rule of law in the U.S. still contains three basic values or concepts: (1) constitutionalism; (2) rule-based decision making; and (3) a commitment to neutral principles, such as federalism, separation of powers, and textualism.
5. Two features—nonrivalry of consumption and non-excludability of benefits—are generally taken to be the defining characteristics of public goods. (Riahi-Belkaoui, 1984).
6. The Paul rule deduces from attribute-specific rank ordering performance that the degree of our performance of country i over country j increases monotonically, with the difference in their rank order.
7. It is appropriate to note that the judicial philosophy of common law countries allow judges to broadly interpret certain principles, such as fiduciary duty, and hence authorizes them to prohibit more forms of expropriation (La Porta, et al., 2002; Johnson et al., 2002).
8. Because of the use of fewer countries La Porta et al. (1998), this study does not distinguish between French, German and Scandinavian civil law origins.
9. This is part of a growing international accounting literature that examines the value relevance of accounting measures (Alford et al. (1993), Harris et al. (1994), Ali and Hwang (2000), Land and Lang (2002)), analyst forecasts (Ashbaugh and Pincus (2001), Chang et al. (2001)), earnings timeliness and conservatism (Ball et al. (2001)), the effects of institutional factors on earnings management (Leuz et al. (2001)), the impact of investor protection laws on accounting and audition (Francis, Khurana and Pereira, 2001), and determinants of corporate transparency (Bushman, Piotroski and smith, 2001).
10. Similar evidence provided by Fan and Wong (2002) supports the inference that controlling insiders have both the opportunities and the incentive to induce less informative financial reports.

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Fig. 1: The Situation about Earnings Opacity



