

# **The Relation between Trust and Accounting Quality**

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## **Abstract**

Using a sample of 43 countries, we examine the association between societal trust and firms' voluntary and regulated financial reporting and disclosure quality. We explore two competing predictions. On one hand, societal trust and voluntary reporting quality are predicted to have a negative association if greater trust lowers stakeholders' demand for information. Similarly, a predicted negative association would arise for regulated reporting requirements if greater trust lowers stakeholders' demand for regulation. On the other hand, societal trust and reporting quality are predicted to have a positive association if stakeholders perceive firms' disclosures as more credible in high trust environments thereby increasing stakeholders' demand for information. We document a robust positive empirical relation between societal trust and measures of voluntary accounting quality, but find no association between societal trust and regulated reporting requirements.

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***Key words:*** accounting quality, culture, disclosure, institutions, regulation, trust

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## **1. Introduction**

Societal trust in a country has been shown to affect its economic growth and development, capital market development, government regulation and international trade (Knack and Keefer, 1997, Stulz and Williamson, 2003, Guiso, et al., 2006 and 2008). These studies are premised on the idea that interpersonal trust affects contracting costs in an economy: greater trust enables greater economic activity that requires an agent to rely on another agent's future actions. In public corporations, capital market participants (investors and creditors) entrust managers with their invested capital and rely on them to create value by deploying these assets in the most productive manner available. Periodic accounting reports are an important source of information for capital market participants to monitor managers' actions that affect the value of their investments. In this paper, we posit that the level of trust in an economy affects capital market participants' subjective beliefs about the credibility of periodic accounting reports, thereby affecting investors' demand for accounting disclosures. Consequently, we examine the association between generalized societal trust and firms' accounting quality across countries.

The informativeness of firms' financial reports is affected by regulations that mandate accounting disclosures as well as by investors' and other stakeholders' demand for information. Accordingly, we distinguish between firms' accounting quality that is influenced by regulated (mandated) reporting requirements and firms' accounting and disclosure practices that are affected by managerial choices made in response to the institutional environment within a country. We propose that the level of trust in an economy potentially affects both regulators' incentives to mandate firm disclosures and capital market participants' demand for accounting information.

Societal trust is potentially negatively associated with firms' reporting and disclosure quality if investors' demand for information declines in their trust of firm insiders. This argument is premised on the definition of trust as the "subjective probability that individuals attribute to the possibility of being cheated" (Guiso et al., 2008). In high trust economies, arms-length investors would place a low likelihood of being cheated by firm managers or controlling owners, and therefore choose a low disclosure regime. Extensive voluntary financial reporting by firms would then be precluded if there were a high level of societal trust in the economy. This also implies that a high level of trust (or lack of mistrust) in an economy decreases the demand for regulatory interventions mandating firm disclosures, (see, for example, Pinotti, 2008, and Aghion et al., 2010). The upshot being that societal trust is negatively associated with both mandatory and voluntary firm accounting quality.

In contrast, if capital market participants rationally perceive firms' managers and controlling owners as trustworthy, societal trust would be positively associated with accounting quality. In high-trust economies, firms' managers are more likely to disclose information since they believe that investors are more likely to revise their priors in light of accounting disclosures since they view these disclosures as credible. Mistrust on the other hand would lead capital market participants to disregard disclosed information thereby reducing managers' incentives to be forthcoming. Further, greater trust in an economy promotes the development of institutions that complement financial reporting and disclosure and thus increases the returns to firms' reporting and disclosure activities (see, for example Carlin, et al., 2010, and Boduh-creed, 2010). Higher quality institutions can inhibit underlying corporate malfeasance and expropriation which lowers managers' incentives to obfuscate information (see, for example, Leuz, et al., 2003) and thus increases both firms' observed accounting quality and investors' trust. Finally, higher

quality financial reporting and disclosure itself may causally increase investor trust and thus lead to a positive observed association between accounting quality and trust.

To test these competing explanations regarding the association between trust and accounting quality, we empirically examine the association between generalized societal trust and measures of firms' financial reporting and disclosure quality across countries. We examine this association using a data from 43 countries. We use a survey measure of societal trust from the World Value Survey to capture variation in trust across countries. Overall our results attest to a positive association between trust and various measures of firms' voluntary accounting and disclosure quality. In particular, there is a robust positive relation between societal trust and (i) earnings transparency (i.e., lack of earnings management), (ii) timely accounting recognition of bad news, and (iii) annual report disclosures. These results suggest that trust is complementary to high quality accounting and disclosure. However, we find no association between societal trust and mandated accounting reports/disclosures such as IPO disclosure standards and mandated higher reporting frequency (i.e., requirements for quarterly or semi-annual financial statements).

Our findings are robust to alternate specifications that: (i) control for previously-documented institutional (both legal and enforcement) determinants of financial reporting and disclosure quality, (ii) use an alternate measure of societal trust, namely, the inverse of secrecy in a country, (iii) utilize 2SLS and exogenous instruments for the primary trust proxy, and (iv) apply a measure of trust for the subset of a country's population most likely to invest in publicly-traded companies (i.e., the most educated subset of the population).

Our findings suggest that high societal trust increases investors' demand for information because they view it as more credible, which increases firms' manager incentives to provide enhanced disclosures. On the other hand, our findings suggest that high societal trust neither

reduces nor increases the demand for institutions that mandate firm disclosures. This is perhaps due to underlying mistrust in an economy driving increased regulation of accounting and disclosures thereby offsetting any underlying positive association between trust and accounting quality.

Our paper extends the growing literature on societal trust. This literature suggests that trust is a key element of a country's culture that affects economic exchanges, financing opportunities, performance and development (Knack and Keefer, 1996; Knack and Zak, 2001; Guiso et. al., 2004, 2006, 2008, and 2009). Our results suggest that the proximate association between a country's legal/financial institutions and accounting quality (e.g., La Porta et al., 1998, 1999, Leuz, Nanda and Wysocki, 2003; and Daske, Hail, Leuz, and Verdi, 2009) may be more nuanced than previously thought and that deeper cultural factors such as societal trust likely affect the observed patterns of institutions, accounting and economic outcomes.

The results in this study have important implications for related research on: (i) how trust affects economic outcomes, and (ii) how informal institutions such as social norms and culture affect accounting quality and earnings management. First, we document that trust is systematically associated with quality of firms' voluntary financial reports and disclosure presented to outside stakeholders. Given that accounting information is used for contracting and investment decisions, our results provide insights into the additional channels through which trust can affect economic performance and development in a country (beyond traditional *formal* institutions). Second, our findings have important implications for the interpretation of prior studies that attempt to link a country's culture with observed accounting quality (see, for example, Hope, 2003; Douppnik, 2008, and Han, et. al., 2010). In particular, our findings suggest a nuanced link between trust and accounting and that one should be cautious in interpreting

empirical associations between a country's social norms or culture and isolated measures of accounting quality.