Figure 2 Determinants of earnings opacity internationally

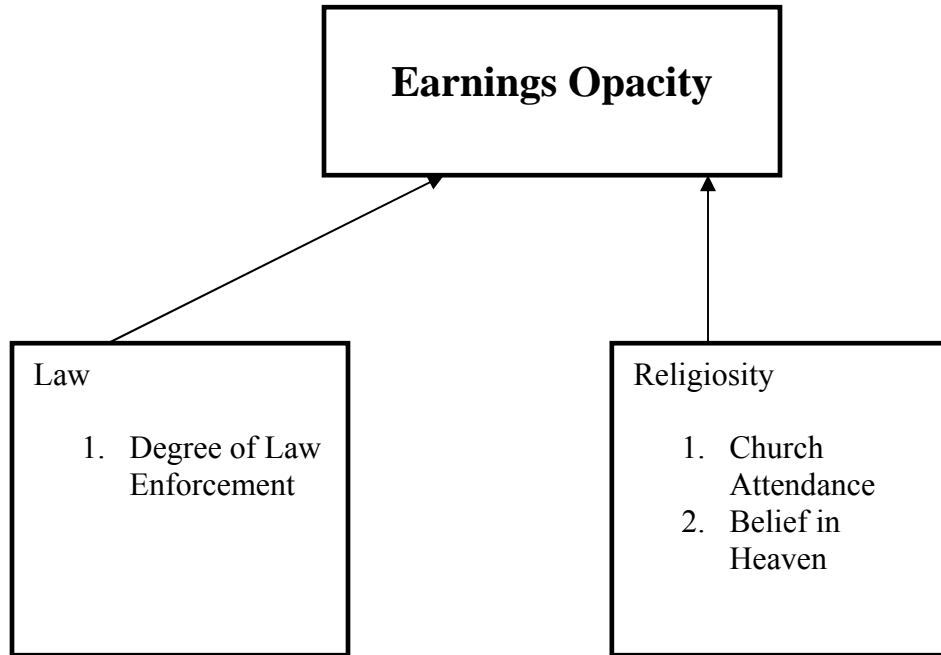


Fig. 3: Determinants of Earnings Opacity Internationally

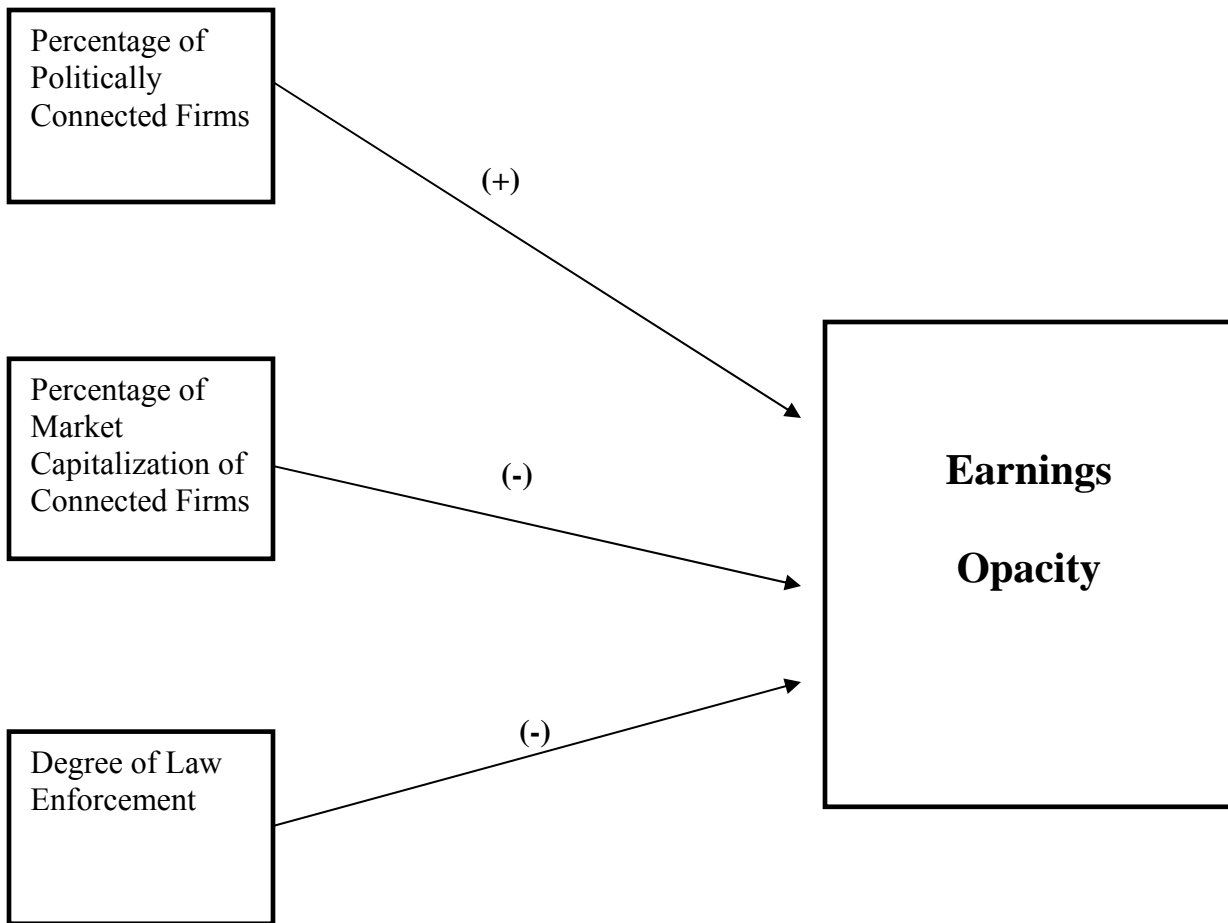


Fig. 4 Determinants of Earnings Opacity Internationally

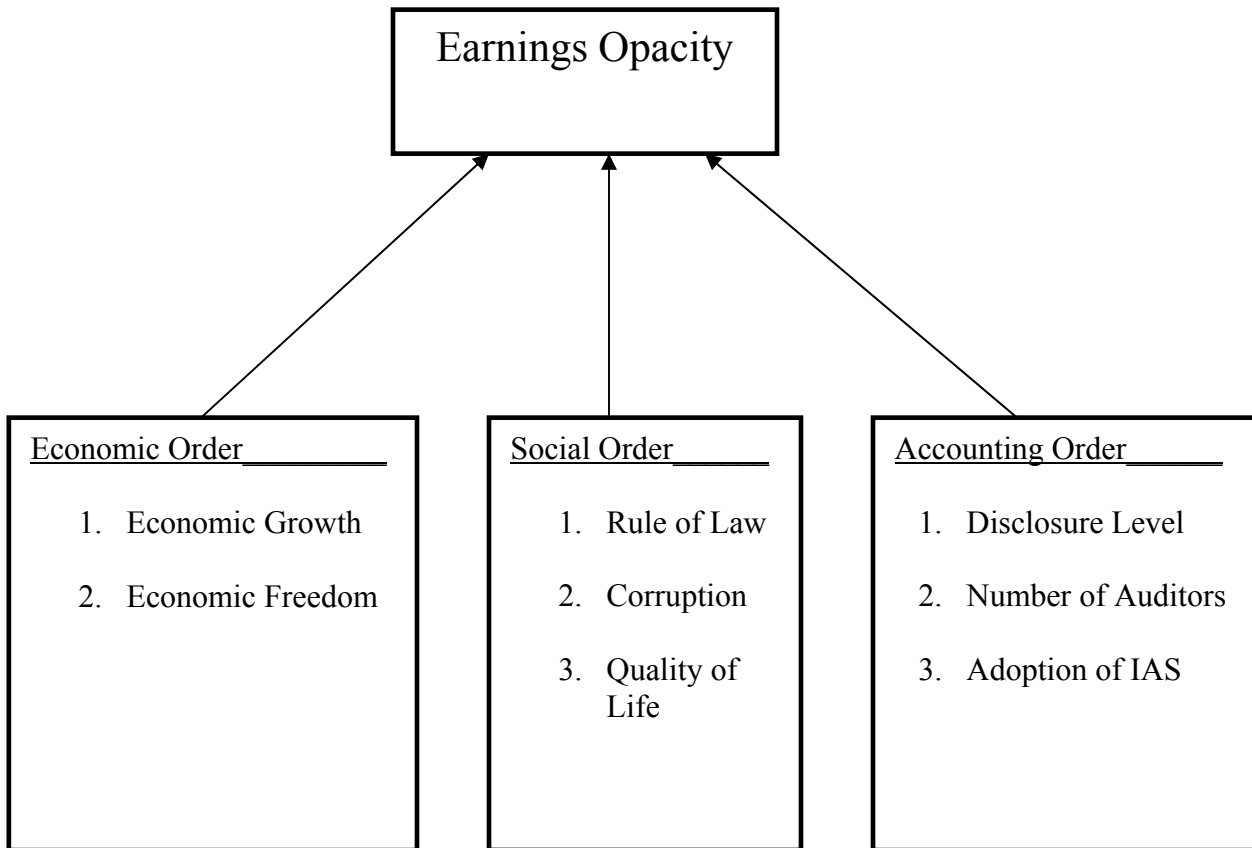


Figure 5

Economic Growth Model

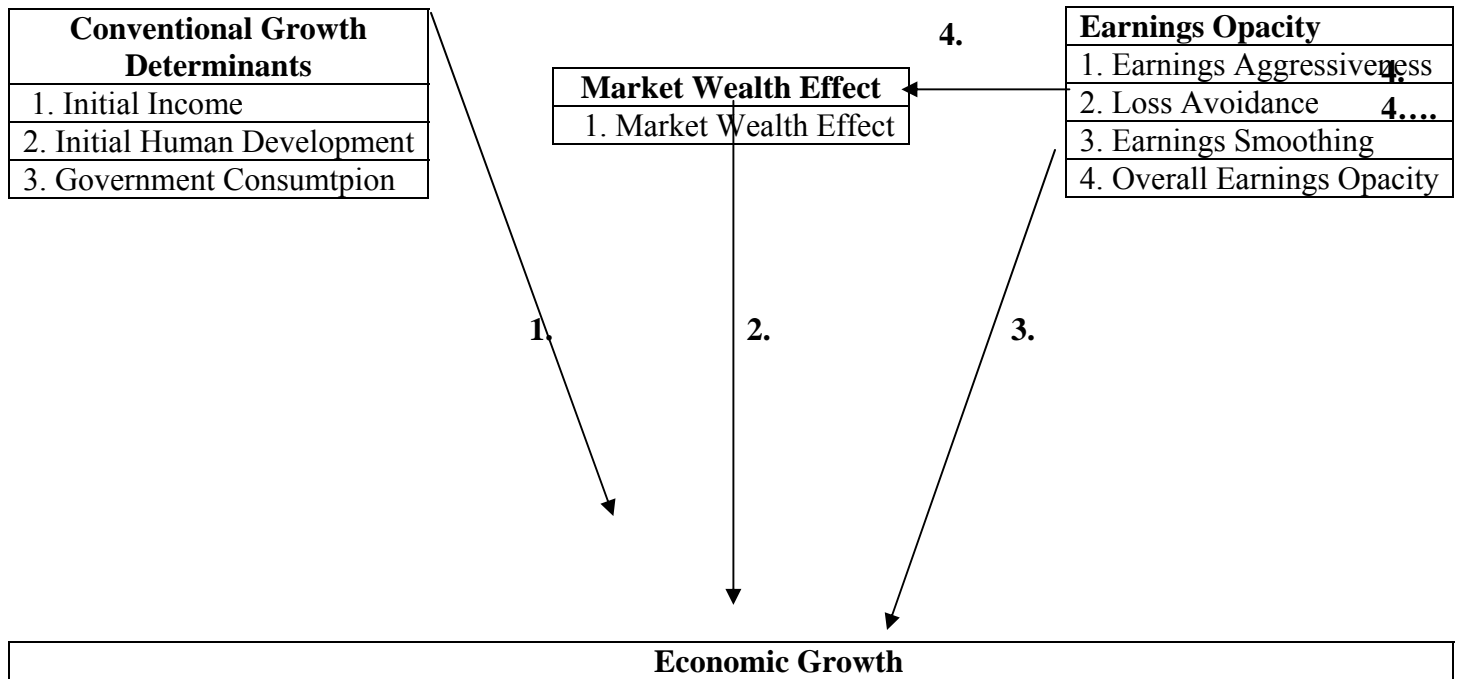


Figure 6 Corporate Valuation Model

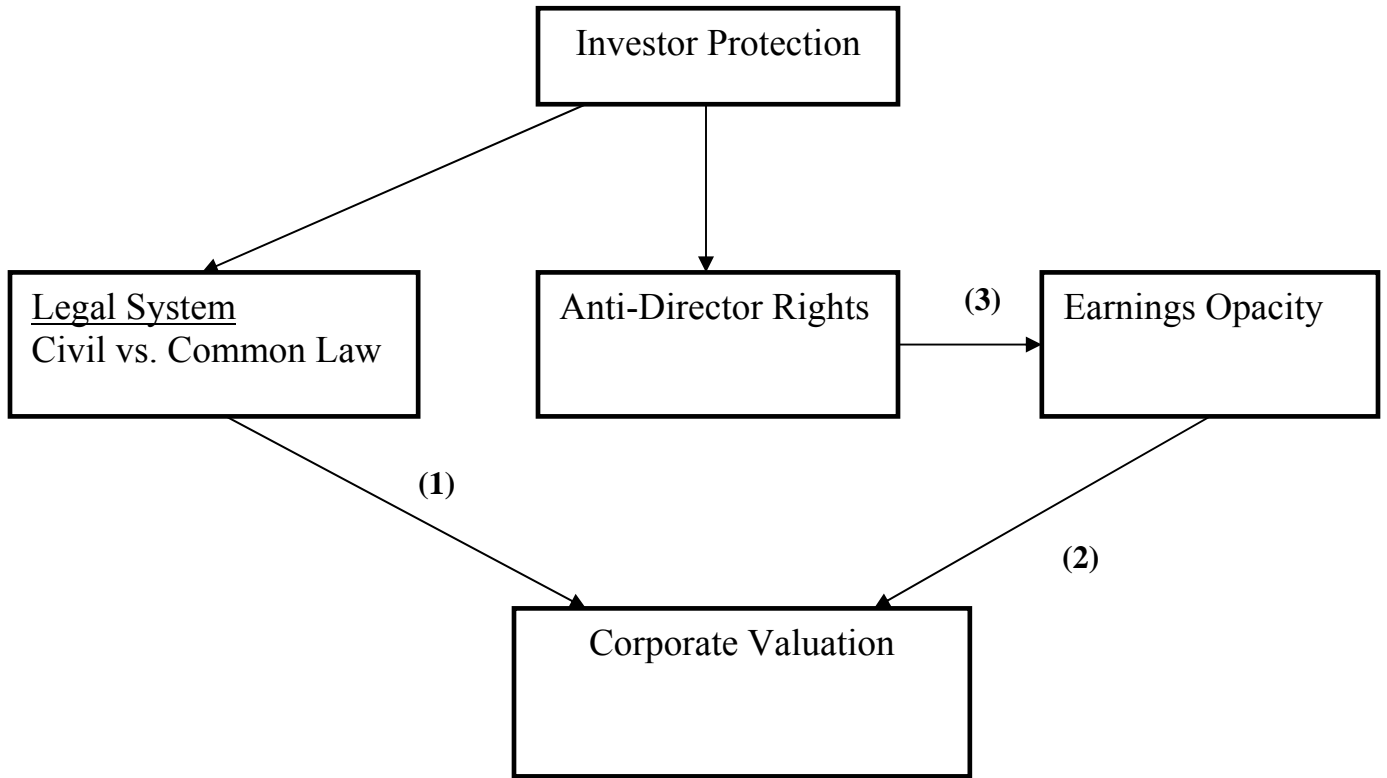


Figure 7 Antecedents and Consequences of Earnings Opacity Internationally

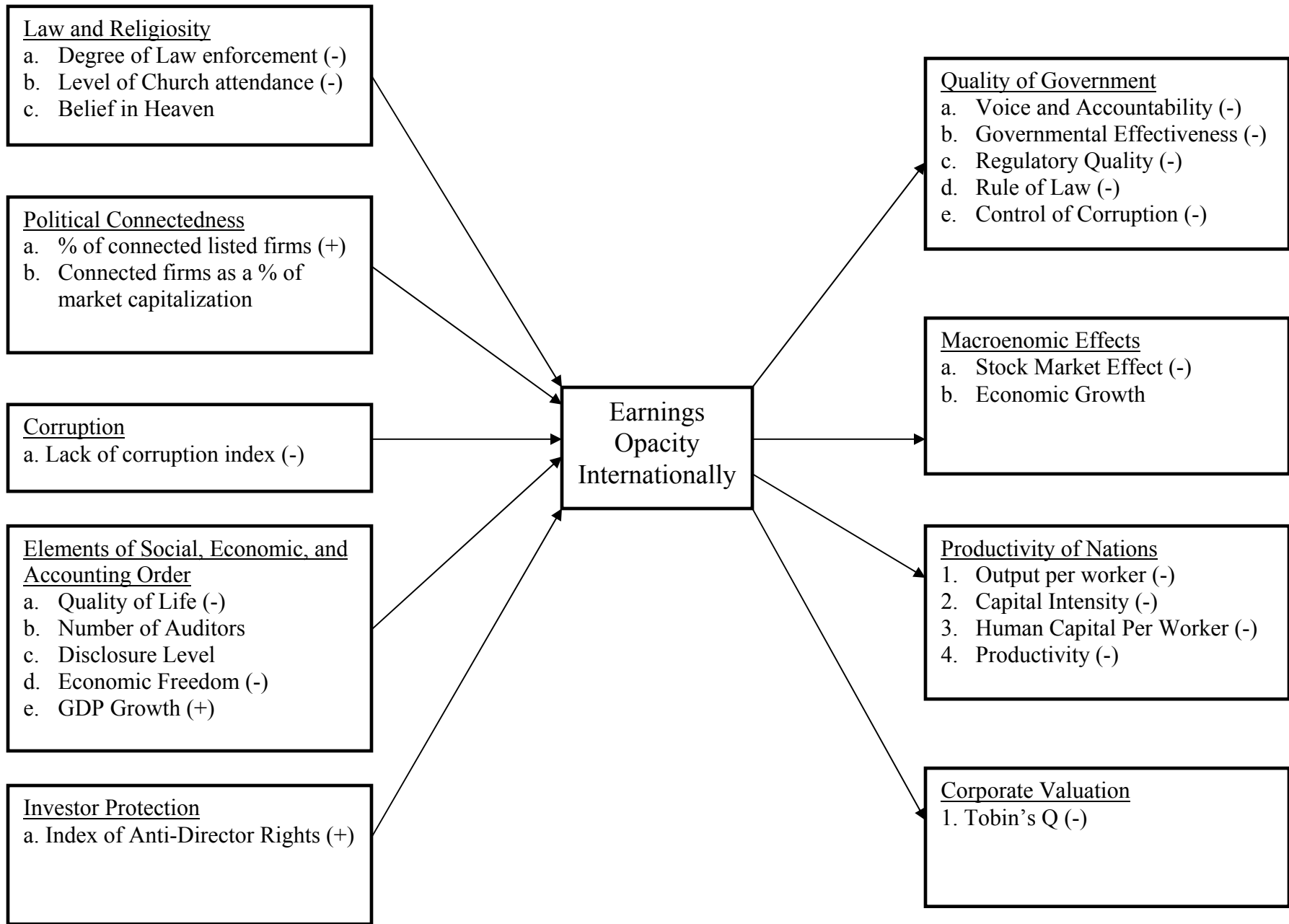


Table 1 Antecedents of Earnings Opacity Internationally

Independent Variables	Name	Description and Source
MCA	Monthly Church Attendance	Monthly fraction of the population that attended church or analogous houses of worship(Barro and McCleary, 2003)
BIH	Belief in Heaven	Fraction of people who hold a belief in heaven(Barro and McCleary, 2003)
DLE	Degree of Law Enforcement	It ranges from 2.98 to 10, with 10 indicating the best quality of the rule of law (Barro and McCleary, 2003)
PCLF	Percentage of Politically Connected Listed Firms	Ratio of connected firms over the total number of firms listed in a particular country (Faccio, 2002)
CFMC	Connected Firms as a Percentage of Market Capitalization	Ratio of market capitalization of connected firms over the overall capitalization of each country (Faccio, 2002)
CORR	Level of Corruption	Indication of subjective perception of public corruption (Kaufman et al., 1999 a,b). A higher index indicates lower corruption. The variable may be understood as the lack of corruption.
ROL	Rule of Law	Rule of law score obtained from Kaufman, Kray and Zoido-Lobaton, 1999a