The remainder of the paper is organized as follows. In Section 2, we develop our hypotheses regarding the association between trust and corporate financial reporting and disclosure. In Section 3, we outline our empirical framework for testing the association between generalized trust and accounting quality across countries. A unique feature of our analysis is that we examine accounting quality along a number of mandated and voluntary dimensions. Section 4 describes our empirical tests that include correlation and cluster analyses as well as regression tests (with robustness tests using 2SLS). Section 5 concludes and outlines directions for future work.

## **2. Trust and Corporate Financial Reporting and Disclosure**

Commercial transactions, whether formal or informal, are affected by economic agents' beliefs about whether these transactions are in their best interests. In the presence of uncertainty regarding the transaction's value to each economic agent, these beliefs are influenced by the agents' perceptions that the counterparty is honest, credible and otherwise fair in their dealings. We define an agent's perception regarding the counterparty's fair dealing as trust. Our definition is consistent with the definitions in the existing literature on the role played by societal trust in determining economic outcomes. For example, Gambetta (2000) defines trust as "the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action." Similarly, Guiso, et al. (2008) define trust as the subjective probability individuals attribute to the possibility of being cheated. These definitions are premised on the

notion that economic transactions contain an element of uncertainty, which is affected by the relative trust between economic agents.

Francois and Zabochnik (2005), Tabellini (2008), and Boduh-creed (2010), model economies where trust is the likelihood that an opposing contracting party does not succumb to moral hazard and thus fulfills their end of the (informal) contract. Therefore, societal trust is an equilibrium set of priors about the expected actions of other agents in the economy that reflect baseline attributes as well as the endogenous institutions that arise in an economy. Aghion et al. (2010) also examine the link between trust, institutions (in particular regulations) and economic development across countries. They highlight the link between trust and regulation, and argue that distrust creates public demand for regulation, whereas regulation in turn discourages the formation of trust.<sup>1</sup> A key implication of this model is that individuals in low-trust countries desire greater government intervention even though they know the government is corrupt. In related work, Carlin, et al. (2010) take a different tack and argue that trust and regulation are potentially substitutes in financial markets when social capital is valuable, i.e. being perceived as trustworthy is valuable to economic agents.

Guiso, et al. (2008) argue that individual subjective priors (i.e. trust) play a significant role in investment decisions when investors are unfamiliar with the stock market or lack information to assess it. They note that this subjective probability is partly based on objective characteristics of the financial system (the quality of investor protection, its enforcement, etc.) that determine the likelihood of a fraud. But trust also reflects the subjective characteristics of the person trusting.<sup>2</sup> They model the impact of societal trust on investors' portfolio decisions. The

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<sup>1</sup> See also, Pinotti (2008) for similar insights.

<sup>2</sup> Prior research shows that differences in educational background rooted in past history (Guiso, et al., 2004) or in religious upbringing (Guiso, et al. 2003) can create considerable differences in levels of trust across individuals, regions, and countries.

main insight is that, in the absence of any cost of participation, a low level of trust can explain why individuals do not invest in the stock market. When lack of trust is deeply rooted, investors may be doubtful about any information they obtain and disregard it in revising their priors.

The prior literature argues that measures of generalized trust are a determinant of economic development. Several studies provide empirical support to this claim that societal trust affects economic development (e.g., Putnam 1993; Knack & Keefer 1997; Dasgupta & Serageldin 2000; Whiteley 2000; Zak & Knack 2001; Beugelsdijk et al. 2004). The insights from this work suggest that high-trust countries display greater economic development than low-trust countries.<sup>3</sup> Guiso, et al. (2008) examine cross-country differences in stock market participation and firms' ownership concentration. They find that observed societal trust has a positive and significant effect on stock market participation and a negative effect on ownership dispersion. These effects are present while controlling for a country's law enforcement, legal protection, and legal origin.

Based on trust reflecting economic agents' beliefs regarding fair dealing by counterparties, we hypothesize that firms' financial accounting and disclosure activities are influenced by societal trust in an economy. Financial reporting and disclosure are important institutional features that facilitate the flow of information and enhance the efficiency of transactions between firms, investors, suppliers, customers and other contracting parties in an economy. In economies, agents face uncertainty regarding potential partners ability to abide by agreements, giving rise to both moral hazard and adverse selection problems (see, for example, Francois and Zabojnik, 2005, Tabellini, 2008, and Boduh-creed, 2010). We argue that societal

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<sup>3</sup> There main concern with this evidence is the direction of causality. Several studies attempt to address this issue (e.g., Putnam 1993; Knack & Keefer 1997; Dasgupta & Serageldin 2000; Whiteley 2000; Zak & Knack 2001).

trust affects agents' perceived uncertainty and desire to reduce it, thereby affecting their demand for information derived from firms' financial reporting and disclosure activities.

In an economy, transactions between and within firms and other contracting parties are costly if it is difficult to verify the properties of what is being exchanged, if it is difficult to enforce the contractual terms of exchange, and when exchanges are not repeated. Financial reporting and disclosure, i.e. accounting, can be viewed as an institutional mechanism that helps address these problems (see, also Watts, 1977, Watts and Zimmerman, 1986, Waymire and Basu, 2007). This institutional view of accounting forms the basis of a large literature that examines cross-country variation in accounting systems, policies and activity (see, also Leuz, 2010 and Wysocki, 2011).

A country's *formal* legal and economic institutions affect firms' financial reporting incentives and the quality of financial information reported to outside investors.<sup>4</sup> Ball, et al. (2000) analyze firms from seven countries that differ with respect to capital market institutions and the extent to which they resolve information asymmetries via public disclosure or private communication. They show that firms from countries with "common law" institutions exhibit more timely loss recognition than firms in "code law" countries", consistent with the role of earnings in these economies (see, for example, Basu, 1997). Leuz, et al. (2003) examine the quality of accounting earnings reported by firms from 31 countries and show that both legal and enforcement institutions in a country are important determinants of corporate reporting quality. They document descriptive clusters of institutional features that are associated with earnings management, the extent to which financial reports are opaque, and show that observed

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<sup>4</sup> Institutions include both *formal* and *informal* mechanisms that facilitate economic exchanges. North (1994) suggests that *informal* institutions (including trust, values and social norms) provide foundational support for formal institutions (such as the laws and regulations). Axelrod (1997) also suggests that informal and formal institutions can reinforcing each other because societal values can be formally instituted into laws and regulations. On the other, laws and regulations can reinforce and validate the underlying values and norms.

accounting properties are an endogenous outcome of a country's institutional framework. Bushman, et al. (2004) examine cross-country variation in accounting conservatism, the extent to which firm earnings are timely in reflecting "bad" news, to provide descriptive evidence on possible channels through which specific institutions affect this accounting property. They find variation in observed accounting conservatism is correlated with features of varying legal/judicial systems,

A limitation of these studies on the relation between accounting quality and *formal* institutions (such as laws and regulations) is that the role of *informal* institutions (societal norms and culture) is either largely ignored or presumed to be aligned with or subsumed by formal institutions.<sup>5</sup> However, there are recent studies that examine the association between "cultural" factors and observed accounting outcomes. Bao and Bao (2004) suggest that culture might be a factor contributing to the variation in earnings management across countries. Gray (1988) argues that cultural dimensions identified by Hofstede (1980) influence a country's accounting system in two ways: (a) through their influence on a country's institutions, such as its capital markets, and (b) through their influence on accounting values, such as conservatism, that are shared by members of the accounting subculture within a country. They find an association between some of these cultural dimensions and earnings management across a sample of five countries. Guan et al. (2006) use Gray's (1988) model of the influence of culture on accounting to argue that differences in earnings management across countries are related to culture.

Doupnik (2010) examines the relation between national culture and earnings management across a larger sample of 31 countries. He finds that Hofstede's cultural dimensions such as uncertainty avoidance and individualism are associated with international variation in earnings

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<sup>5</sup> The role of culture has also been explored in accounting (see, for example, Gray, 1988, Nobes, 1998, Jaggi and Low, 2000, Nobes and Parker, 2004, and Hope, 2003).

management across countries. Related work by Hope (2003) and Hope et al. (2008) also investigate the association between various measures of culture (also using Hofstede's 1980 and 2001 cultural dimensions) and individual proxies of accounting quality such as annual report disclosures (Hope, 2003) and high quality audits by Big4 firms (Hope et al., 2008). Both studies find significant associations between accounting quality and cultural factors.

We extend this literature by positing that societal trust plays an important role in affecting firms' voluntary financial reporting and disclosure activities as well as regulators' desire to mandate such activities. We advance two competing hypotheses regarding the association between the extent to which individuals trust others and the accounting quality of public corporations in an economy. The first hypothesis predicts a negative association between societal trust, i.e. high societal trust lowers accounting quality, whereas the second proposes a positive association, i.e. high societal trust increases the quality of firms' financial reporting and disclosure.

If trusting individuals are more likely to engage in economic transactions because they believe that counterparties are more likely to abide by contractual terms or otherwise treat them "fairly", their demand for (ex post) information regarding the counterparty's performance is likely lower. This argument is predicated on the notion that trust is formed due to repeated relationships that lead individuals to rationally revise their beliefs regarding the credibility of others. As such, trust is developed over time and the benefit of information in revising beliefs about an individual's credibility declines as these beliefs become increasingly precise. The implication is that trusting individuals engaged in transactions with firms (as investors, creditors, customers or suppliers) have a lower demand for accounting information that verifies contractual performance. Since disclosure and financial reporting are costly, firms would then rationally

choose a low disclosure and reporting regime. Relatedly, if trust is high, then there is a lower demand for a central regulator to mandate financial reporting requirements (see, Aghion et al, 2010). Consequently, high trust between individuals would lead an economy to adopt lower financial reporting and disclosure requirements on firms.

In contrast, societal trust is positively related to firms' financial reporting and disclosure activity if individuals place a greater value on information that they believe is more credible. In high-trust societies, economic agents' beliefs about the credibility of firm disclosures are both greater and more precise. Consequently, in revising their prior beliefs (say, about firm value) they place a greater weight on information disclosed by firms. In response, firms are more forthcoming in disclosing information when they perceive that the users of this information treat disclosure as more credible. Conversely, in low trust societies individuals treat firm disclosure as less credible, perhaps even disregard these altogether, causing firms to rationally pick a low level of financial reporting so as to avoid the costs associated with information dissemination. In high trust societies, firms withholding information potentially also face greater valuation and reputation penalties; non-disclosure is perceived to indicate both "bad" firm prospects as well as less forthcoming (honest or credible) managers. To avoid such penalties firms are more likely to commit to higher reporting and disclosure regime, in a high trust economy. Accounting regulators will also choose higher quality financial reporting and disclosure requirements in a high-trust society because they place a greater value on firm disclosures and face greater demand for information from their constituents. Hence, societal trust is positively associated with accounting quality.

Although we are primarily concerned with explaining an association between societal trust and accounting quality, our hypotheses do imply causation; the level of societal trust

determines the quality of firms' financial reporting and disclosure. However, it is plausible that trust develops in a society due to both institutions that require enhanced disclosure and greater financial reporting quality, and economic factors that cause market participants to repeatedly interact thereby increasing the precision of their beliefs about the trustworthiness of other parties. Although we are unable to resolve the causality of the trust-accounting quality relation, we believe that it is more likely that trust affects firms' financial reporting quality, than vice a versa, because measures of societal trust are fairly stable and do not show appreciable temporal variation (see Guiso, et al. 2006). In our empirical tests, we also attempt to alleviate the causation concerns by using more primitive instrumental variables that affect the level of societal trust.

Trust is also known to affect firms' financing choices; ownership structure, capital market development and the prevalence of trade credit (Guiso, et al. 2004). Empirical evidence demonstrates that firms in low trust countries have more concentrated ownership and rely on trade credit, because of weak capital market development. In the light of this evidence, our measures of accounting quality are potentially affected by these financing choices. For instance, several measures of accounting quality incorporate accounting accruals, i.e. changes in working capital accounts, which are likely to be larger in firms that place a greater reliance on trade credit as a financing vehicle. Consequently, any empirical relation between societal trust and certain measures of accounting quality is potentially spurious due to a correlated omitted variable. To address this concern, our tests (described below) employ a variety of proxies for reporting and disclosure quality. Several of these measures are not directly affected by firms' financing choices.

### **3. The Empirical Association between Trust and Accounting Quality**

#### *3.1 Measurement of Trust: Societal Trust*

Across-country studies of societal trust often use an empirical proxy based on the question “Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?” This question from the American General Social Surveys (GSS) has been used in the more broadly applied World/European Values Survey (WVS) (see, Nannesatd, 2008). The data elicited by this question are available for respondents from a large number of countries throughout the world and from several points in time (waves). Prior research has shown that aggregate levels of this trust proxy correlate quite well across countries with a number of indicators of levels of trustworthiness, such as, the level of corruption (Uslaner, 2002), and the prevalence of violent crime (Lederman et al., 2002). This should not be expected if the open-ended wording of the generalized trust question would lead respondents to rely on widely different interpretations (or guesses) as to what the question refers to.

The WVS has been conducted in about 80 countries in different waves of interviews between 1981 and 2000, including new and established democracies, as well as non-democratic countries. The first wave took place in 1981–83, followed by a second in 1990–91, a third in 1995–96, a fourth wave in 2000–01, and a fifth wave in 2005.<sup>6</sup> As observed in the data, levels of generalized trust vary widely across countries. The Nordic countries (together with the Netherlands) exhibit the highest trust levels, while trust levels are uniformly low in South America and in many post-communist countries. Such patterns in the distribution of trust levels

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<sup>6</sup> For further information see World Values Survey ([www.worldvaluessurvey.org](http://www.worldvaluessurvey.org)).

suggest that differences in trust levels may be driven by cultural and/or historical differences between countries, as suggested by Putnam (1993), Bjornskov (2007), and others.