AD	Anti-director Rights Index	The index is formed by adding one when: (1) the country allows shareholders to mail their proxy vote, (2) shareholders are not required to deposit their shares prior to the General Shareholders Meeting, (3) cumulative voting or proportional representation of minorities or the board of directors is allowed, (4) an oppressed minorities mechanism is in place, (5) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to ten percent (the sample median), or (6) when shareholders have preemptive rights that can only be waived by a shareholder meeting. The range of the index is from zero to six (La Porta et al., 1998, 2002).

Table 2 Consequences of Earnings Opacity Internationally

Consequence Variable	Name	Description and Sources
VA	Voice and Accountability	An indicator that measures the extent to which citizens of a country are able to participate in the selection of governments. The indicator is oriented so that higher values correspond to better outcomes on a scale of -2.5 to 2.5 (Kaufman, Kraay and Zoido-Lobaton, 2002)
PS	Political Stability	An indicator that measures perception of the likelihood that the government in power will be destabilized or overthrown by possibly unconstitutional and/or violent means, including terrorism. The indicator is oriented so that higher values correspond to better outcomes on a scale of -2.5 to 2.5 (Kaufman, Kraay and Zoido-Lobaton, 2002)
ROL	Rule of Law	An indicator that measures the extent to which agents have confidence in and abide by the rules of society. The indicator is oriented so that higher values correspond to better outcomes on a scale of -2.5 to 2.5 (Kaufman, Kraay and Zoido-Lobaton, 2002)
COC	Control of Corruption	An indicator that measures perception of corruption, conventionally defined as the exercise of public power for private gain. The indicator is oriented so that higher values correspond to better outcomes on a scale of -2.5 to 2.5 (Kaufman, Kraay and Zoido-Lobaton, 2002)
LMMR	Market Return	Logarithm of one plus mean monthly returns scaled by the standard deviations of a country <i>i</i> for 1986-98 (Bhattacharya, Daouk, and Welker, 2001)
ECG	GNP Growth	GNP growth for the 1998-01 period for country <i>i</i>