In our study, our measure societal trust is based on data tabulated from recent waves (Wave 4 and 5) of the *World Values Survey* and the *Latinbarometro Survey* (see Medrano, 2011, World Map of Interpersonal Trust at [www.jdsurvey.net](http://www.jdsurvey.net)). Survey respondents answered the question of trust of people in their country. The two possible answers were “Most people can be trusted” and “Can’t be too careful”. Based on the responses, a “TRUST INDEX” was calculated for each country as:  $100 + (\% \text{ Most people can be trusted}) - (\% \text{ Can't be too careful})$ .

### *3.3 Measurement of Multidimensional Accounting Quality*

In this study, we examine the association between societal trust and several dimensions of accounting quality. The motivation for this approach is (i) there is no single measure or sufficient statistic capturing the breadth of firms’ reporting and disclosure activities, and (ii) accounting quality is likely the result of both mandated (regulated) and non-mandated (voluntary outcomes arising from managerial choices) reporting and disclosures. Therefore, in contrast to many prior studies that examine only single accounting attributes (such as conservatism, accounting standards, or earnings management), we examine a large set of accounting quality measures.

Table 1 provides accounting and disclosure quality scores for a sample of 43 countries (missing or unavailable values are reported as “NA”). We use three measures that arguably capture firms’ voluntary reporting quality (aggregate earnings management, timely bad news recognition, and annual report disclosures). We also use two measures to capture regulated financial reporting requirements in a country (IPO disclosure requirements and mandated

reporting frequency). The five dimensions of country-level accounting and disclosure quality are defined as follows:

***Earnings Management LNW Score (1996-2005):*** This measure reflects earnings management and opacity scores based on Leuz, et al. (2003) and tabulated and updated in Leuz (2010). These aggregate scores are based on 4 metrics measuring the extent to which firms' reported earnings obfuscate or potentially misrepresent economic performance as a result of managerial intervention in the financial reporting process. The four measures reflect 1) earnings smoothing (reduced variability of reported earnings by altering accounting accruals, 2) the correlation between accounting accruals and operating cash flows, 3) earnings discretion (magnitude of accruals), and 4) small loss avoidance. Leuz, et al. (2003) demonstrates that these reporting outcomes reflect the influence of various institutional (i.e., investor protection) and market incentives and thus capture voluntary reporting activities (beyond just accounting standards).

***Timely Bad News Recognition:*** This variable captures the average country-level association between reported firm-level earnings and negative stock returns as reported in Bushman and Piotroski (2008). The rationale for this variable is that more timely recognition of bad news is an important dimension of transparent (i.e., high quality) financial reporting. This variable captures managers' discretionary choice in recognizing bad news in earnings (in a timely manner) and thus captures voluntary aspects of accounting quality under the presumption that transparent firm managers are more likely to make accounting choices that reflect adverse economic information. The reported values of "Timely Bad News Recognition" are the country estimates of " $\beta_3$ " drawn from pooled regressions in Bushman and Piotroski (Table 2, 2008). The regression specification is:  $NI = \beta_0 + \beta_1*NEG + \beta_2*RET + \beta_3*RET*NEG$ , where NI is a firm's

reported net income, RET is the annual stock return and NEG is a dummy variable which equals one if  $RET < 0$ .

***CIFAR Index 1995:*** This index is created by the Center for Financial Analysis and Research based on firms' 1995 annual reports. It counts the inclusion or omission of 90 items that fall into seven broad categories, and in each country the index covers a minimum of three companies. Additional information on the creation of the index can be found in Bushman, et al. (2004). While the measure likely captures some aspects of required/mandated disclosures, it also reflects firms' voluntary disclosures that are influenced by institutional and market incentives.

***Disclosure Requirements:*** This variable is an index, derived from La Porta, et al. (2006), capturing disclosure requirements for domestic corporations that raise capital through an initial public offering (IPO) of common shares to be listed on a country's largest stock exchange. The index captures prospectus, compensation, shareholders; inside ownership; irregular contracts; and transactions disclosures. The rationale behind this measure is that firms operating in countries with greater disclosure requirements will be more transparent in their financial reporting. Accordingly, this variable captures mandated (regulated) financial reporting rules.

***Average # Financial Reports/Year:*** This variable is the average frequency of financial reports issued each year by public companies in a country (as report in Choy and Zheng, 2011). For each firm, its reporting frequency is coded as 4 for quarterly reporting, 2 for semiannual, and 1 for annual. Choy and Zheng (2011) obtain the data from *Datastream* and are for the period 1995-2009. Under the premise that transparent firms are more likely to issue multiple reports in a year, the measure reflects the extent to which firms are forthcoming in their financial reporting

and disclosure activities. In general, most countries have mandated requirements for reporting frequency and thus this variable likely captures mandated (regulated) financial reporting rules.

### *3.4 Approaches to measuring the association between Trust and Accounting Quality*

Prior empirical studies examining societal trust typically estimate equations relating a measure of trust to various economic or social outcomes. There are limitations to this approach including possible endogeneity (see, for example, Durlauf, 2002). The major endogeneity problem with generalized trust is highlighted by Putnam's (2000) insight that "causal arrows among civic involvement, reciprocity, honesty, and social trust are as tangled as well-tossed spaghetti" (p. 137) extends to other relationships involving trust as the (supposedly) dependent or (supposedly) independent variable. Our empirical analysis is confined to analyzing the relation between societal trust and our measures of firms' voluntary and mandated financial reporting and disclosure quality. Consequently, the following analysis presents (i) correlation analysis, (ii) cluster analysis, (iii) OLS regression analysis, and (iv) 2SLS regression analysis using exogenous instruments for trust and other institutions.

## **4. Empirical findings**

### *4.1. Descriptive statistics on countries' accounting quality and trust*

Table 1 summarizes the various dimensions of accounting quality along five dimensions of voluntary and mandated reporting and disclosure. As evidenced by the data, there the accounting quality variables show large variation across countries. In order to determine if there are consistent patterns and relations among the variables, we present summary correlations in Table 2. The measures of accounting quality show consistent correlations patterns with each other. For example, *earnings management* displays correlations in excess of -0.47 with all other measures, except for mandated reporting frequency).

Table 3 summarizes the two measures of societal trust. Our first measure of societal trust is based on data tabulated from surveys of interpersonal trust question of “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” The data are from recent waves (Wave 4 and 5) of the *World Values Survey* and *Latinbarometro* (see Medrano, 2011, World Map of Interpersonal Trust at [www.jdsurvey.net](http://www.jdsurvey.net)). Survey respondents answered a question on trust of people in their country. The two possible answers were “Most people can be trusted” and “Can’t be too careful”. Based on the responses, a “Trust Index” was calculated for each country as:  $100\% + (\% \text{ Most people can be trusted}) - (\% \text{ Can't be too careful})$ .