GE	Government Effectiveness	An indicator that measures perceptions of the quality of public sector provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies in a single grouping. The indicator is oriented so that higher values correspond to better outcomes on a scale of -2.5 to 2.5 (Kaufman, Kraay and Zoido-Lobaton, 2002)
RQ	Regulatory Quality	An indicator that measures the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development. The indicator is oriented so that higher values correspond to better outcomes on a scale of -2.5 to 2.5 (Kaufman, Kraay and Zoido-Lobaton, 2002)
Y/L	Output per worker	Level of output per worker computed on the basis of national income and product

		account and labor force data (Penn World Tables 5-6 of Summers and Heston, 1991)
H/L	Human Capital per worker	Level of human capital per worker obtained after decomposing differences in output per worker into differences in capital intensity, human capital per worker and productivity (Jones and Hall, 1997)
$(K/Y)^{\alpha(1-\alpha)}$	Capital Intensity	Level of capital intensity obtained after the decomposition of differences in output per worker (Jones and Hall, 1997)
A	Productivity	Level of productivity obtained after the decomposition of differences in output per worker (Jones and Hall, 1997)
Tobin's Q	Tobin's Q as a measure of corporate valuation	The dependent variable of corporate valuation is Tobin's Q provided by La Porta et al. (2002) for their sample of 539 firms. It includes the largest 20 firms of market capitalization in each of the 27 countries that also have a shareholder who controls over 10 percent of the votes of the firm. The Tobin's Q is measured as the ratio of market value of assets to their replacement value. The market value of assets is proxied by the book value of equity minus deferred taxes plus the market value of common stock. The replacement value of assets is proxied by the book value of the assets (Worldscope, 1997)

Table 3 Control Variables Used

Control Variables	Name	Description and Source
LPCGNP _i	Log per capita GNP for country i	
RGDP	Ten year GDP growth	
AU	Number of auditors per 100,000 inhabitants	(Saudagaran and Diga, 1997, Table 6, p.51)
DISC	Financial disclosure level	Disclosure level from the Center for International Financial Analysis and Research (CIFAR, 1995). The higher the number more is the disclosure
IAS	International accounting standard use	Dummy variable used as a proxy for demand for international accounting harmonization <ul style="list-style-type: none"> 0. for completely independent standard setting and no use of IAS except for comparison with IAS 1. separate accounting standards that are based on an similar to IAS in most cases 2. IAS are used as national standards with some modifications for local conditions. Standards not covered by IAS are added (IASC, <u>Insight</u>, dated October 1997)
LOG GNP	Log of Gross National Product	The data taken from the World Bank correspond to the 1985-1998 average gross national product
HDI	U.N. Human Development Index	Generally considered as a more realistic measure of human development than mere GNP per head. The HDI is composed of three indicators: life expectancy, education, and income (United Nations, 1991)
GE/GDP	Size of government	Government expenditures/GDP
EF	Economic Freedom	Economic freedom index from 1975-1995 (Gwartney, 1996)
Qualityoflife _i	Quality of life score	Quality of life for country i is measured as <ul style="list-style-type: none"> a. PR_i using Paul rules

		<p>b. BR_i using Borda rules, and</p> <p>c. CR_i using Copeland rules (Paul, 2002)</p>
LDYDG	Dividend growth	Logarithm of one plus mean monthly yield over dividend growth for country i for 1986-1998. (Bhattacharya, Daouk, and Welker, 2001)
MMR	Market Return	Logarithm of one plus mean monthly returns scaled by standard deviation of returns for each country for 1986-88. (Bhattacharya, Daouk, and Welker, 2001)
EFI	Economic Freedom Index	An index based on principal component analysis of 23 components designed to identify the consistency of institutional arrangements and policies with economic freedom in seven areas: 1) size of government, 2) economic structure and use of markets, 3) monetary policy and price stability, 4) freedom to use alternative currencies, 5) legal structure and security of private ownership, 6) freedom to trade with foreigners, and 7) freedom of exchange in capital markets (Gwartney, Lawson and Serrida, 2000)
NEWSC	Newspaper circulation/population	Circulation of daily newspaper/population (UNESCO statistical Yearbook, 1986)
MSOWC	Market Share of World's Capital	The market share of world's capital was determined from the website of the International Federation of Stock Exchanges (www.FIBY.com)
NOA	Number of Auditors	The number of auditors per 100,000 population was obtained from Saudagaran and Diga (1997, Table 6, p. 51)
DL	Disclosure Level	The disclosure level was obtained from the Center of International Analysis and Research (CIFAR, 1995). The higher the number, more is the disclosure.
EMERGE	Emerging Country	An indicator equal to one if the country was not treated as a "developed" country, zero otherwise (Bhattacharya, Daouk, and Welker, 2001)
EF	Ethnolinguistic fractionalization	Average value of different indices of ethnolinguistic fractionalization. Its values range from 0 to 1. The five components indices are 1) index of ethnolinguistic fractionalization, which measures the probability that two randomly selected people from a given country will not belong to the same ethnolinguistic group (the index is based on the number and size of population groups as distinguished by their ethnic and linguistic status); 2) probability of two randomly selected individuals speaking different languages; 3) probability of two randomly selected individuals do not speak the same language; 4) percent of the population not speaking the 'official' language; and 5) percent of the population not speaking the most widely

		used language (La Porta et al., 1999)
LO	Legal Origin	Company law or commercial code of each country with the value of 1 if it is based on the French commercial code

Table 4
Sample Countries

Name of Country
Australia
Austria
Belgium
Brazil
Canada
Chile
Denmark
Finland
France
Germany
Greece
Hong Kong
India
Indonesia
Ireland
Italy
Japan
Korea
Malaysia
Mexico
Netherlands
Norway
Pakistan
Portugal
Singapore
South Africa
Spain
Sweden
Switzerland
Taiwan
Thailand
Turkey
U.K.
U.S.A.

Table 5 Determinants of earnings opacity

<i>Dependent variable</i>	<i>Independent variables</i>	
OEO(overall earnings opacity)	Intercept	10.499 (5.64)*
	LPCGNP	-0.057 (-0.29)
	MCA	-2.732 (-2.01)**
	BIH	0.165 (0.14)
	DLE	-0.472 (-2.77)**
	R ² (Adjusted)	41.62%
	F	5.10*

Wald test: 0.01.

Reset F. value: 0.05

Hausman F. value: 6.32*

Variables depict

LPCGNP: log of per capita GNP.

MCA: monthly church attendance.

BIH: belief in heaven.

DLE: degree of law enforcement

t values are between parentheses

*Significant at $\alpha = 0.01$

**Significant at $\alpha = 0.0$

Table 6 Determinants of earnings opacity

Dependent Variable	OEO (Overall Earnings opacity)	
Independent Variables	1	2
	Intercept	8.640 (13.05)*
PCLF	0.072 (2.01)**	0.119 (2.32)**
CFMC	-0.037 (-2.15)**	-0.045 (-2.59)*
DLE	-0.373 (-4.96)*	-0.309 (-3.18)*
GL	=====	0.429 (0.84)
RGDP	=====	0.113 (0.98)
AU	=====	-0.002 (-1.28)
DISC	=====	0.025 (0.93)
IAS	=====	-0.501 (-1.52)
R ²	50.40%	52.51%
F	11.50*	4.18*
Wald Test	0.01	0.01
Reset F-Value	0.05	0.05
Hausman F-Value	9.35*	4.06*

(a) Variables such as PCLF, CFMC, and DLE one defined in Table 1. Other variables are defined as follows:

CL: Legal system with 1 for common law and 0 for civil law countries

RGDP: Ten year GDP growth

AU: Number of auditors per 100,000 inhabitants

DISC: Financial disclosure level

IAS: International accounting standards use.