Our second measure, secrecy, captures the inverse of societal trust. Hope et al. (2008) motivate this variable by noting that “Gray (1988) argues that the higher a country ranks in terms of uncertainty avoidance and power distance and the lower it ranks in terms of individualism, then the more likely it is to rank highly in terms of secrecy.” Therefore, Hope et al. (2008) construct the secrecy measure as the sum of uncertainty avoidance (UA) and power distance (PD) scores less individualism (IND) score:  $Secrecy = UA + PD - IND$ , where UA, PD, and IND scores are derived from Hofstede, (1980). As expected, the across country correlation between generalized trust and secrecy is -0.71.

#### 4.2 Cluster Analyses

As discussed in Leuz and Wysocki (2009) and Leuz (2010), the problems confounding the study of *formal* and *informal* institutions are not just ones of identification and bias. More generally, complementarities are likely to exist between legal, regulatory and informal institutions in a country. In other words, multiple institutions endogenously arise to fit and work

with each other. Therefore, it is difficult, if not impossible, to attribute observed differences in accounting, institutions, and economic outcomes across countries exclusively to specific formal or informal institutions or factors. However, empirically documenting consistent patterns of institutions and associated economic and accounting outcomes can be a useful undertaking, especially if the patterns help shed light on the validity of proposed theories and/or possible mechanisms for the understanding the relation between various institutions and accounting and economic outcomes across countries. Therefore, we analyze the association between various measures of accounting quality and trust (and other institutions) using descriptive cluster analysis techniques (see, for example, Leuz, et al., 2003 and Leuz, 2010). Many of the accounting quality attributes (and other institutional elements) tend to co-move and are likely to be observed as “bundles”. While the limited set of countries in the world prevents unequivocal (and causal) identification of which accounting factors (or institutions) are the key correlate of trust, the patterns in the data are likely to help validate or eliminate various hypotheses.

We provide descriptive evidence on the systematic patterns in trust across groups of countries with similar accounting attributes. The cluster analysis is based on three arguably voluntary accounting quality attributes (*earnings management*, *timely bad news recognition*, and *CIFAR annual report scores*). The measures are standardized to z-scores, and a k-means cluster analysis with three distinct country clusters is conducted. Panel A of [Table 4](#) reports the resulting 3 clusters of countries. The first cluster is one that is typically viewed as “outsider” economies with developed financial markets. The second and third clusters tend to be more “insider” dominated economies in which firms do not have significant access to capital markets and arms-length financing. The groupings are consistent with the common- and code-law as well as regional distinctions used in prior research to classify countries (see, e.g., [Ball et al.](#),

2000; Ball et al., 2003). Panel B of Table 4 shows the differences between the clusters' average generalized trust (and secrecy). Outsider economies (cluster 1) exhibit much higher levels of trust (and lower secrecy) than insider economies (clusters 2 and 3). The third cluster exhibits statistically insignificant differences in trust (and secrecy) from cluster 2.

Panel C also shows general similarities in the patterns of countries in the 3 clusters that were determined using legal institutions and regulations rather than "accounting quality" attributes to determine clusters. This evidence is consistent with the arguments in Leuz, et al. (2003) and Leuz (2010) that legal protection and enforcement likely influences firms reporting incentives.

#### *4.3 Regression Analyses*

We conduct our multivariate empirical analysis by estimating Ordinary Least Squares regressions that regress measures of voluntary and mandatory accounting quality on societal trust and measures of country-level institutions that protect and enforce investors' claims. The main results are presented in Tables 5 and 6.

Our first set of tests estimate *voluntary* accounting quality measures as a function of societal trust, while controlling for (i) investor protection based on measures from either La Porta, et al. (1998) or Djankov, et al. (2008), and (ii) rule of law based on a measure from Kaufmann, et al. (2003). The results in Panel A of Table 5 show that societal trust is negatively associated with earnings management, and positively with accounting conservatism and disclosure quality (CIFAR) [See "Model1" specifications].

For benchmark comparison purposes, we then estimate regressions using previously-documented institutional determinants of accounting quality (namely, investor protection and

rule of law variables). Consistent with prior research, the “*Model2*” regression specifications in Panel A show that an investor protection proxy (from La Porta, et al., 1998) and a rule of law proxy (from Kaufmann et al., 2003) are significantly associated with *earnings management*, *timely bad news recognition*, and the *CIFAR disclosure index*. We then estimate a combined regression that includes both trust and the investor protection and rule of law proxies (see “*Model3*” and “*Model4*” specifications). The association between trust and the voluntary accounting quality measures remains significant even with the inclusion of the other legal and enforcement controls. These results suggest that that societal trust in a country is positively related to financial reporting and disclosure quality of firms that operate in the country. Finally, we estimate the combined regressions using an alternate proxy for trust (the inverse of a proxy for secrecy in a country). Again, associations between this trust proxy and the voluntary accounting quality measures remains significant even with the inclusion of the other legal and enforcement controls.

We next test for the relation between mandated financial reporting and disclosure quality and trust. Panel B of Table 5 shows that there is no significant association across countries between trust and measures of regulated accounting/disclosure such as: (i) IPO disclosure standards, and (ii) mandated increased reporting frequency (such as required quarterly financial statements). These results are unchanged in all regression specifications (see *Models 1-5*).

#### *4.4 Robustness Checks*

The multiple regressions presented in Table 5 assume that trust and the other institutional variables are exogenous. However, if the accounting quality variables and the trust/institutional variables are simultaneously determined, then our findings may suffer from an endogeneity bias.

We address this concern by using the religious make-up of a country (*% Protestant* and *% Catholic*) and pre-test-period country wealth as exogenous instruments for the trust and investor protection variables (see also Beck, et al., 2003, Berkowitz et al, 2003, and Guiso, et al., 2009). Prior research has shown that religion is related to societal trust and a country's wealth influences institutional development. Moreover, these instruments can be considered as predetermined in our analysis because the religious origins and makeup of a country are often realized from historical occupation and colonization. Table 6 reports results of 2SLS regressions estimated using these instruments and applied to the various dependent variables capturing voluntary and mandated accounting quality. The results for the *voluntary* accounting quality variables are generally robust to the 2SLS specification using both the standard societal trust measure and the inverse secrecy measure.

Finally, the regressions results presented in Table 5 rely on a trust measure that captures *average* trust levels across all levels of a country's population represented in the *World Values Survey* (and related surveys). However, not all of a country's population has the wealth and capability to invest in or interact with publicly traded corporations (see, for example Guiso et al., 2008). If only a subset of the population invests/interacts with public companies *and* their level of trust is systemically different from the general population, then one might have reservations about the associations documented in Tables 5 and 6. Therefore, we construct an alternate measure of trust from the World Values Survey (Wave 5) using only survey respondents with high levels of education (i.e., respondents must have completed at least a secondary level of education). These respondents are more likely to have enough wealth and resources to invest in or interact with publicly traded corporations in a country. The regression results using this focused population of educated/wealthy respondents to the trust question are presented in Table

7. It should be noted that the sample size is slightly smaller for these tests because we rely only on survey data from Wave 5 of the *World Values Survey*. Once again, we find that trust shows a significant negative association with *earnings management* and a significant positive association with *timely bad news recognition*. However, the results for *CIFAR disclosure index* are no longer significant. Consistent with the results in Table 5, the regulated reporting variables show no association with trust.

## **5. Summary and Conclusions**

In this paper, we examine the association between trust and observed accounting quality across countries. We highlight the distinction between regulated (mandated) accounting standards and firms' observed voluntary (non-mandated) accounting and disclosure practices that evolve in response to the institutional environment. On one hand, high levels of trust (or lack of mistrust) in an economy may decrease the demand for regulation, which suggests a negative association between trust and mandated disclosures in an economy. Similarly, extensive voluntary financial reporting by firms may be unnecessary if there is a high level of baseline trust in an economy. On the other hand, other theories suggest the opposite association if: (i) greater trust in an economy promotes the development of institutions that complement financial reporting and disclosure, (ii) higher quality institutions can inhibit underlying corporate malfeasance and expropriation which lower managers hiding incentives and thus increases both observed accounting quality and trust, and (iii) higher quality financial accounting may causally increase investor trust thus lead to a positive association between accounting quality and trust.

We study the empirical association between generalized trust and the measures of firms' financial reporting and disclosure using a large sample of firms from 43 countries. Our results

suggest a positive association between trust and various measures of firms' voluntary accounting and disclosure quality practices. In particular, there is a robust positive relation between societal trust and (i) earnings transparency (i.e., lack of earnings management), (ii) timely accounting recognition of bad news, and (iii) annual report disclosures. These results suggest that societal trust complements high quality accounting and disclosure.

However, we find no association across countries between societal trust and regulated accounting/disclosure such as: (i) IPO disclosure standards, and (ii) mandated increased reporting frequency (such as required quarterly financial statements). These findings suggest that societal mistrust in an economy may drive increased regulation of accounting and thereby offset other positive links between trust and accounting quality.

Our paper builds on the growing literature on societal trust. Our empirical results indicate that the proximate association between a country's legal/financial institutions and accounting quality may more nuanced than previously thought. Therefore, deeper causes and factors such as societal trust likely affect the observed patterns of institutions, accounting and economic outcomes. Our findings have important implications for research on how informal institutions such as social norms and culture affect accounting quality and earnings management. First, we document that trust is robustly associated the measures of (voluntarily-generated) accounting quality. Given that accounting information is used for contracting and investment decisions, our results provide insights into the additional channels through which trust can affect economic performance and development in a country (beyond traditional *formal* institutions). Our broad findings on both mandated (regulated) and voluntary reporting/accounting also suggest a nuanced link between trust and various measures "accounting quality". Thus, one

should be cautious in interpreting empirical associations between a country's social norms or culture and isolated measures of accounting quality.

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**Table 1 – Measures of Accounting and Disclosure Quality for Sample of 43 Countries**

| <i>Country name</i> | <i>Earnings</i>   | <i>Timely Bad</i>  | <i>CIFAR</i>    | <i>Disclosure</i>  | <i>Average #</i>  | <i>Fraction Big</i> |
|---------------------|-------------------|--------------------|-----------------|--------------------|-------------------|---------------------|
|                     | <i>Management</i> | <i>News</i>        | <i>Index</i>    | <i>Requirement</i> | <i>Financial</i>  |                     |
|                     | <i>LNW Score</i>  | <i>Recognition</i> | <i>1995</i>     | <i>(Voluntary/</i> | <i>Reports/Yr</i> |                     |
|                     | <b>(Voluntary</b> | <b>(Voluntary</b>  | <b>Mandated</b> | <b>(Mandated</b>   | <b>(Voluntary</b> |                     |
|                     | <b>AQ)</b>        | <b>AQ)</b>         | <b>AQ)</b>      | <b>AQ)</b>         | <b>AQ)</b>        |                     |
| Argentina           | 0.391             | 0.401              | 68              | 0.5                | NA                | 0.8                 |
| Australia           | 0.078             | 0.343              | 80              | 0.92               | 1.95              | 0.8                 |
| Austria             | 0.808             | -0.093             | 62              | 0.25               | 2.52              | 0.53                |
| Belgium             | 0.682             | 0.181              | 68              | 0.42               | 2.25              | 0.58                |
| Brazil              | 0.658             | 0.152              | 56              | 0.25               | NA                | NA                  |
| Canada              | 0.162             | 0.377              | 75              | 0.92               | 3.91              | 0.93                |
| Chile               | 0.358             | 0.017              | 78              | 0.58               | 2.05              | 0.89                |
| Colombia            | 0.478             | NA                 | 58              | 0.42               | NA                | 0.56                |
| Denmark             | 0.53              | 0.244              | 75              | 0.58               | 2.6               | 0.85                |
| Finland             | 0.26              | 0.11               | 83              | 0.5                | 3.62              | 0.8                 |
| France              | 0.536             | 0.04               | 78              | 0.75               | 1.98              | 0.46                |
| Germany             | 0.62              | 0.22               | 67              | 0.42               | 2.44              | 0.51                |
| Greece              | 0.881             | 0.087              | 61              | 0.33               | 2.45              | 0.36                |
| Hong Kong           | 0.521             | 0.256              | 73              | 0.92               | 2.2               | 0.87                |
| India               | 0.537             | 0.156              | 61              | NA                 | 2.47              | 0.09                |
| Indonesia           | 0.715             | 0.046              | NA              | 0.5                | NA                | 0.48                |
| Ireland             | 0.199             | 0.495              | 81              | 0.67               | 2.07              | 0.88                |
| Israel              | 0.329             | 0.23               | 74              | 0.67               | NA                | 0.49                |
| Italy               | 0.826             | 0.135              | 66              | 0.67               | 3.25              | 0.94                |
| Japan               | 0.802             | 0.107              | 71              | NA                 | 2.49              | 0.77                |
| Korea (South)       | NA                | 0.026              | 68              | NA                 | 2.08              | 0.84                |
| Kenya               | 0.693             | NA                 | NA              | 0.5                | NA                | NA                  |
| Malaysia            | 0.643             | 0.125              | 79              | 0.92               | 3.71              | 0.67                |
| Mexico              | 0.502             | 0.466              | 71              | 0.58               | NA                | NA                  |
| Netherlands         | 0.482             | 0.177              | 74              | 0.5                | NA                | 0.89                |
| New Zealand         | 0.121             | 0.419              | 80              | 0.67               | 2.41              | 0.9                 |
| Nigeria             | 0.306             | NA                 | 70              | NA                 | NA                | NA                  |
| Norway              | NA                | 0.459              | 75              | 0.58               | 3.76              | 0.92                |
| Pakistan            | 0.706             | -0.085             | 73              | NA                 | 3.36              | 0.01                |
| Peru                | 0.464             | NA                 | NA              | 0.33               | NA                | 0.63                |
| Philippines         | 0.552             | 0.231              | 64              | 0.83               | 3.68              | 0.31                |
| Portugal            | 0.88              | 0.263              | 56              | 0.42               | 2.88              | 0.44                |
| Singapore           | 0.601             | 0.13               | 79              | 1                  | 2.6               | 0.86                |
| South Africa        | 0.307             | 0.051              | 79              | 0.83               | 1.91              | 0.86                |
| Spain               | 0.792             | 0.314              | 72              | 0.5                | 3.74              | 0.92                |
| Sweden              | 0.168             | 0.486              | 83              | 0.58               | NA                | 0.84                |
| Switzerland         | 0.504             | 0.303              | 80              | 0.66               | NA                | 0.79                |
| Taiwan              | 0.639             | 0.158              | 58              | 0.75               | 2.79              | NA                  |
| Thailand            | 0.506             | 0.337              | 66              | 0.92               | 3.7               | 0.35                |
| Turkey              | NA                | -0.006             | 58              | 0.5                | NA                | NA                  |
| UK                  | 0.133             | 0.276              | 85              | 0.83               | 2.01              | 0.78                |
| USA                 | 0.228             | 0.312              | 76              | 1                  | 3.98              | 0.83                |
| Zimbabwe            | NA                | NA                 | 72              | 0.5                | NA                | NA                  |