(b) * Significant at $\alpha = 0.01$; ** Significant at $\alpha = 0.05$; *** Significant at $\alpha = 0.10$

Table 7 Effects of Corruption on Earnings Opacity (*t*- Values in Parentheses).

Model	Expected Sign	Earnings Opacity Index				
		EAG 1	LA 2	ES 3	AVR 4	Overall 5
Intercept	?	6.815 (16.22)*	6.417 (22.63)*	6.141 (23.75)*	6.457 (25.07)*	11.044 (3.42)
Corruption	-	-1.165 (-3.66)*	-0.518 (-2.41)*	-0.484 (-2.47)*	-0.722 (-3.70)*	-0.299 (-3.47)*
Log GNP	-					-0.655 (-3.13)*
HDI	+					3.653 (-3.60)*
EFI	-					-0.739 (-3.26)*
GE/GDP	-					-0.009 (-3.59)*
Adjusted R^2		27.33%	12.76%	13.44%	27.83%	40.98%
F Statistic		13.41*	15.83*	6.12*	13.73*	14.89*

Note: Model 1: Earnings Opacity Index_{EAG} = $B_0 + B_1CORR$; Model 2: Earnings Opacity Index_{LA} = $B_0 + B_1CORR$; Model 3: Earnings Opacity Index_{ES} = $B_0 + B_1CORR$; Model 4: Earnings Opacity Index_{AVR} = $B_0 + B_1CORR$; Model 5: Earnings Opacity Index = $B_0 + B_1CORR + B_2\log GNP + B_3HDI + B_4EFI + B_5 GE/GDP$

Table 8 Determinants of Earnings Opacity

Independent Variables	(1)	(2)	(3)
Intercept	7.485 (3.58)*	6.611 (3.12)*	6.575 (2.40)*
ROL	2.186 (4.50)*	2.004 (4.35)*	1.943 (3.71)*
AU	0.001 (1.06)	0.0008 (0.94)	0.0009 (0.94)
DISC	0.002(0.11)	0.007 (0.37)	0.011 (0.51)
IAS	0.216 (0.87)	0.190 (0.82)	0.222 (0.79)
EF	-0.763 (-3.85)*	-0.693 (-3.51)*	-0.714 (-2.91)*
EG	0.2708 (1.99)***	0.896 (2.27)**	0.317 (2.06)**
PR	0.0126 (2.10)**		
BR		0.028 (2.50)*	
CR			0.023 (2.65)*
COR	-0.966 (-2.19)**	-0.849 (1.97)***	-0.907 (-1.81)***
R ² (adjusted)	78.74%	80.97%	76.13%
F	9.80*	11.11*	8.58*
Wald Test	0.01	0.01	0.01
F-Value	0.05	0.05	0.05
Hausman F-Value	7.52*	8.53*	7.34*

(a) Variables are defined in Table 2

(b) t values are between parentheses

*Significant at $\alpha = 0.01$

Table 9 Voice and Accountability and Earnings Opacity

Independent ¹ Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	2001	1998	2001	1998	2001	1998	2001	1998	2001	1998
1. Intercept	2.869 (4.90)*	3.348 (6.14)*	2.013 (2.55)*	2.036 (2.98)*	2.828 (2.70)*	2.703 (2.79)*	3.569 (6.24)*	3.778 (6.04)	1.916 (2.49)*	2.102 (3.17)*
2. OEO	-0.342 (-3.43)*	-0.424 (-4.56)*	-0.246 (-2.14)**	-0.276 (-2.78)*	-0.346 (-3.21)*	-0.403 (-4.05)*	-0.473 (-4.96)*	-0.547 (-5.25)*	-0.236 (-2.04)**	-0.284 (-2.85)*
3. MMR	_____	_____	2.140 (2.70)**	3.280 (2.79)*	_____	_____	_____	_____	_____	_____
4. EFI	_____	_____	_____	_____	0.007 (0.07)	0.078 (0.83)	_____	_____	_____	_____
5. NEWS	_____	_____	_____	_____	_____	_____	0.019 (0.37)	0.082 (6.42)	_____	_____
6. EMERGE	_____	_____	_____	_____	_____	_____	_____	_____	0.545 (2.01)**	0.709 (3.03)*
Adjusted R ²	24.61%	37.49%	27.95%	48.44%	22.85%	37.28%	46.42%	55.71%	32.82%	52.46%
F	11.77*	20.79*	7.40*	16.50*	5.75*	10.51*	12.69*	15.73*	8.82*	18.66*

(1) * Significant at $\alpha = 0.01$

**Significant at $\alpha = 0.05$

Table 10 Regulatory Quality and Earnings Opacity

Independent Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	2001	1998	2001	1998	2001	1998	2001	1998	2001	1998
1. Intercept	1.982 (4.49)*	1.689 (5.69)*	0.875 (1.60)	0.794 (2.31)**	0.157 (0.666)	0.316 (0.24)	2.496 (4.00)*	1.217 (4.23)*	0.646 (1.26)	0.756 (2.23)**
2. OEO	-0.209 (-2.79)*	-0.168 (-3.33)*	-0.085 (-1.78)***	-0.068 (-1.76)***	-0.133 (-1.95)***	-0.112 (-2.55)*	-0.338 (-3.25)*	-0.118 (-2.47)**	-0.047 (-1.75)***	-0.05 (-1.76)***
3. MMR	_____	_____	2.768 (2.94)**	2.240 (3.79)*	_____	_____	_____	_____	_____	_____
4. EFI	_____	_____	_____	_____	0.215 (3.30)*	0.162 (3.87)*	_____	_____	_____	_____
5. NEWSC	_____	_____	_____	_____	_____	_____	0.197 (3.41)*	0.090 (3.38)*	_____	_____
6. EMERGE	_____	_____	_____	_____	_____	_____	_____	_____	0.684 (3.77)*	0.467 (3.90)*
Adjusted R ²	17.01%	23.44%	33.04%	45.95%	36.57%	46.87%	40.15%	39.31%	40.70%	45.76%
F	7.77*	11.10*	9.14*	15.03*	10.23*	15.12*	10.06*	9.74*	11.98*	14.50*

(1) * Significant at $\alpha = 0.01$

**Significant at $\alpha = 0.05$

***Significant at $\alpha = 0.10$

Table 11 Government Effectiveness and Earnings Opacity

Independent Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	2001	1998	2001	1998	2001	1998	2001	1998	2001	1998
1. Intercept	2.862 (4.90)*	3.135 (5.24)*	1.727 (2.27)**	1.423 (2.01)**	1.005 (1.05)	0.044 (0.06)	2.772 (5.07)*	2.498 (4.00)*	1.026 (1.54)	0.994 (1.60)
2. OEO	-0.323 (-3.25)*	-0.376 (-3.69)*	-0.196 (-1.76)***	-0.183 (-1.78)***	-0.246 (-2.50)*	-0.250 (-3.01)*	-0.354 (-3.88)*	-0.338 (-3.25)*	-0.102 (-1.73)***	-0.119 (-1.74)***
3. MMR	_____	_____	2.838 (2.16)**	4.281 (3.51)*	_____	_____	_____	_____	_____	_____
4. EFI	_____	_____	_____	_____	0.219 (2.34)**	0.366 (4.63)*	_____	_____	_____	_____
5. NEWS	_____	_____	_____	_____	_____	_____	0.414 (2.28)*	0.197 (3.41)*	_____	_____
6. EMERGE	_____	_____	_____	_____	_____	_____	_____	_____	0.953 (4.06)*	1.118 (5.11)*
Adjusted R ²	22.43%	27.61%	30.42%	46.52%	31.66%	56.89%	46.40%	56.79%	47.41%	61.92%
F	10.54*	13.58*	8.22*	15.35*	8.41*	21.43*	12.69*	12.40*	15.42*	24.39*

(1) * Significant at $\alpha = 0.01$

**Significant at $\alpha = 0.05$

***Significant at $\alpha = 0.10$

Table 12 Political Stability and Earnings Opacity

Independent Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	2001	1998	2001	1998	2001	1998	2001	1998	2001	1998
1. Intercept	2.886 (5.63)*	2.857 (4.94)*	1.776 (2.70)*	1.672 (2.23)**	1.340 (1.58)	0.247 (0.30)	2.843 (5.54)*	2.335 (3.66)*	1.420 (2.36)**	0.864 (1.40)
2. OEO	-0.362 (-4.14)*	-0.376 (-3.82)*	-0.237 (-2.47)*	-0.243 (-2.23)**	-0.297 (-3.41)*	-0.266 (-2.55)*	-0.426 (-4.98)*	-0.368 (-3.47)*	-0.189 (-2.09)**	-0.137 (-1.73)***
3. MMR	_____	_____	2.726 (2.45)**	2.965 (2.30)**	_____	_____	_____	_____	_____	_____
4. EFI	_____	_____	_____	_____	0.182 (2.20)**	0.307 (3.81)*	_____	_____	_____	_____
5. NEWSC	_____	_____	_____	_____	_____	_____	0.168 (3.55)*	0.198 (3.35)	_____	_____
6. EMERGE	_____	_____	_____	_____	_____	_____	_____	_____	0.785 (3.70)*	1.043 (4.80)*
Adjusted R ²	32.80%	29.13%	41.90%	37.52%	39.76%	50.64%	62.40%	47.02%	52.18%	57.93%
F	17.11*	14.56*	12.90*	10.91*	11.56*	17.42*	20.75*	12.98*	18.46*	23.04*

(1) * Significant at $\alpha = 0.01$

**Significant at $\alpha = 0.05$

***Significant at $\alpha = 0.10$

Table 13 Rule of Law and Earnings Opacity

Independent ¹ Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	2001	1998	2001	1998	2001	1998	2001	1998	2001	1998
1. Intercept	2.792 (4.30)*	2.69 (4.2)*	1.734 (2.00)*	1.872 (1.55)	0.854 (0.80)	0.418 (-0.48)	2.599 (4.29)*	2.000 (3.06)*	0.681 (0.88)	0.308 (0.50)
2. OEO	-0.312 (-2.82)*	-0.301 (-2.75)*	-0.193 (-1.73)***	-0.140 (-1.74)***	-0.229 (-2.10)**	-0.229 (-2.10)**	-0.352 (-3.48)*	-0.274 (-2.52)*	-0.052 (-1.78)***	-0.020 (-1.79)***
3. MMR	_____	_____	2.646 (1.77)***	3.566 (2.53)*	_____	_____	_____	_____	_____	_____
4. EFI	_____	_____	_____	_____	0.227 (2.18)*	0.367 (4.27)*	_____	_____	_____	_____
5. NEWSC	_____	_____	_____	_____	_____	_____	0.201 (3.59)*	0.238 (3.93)*	_____	_____
6. EMERGE	_____	_____	_____	_____	_____	_____	_____	_____	1.137 (4.55)*	1.285 (5.91)*
Adjusted R ²	17.42%	16.55%	22.60%	28.59%	25.81%	46.11%	48.96%	45.03%	49.00%	60.50%
F	7.96*	7.55*	5.82*	7.61*	6.57*	14.69*	13.95*	12.06*	16.37*	25.51*

(1) * Significant at $\alpha = 0.01$

**Significant at $\alpha = 0.05$

***Significant at $\alpha = 0.10$

Table 14 Control of Corruption and Earnings Opacity

Independent ¹ Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	2001	1998	2001	1998	2001	1998	2001	1998	2001	1998
1. Intercept	3.397 (4.72)	3.374 (5.14)*	1.618 (2.03)**	1.862 (2.01)**	1.214 (1.14)	0.612 (0.61)	3.216 (4.29)*	2.990 (4.20)*	1.030 (1.30)	0.910 (1.39)
2. OEO	-0.419 (-3.41)*	-0.419 (-3.70)*	-0.217 (-1.87)***	-0.246 (-1.83)***	-0.338 (-2.71)*	-0.305 (-2.95)*	-0.457 (-3.66)*	-0.413 (-3.53)*	-0.139 (-1.73)***	-0.116 (-1.82)***
3. MMR	_____	_____	4.304 (3.23)*	3.841 (2.41)**	_____	_____	_____	_____	_____	_____
4. EFI	_____	_____	_____	_____	0.239 (2.01)**	0.328 (3.33)*	_____	_____	_____	_____
5. NEWSC	_____	_____	_____	_____	_____	_____	0.198 (2.85)*	0.192 (2.96)*	_____	_____
6. EMERGE	_____	_____	_____	_____	_____	_____	_____	_____	1.237 (4.41)*	1.270 (5.48)*
Adjusted R ²	24.39%	27.83%	44.09%	34.27%	30.63%	45.11%	44.85%	44.59%	51.94%	61.79%
F	11.65*	13.73*	13.97*	9.60*	8.06*	14.15*	11.98*	11.86*	18.29*	26.88*