\* Description of variables provided on following page.

Description of Variables: Table 1 provides accounting and disclosure quality scores for a sample of 43 countries (missing or unavailable values are reported as “NA”). The seven dimensions of country-level accounting and disclosure quality are defined as follows:

**Voluntary Reporting and Disclosure Measures:**

***Earnings Management LNW Score (1996-2005):*** Earnings management and opacity scores based on Leuz, Nanda and Wysocki (LNW 2003) and tabulated and updated in Leuz (2010). These aggregate scores consist of 4 metrics measuring the extent to which firms’ reported earnings obfuscate or potentially misrepresent economic performance as a result of earnings smoothing and the use of reporting discretion.

***Timely Bad News Recognition:*** This variable various captures the average country-level association between reported firm-level and bad news stock returns as reported in Bushman and Piotroski (2008). The regression specification for this regression is:  $NI = b_0 + b_1 * NEG + b_2 * RET + b_3 * RET * NEG$ , where  $NI$  is a firm’s reported net income,  $RET$  is the annual stock return and  $NEG$  is a dummy variable which equals one if  $RET < 0$ . The reported values of “Timely Bad News Recognition” are the country estimates of “ $b_3$ ” drawn from Table 2 (Pooled regressions) of Bushman and Piotroski (2008). The idea behind this variable is that more timely recognition of bad news is one dimension of high quality financial reporting.

***CIFAR Index 1995:*** This index is created by the Center for Financial Analysis and Research based on firms’ 1995 annual reports. It counts the inclusion or omission of 90 items that fall into seven broad categories and , in each country, the index covers a minimum of three companies. Additional information on the creation of the index can be found in Bushman, Piotroski and Smith (2004). **Note: May also capture mandated reporting requirements.**

**Measures of Mandated Reporting Requirements**

***Disclosure Requirements:*** An index of disclosure requirements from La Porta, Lopez-de-Silanes, and Shleifer (2006) capturing disclosure requirements for domestic corporations that raise capital through an initial public offering (IPO) of common shares to be listed on a country’s largest stock exchange. The index captures prospectus, compensation, shareholders; inside ownership; contracts irregular; and transactions disclosures.

***Average # Financial Reports/Year:*** The average frequency of financial reports issued each year by public companies in each country (as report in Choy and Zheng, 2011). For each firm, its reporting frequency is coded as 4 for quarterly reporting, 2 for semiannual, and 1 for annual. Choy and Zheng (2011) obtain the data from *Datastream* and are for the period 1995-2009.

**Other Factors:**

***Fraction Big4 Auditors:*** The fraction of public firms in each country that use a Big Four auditor (as reported in Hope, Kang, Thomas, and Yoo (2008). The primary source for identifying the firm’s auditor is Compustat Global (CG#Auop1). However, Hope et al (2008) also use hand-collected data on audit firm affiliations for Japan and Korea because Big 4 audit firms operate under local company names in these countries. As noted in Hope et al (2008), “prior studies document that Big 4 auditors provide higher-quality audits than do the non-Big 4, and that the source of the higher-quality stems from either reputation concerns and/or differential auditor litigation exposure.”

**Table 2: Pearson Correlations among Measures of Accounting and Disclosure Quality**

|  | <i>Average #<br/>Financial<br/>Reports/Yr</i> | <i>EM Score<br/>(1996-2005)</i> | <i>Disclosure<br/>Requirements</i> | <i>Timely Bad<br/>News<br/>Recognition</i> | <i>CIFAR<br/>Index<br/>1995</i> |
|--|---|---------------------------------|------------------------------------|--|---------------------------------|
| <i>Avg # Reports/Yr</i>                | 1   |                                 |                                    |  |                                 |
| <i>EM Score<br/>(1996-2005)</i>        | 0.14  | 1                               |                                    |  |                                 |
| <i>Disclosure<br/>Requirements</i>     | 0.20  | -0.53*                          | 1                                  |  |                                 |
| <i>Timely Bad News<br/>Recognition</i> | 0.19  | -0.47*                          | 0.35*                              | 1  |                                 |
| <i>CIFAR Index<br/>1995</i>            | -0.21   | -0.78*                          | 0.51*                              | 0.19                                       | 1                               |

Table 2 provides descriptive correlations among accounting and disclosure quality variables for a sample of 43 countries (some values missing for certain countries – see Table 1). \* indicates statistically significant correlation at 5% level.

#### **Mandated Reporting and Disclosure**

***Earnings Management LNW Score (1996-2005):*** Earnings management and opacity scores based on Leuz, Nanda and Wysocki (LNW 2003) and tabulated and updated in Leuz (2010). These aggregate scores consist of 4 earnings smoothing and earnings discretion metrics.

***Timely Bad News Recognition:*** This variable various captures the average country-level association between reported firm-level and bad news stock returns as reported in Bushman and Piotroski (2008).

***CIFAR Index 1995:*** Center for Financial Analysis and Research index of inclusion or omission of 90 items that fall into seven broad categories based on firms' 1995 annual reports.

#### **Mandated Requirements**

***Disclosure Requirements:*** An index of disclosure requirements from La Porta, Lopez-de-Silanes, and Shleifer (2006) capturing disclosure requirements for domestic corporations that raise capital through an initial public offering (IPO) a country's largest stock exchange.

***Average # Financial Reports/Year:*** The average frequency of financial reports issued each year by public companies in each country (as report in Choy and Zheng, 2011).