(1) * Significant at $\alpha = 0.01$

**Significant at $\alpha = 0.05$

***Significant at $\alpha = 0.$

Table 15		
Effect of Overall Earnings Opacity and Stock Market Performance		
Model: $LMMR_i = \alpha_0 + \alpha_1 LGNP + \alpha_2 LDYDG_i + \alpha_3 LOEO_i + \mu_i$		
Dependant Variable (1)	LMMR_i	
Independent Variable	(1)	(2)
Intercept (2)	-0.1274 (3.39)*	0.04083 (0.45)
LGNP (a)	0.0425 (4.73)*	0.0278 (2.21)*
LDYDG (b)	3.2495 (1.98)**	4.3802 (2.09)**
LOEO (a)		-0.1474 (-2.14)**
F	12.24**	10.16**
Wald Test (3)		
R ² (adjusted)	39.10%	47.80%
Reset F-value	0.05	0.05
Hausman F-value	7.23	7.85
<p>(1) Variable definitions: Variables are defined in Table 3. (a) indicates that this variable is included as log (variable) and (b) indicates that this variable is included as log (1 + variable)</p> <p>(2) White's adjusted t-statistics are between parentheses. *Significant at 0.01 level **Significant at 0.05 level.</p> <p>(3) Wald test for joint significance</p>		

Table 16		
Effect of Stock Market Performance and Earnings Opacity on Economic Growth		
Model: $ECG_i = \alpha_0 + \alpha_1 LGNP_i + \alpha_2 LDHI_i + \alpha_3 LGC/GDP_i + \alpha_4 ELMMR_i + \alpha_5 LOEO_i + \mu_i$ (2)		
Dependant Variable (1)	ECG (Per Capita GNP Growth for the period 1998-01)	
Independent Variable	(1)	(2)
Intercept (2)	3.0515 (4.34)*	3.9841 (4.28)*
LGNP (a)	-0.7085 (3.02)*	-0.6830 (2.77)*
LDHI (a)	3.9433 (2.50)**	3.7931 (2.30)**
LGC/GDP (a)	-0.7998 (-3.82)*	-0.7314 (-3.69)*
ELMMR (3)	6.4353 (2.70)*	5.8066 (2.03)**
LOEO (a)		-0.1633 (-0.42)
F	10.08*	7.80*
R ²	58.29%	56.66%
Wald Test (3)	0.001	0.001
Reset F-value	0.005	0.005
Hausman F-value	8.42	8.47
<p>(1) Variable definitions: Variables defined as in Table 3. (a) indicates that this variable is included as log (variables)</p> <p>(2) T Statistics are between parentheses. * Significant at a 0.01 level **Significant at a 0.05 level</p> <p>(3) ELMMR = Estimated stock market performance from the results of equation (1) in Table 5.</p>		

Table 17 Level of output per worker and Earnings Opacity

	Model 1	Model 2
Independent Variables		
Intercept (1)	0.592 (3.02)*	0.535 (3.22)*
OEO	-0.159 (-4.77)*	-0.119 (-4.02)*
EF	_____	-0.598 (-3.93)*
LO	_____	-0.109 (1.61)
Adjusted R ²	39.69%	58.37%
F	22.72*	16.43*

(1) * Significant at $\alpha = 0.01$

Table 18 Capital Intensity and Earnings Opacity

	Model 1	Model 2
Independent Variables		
Intercept (1)	0.110 (1.92)***	0.092 (1.64)
OEO	-0.021	-0.014 (-1.83)***
EF	_____	-0.114 (-2.21)**
LO	_____	-0.001 (-0.06)
Adjusted R ²	10.70%	18.33%
F	4.96**	3.47**

(1) * Significant at $\alpha = 0.01$

**Significant at $\alpha = 0.05$

***Significant at $\alpha = 0.10$

Table 19 Human Capital per worker and Earnings Opacity

	Model 1	Model 2
Independent Variables		
Intercept (1)	0.072 (0.87)	0.077 (1.10)
OEO	-0.041 (-2.91)*	-0.029 (-2.32)**
EF	_____	-0.193 (2.99)*
LO	_____	-0.095 (3.30)*
Adjusted R ²	18.48%	44.54%
F	8.48*	9.84*

(1) * Significant at $\alpha = 0.01$

**Significant at $\alpha = 0.05$

Table 20 Productivity and Earnings Opacity

	Model 1	Model 2
Independent Variables		
Intercept (1)	0.346 (1.92)***	0.304 (1.63)
OEO	-0.085 (-2.91)*	-0.079 (-2.37)**
EF	_____	-0.152 (0.381)
LO	_____	0.039 (0.605)
Adjusted R ²	18.49%	16.53%
F	8.49*	3.18**

(1) * Significant at $\alpha = 0.01$

**Significant at $\alpha = 0.05$

Table 21 Effects of Investor Protection on Earnings Opacity

The Table presents results of the determinants of earnings opacity. The dependent variable is the overall earnings score for each country. The independent variables are 1) the anti-director rights of the country, 2) the country stock market share of world's capital, 3) the number of auditors per 100,000 population and 4) the accounting disclosure level for the country. T-values are shown between parentheses.

Intercept	11.273	(4.65)*
Anti-Director (AD)	0.456	2.60*
Market Share of World's Capital (MSOWC)	-0.056	2.47**
Number of Auditors per 100,000 population (NOA)	-0.002	2.39**
Disclosure Level (DL)	-0.089	2.52**
F	3.31*	
R ² (Adjusted)	31.64%	
Wald Test	0.01	
Reset F. Value	0.05	
Hausman F. Value	3.22*	

* Significant at the 1 Percent Level

** Significant at the 5 Percent Level

Table 22 Corporate Valuation Model

The Table presents results of the corporate valuation model. The dependent variable is Tobin's Q. The independent variables are 1) civil law, a dummy variable that equals one if the legal origin of the company law or commercial code of the country is civil law and zero otherwise, 2) estimated overall earnings opacity from the regression results of equation (1) in Table 2, 3) the interaction between civil law and estimated overall earnings opacity and 4) the anti-director rights of the country. T values are between parentheses.

	1	2
Intercept	5.113 (6.36)*	5.239 (5.84)**
Civil Law	-3.988 (-4.54)*	-4.072 (-4.38)*
Estimated Overall Earnings Opacity	-0.649 (-4.28)*	-0.654(-4.20)*
Civil Law * Estimated Overall Earnings Opacity	0.678 (4.12)*	0.685 (4.04)*
Anti-Director Rights (AD)	-----	-0.021 (-0.35)
F	9.60*	6.91*
R ² (Adjusted)	52.86%	50.69%
Wald Test	0.01	0.01
Reset F. Value	0.05	0.05
Hausman F. Value	6.82*	5.32*

* Significant at the 1 Percent Level

** Significant at the 5 Percent Level