**Table 3 – Measures of Trust & Secrecy for Sample of 43 Countries**

*Panel A – Measures of Trust & Secrecy*

| Country Name  | <i>Societal Trust</i> | <i>Secrecy</i> |
|---------------|-----------------------|----------------|
| Argentina     | 40.6                  | 89             |
| Australia     | 92.4                  | -3             |
| Austria       | 70.2                  | 26             |
| Belgium       | 63                    | 84             |
| Brazil        | 17.5                  | NA             |
| Canada        | 85.9                  | 7              |
| Chile         | 34.4                  | 126            |
| Colombia      | 30.9                  | 134            |
| Denmark       | 131.9                 | -33            |
| Finland       | 117.5                 | 29             |
| France        | 37.9                  | 83             |
| Germany       | 75.8                  | 33             |
| Greece        | 54.6                  | 137            |
| Hong Kong     | 82.4                  | 72             |
| India         | 52.5                  | 69             |
| Indonesia     | 16.9                  | 112            |
| Ireland       | 72.1                  | -7             |
| Israel        | 48.3                  | 40             |
| Italy         | 60.8                  | 49             |
| Japan         | 79.6                  | 100            |
| Korea (South) | 56.9                  | 127            |
| Kenya         | 20                    | NA             |
| Malaysia      | 17.7                  | 114            |
| Mexico        | 41.7                  | NA             |
| Netherlands   | 90.6                  | 11             |
| New Zealand   | 102.2                 | -8             |
| Nigeria       | 29.8                  | NA             |
| Norway        | 148                   | 12             |
| Pakistan      | 65                    | 111            |
| Peru          | 30.5                  | 135            |
| Philippines   | 20.1                  | 106            |
| Portugal      | 21.9                  | 140            |
| Singapore     | 59.8                  | 62             |
| South Africa  | 38                    | 33             |
| Spain         | 40.9                  | 92             |
| Sweden        | 134.5                 | -11            |
| Switzerland   | 107.4                 | 24             |
| Taiwan        | 70                    | NA             |
| Thailand      | 83.1                  | 108            |
| Turkey        | 10.2                  | NA             |
| UK            | 61.7                  | -19            |
| USA           | 78.8                  | -5             |
| Zimbabwe      | 24.9                  | NA             |

*Panel B – Pearson Correlations*

|                       | <i>Societal Trust</i> | <i>Secrecy</i> |
|-----------------------|-----------------------|----------------|
| <i>Societal Trust</i> | 1                     |                |
| <i>Secrecy</i>        | -0.71                 | 1              |

*Variables:*

*Societal Trust* is based on data tabulated from surveys of interpersonal trust question of “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” The data are from recent waves (Wave 4 and 5) of the *World Values Survey* and *Latinbarometro* (see Medrano, 2011, *World Map of Interpersonal Trust* at [www.jdsurvey.net](http://www.jdsurvey.net)). Survey respondents answered question on trust of people in their country. The two possible answers were “Most people can be trusted” and “Can’t be too careful”. Based on the responses, a “TRUST INDEX” was calculated for each country as:  $100 + (\% \text{ Most people can be trusted}) - (\% \text{ Can't be too careful})$ . More information can be found at [www.worldvaluessurvey.org](http://www.worldvaluessurvey.org)

*Secrecy Measure* (A proxy for the inverse of Trust) This measure is from Hope et al. (2008): “Gray (1988) argues that the higher a country ranks in terms of uncertainty avoidance and power distance and the lower it ranks in terms of individualism, then the more likely it is to rank highly in terms of secrecy.” Therefore, Hope et al. (2008) construct a measure of *Secrecy* as the sum of uncertainty avoidance (UA) and power distance (PD) scores less individualism (IND) score:

$$Secrecy = UA + PD - IND$$

where *UA*, *PD*, and *IND* scores are from Hofstede (1980).

**Table 4 - Accounting and Disclosure Quality Clusters around the World (k=3)**

*Panel A: Cluster membership using 5 measures based on Earnings Management, CIFAR Disclosure Index, Fraction Big Auditors, and Timely Bad News Recognition*

| <i>Cluster 1</i> | <i>Cluster 2</i> | <i>Cluster 3</i> |
|------------------|------------------|------------------|
| Australia        | Argentina        | Austria          |
| Canada           | Belgium          | France           |
| Finland          | Brazil           | Greece           |
| Hong Kong        | Chile            | India            |
| Ireland          | Colombia         | Indonesia        |
| Israel           | Denmark          | Pakistan         |
| Malaysia         | Germany          | Philippines      |
| Mexico           | Italy            | Portugal         |
| New Zealand      | Japan            | Thailand         |
| Norway           | Korea (South)    |                  |
| Singapore        | Kenya            |                  |
| South Africa     | Netherlands      |                  |
| Sweden           | Nigeria          |                  |
| Switzerland      | Peru             |                  |
| UK               | Spain            |                  |
| USA              | Taiwan           |                  |
|                  | Turkey           |                  |
|                  | Zimbabwe         |                  |

*Panel B: Mean Values for Clusters in Panel A*

|  | <i>Cluster 1</i>  | <i>Cluster 2</i>  | <i>Cluster 3</i> |
|--|---|---|------------------|
| Average <i>Societal Trust</i> from World Values Survey | 80.5  | 50.5  | 46.9             |
| Test for Difference in Cluster Means                   | p-value for difference in means of <i>Trust</i> for Cluster 1 and Cluster 2: = 0.01** | p-value for difference in means of <i>Trust</i> for Cluster 2 and Cluster 3: = 0.23 |                  |
|  | p-value for difference in means of <i>Trust</i> for Cluster 1 and Cluster 3: = 0.02*  |   |                  |
| Average <i>Secrecy Index</i> (see Hope et al, 2008)    | 22.6  | 78.9  | 99.1             |
| Test for Difference in Cluster Means                   | p-value for difference in means of <i>Trust</i> for Cluster 1 and Cluster 2: = 0.01** | p-value for difference in means of <i>Trust</i> for Cluster 2 and Cluster 3: = 0.22 |                  |
|  | p-value for difference in means of <i>Trust</i> for Cluster 1 and Cluster 3: = 0.006* |   |                  |

This table presents results from k-means cluster analyses for a sample of a maximum of 43 countries specifying three distinct clusters (k=3). Panel A reports the results using the accounting and disclosure quality variables from Table 1 with respect to *Earnings Management, CIFAR Disclosure Index, Fraction Big Auditors, and Timely Bad News Recognition*. All variables are standardized to z-scores. For all analyses, the data are sorted by per capita GDP in 2000. As cluster analysis can be sensitive to the initial starting groups, I repeat the analyses with different starting clusters to check robustness and representativeness of the final clusters. Panel B reports the cluster means for *Generalized Trust* (from World Value Survey) and *Secrecy Index* (Hope et al. 2008) and tests of difference in means across Clusters 1, 2, and 3.

**Table 4 continued - Clusters Analysis around the World (k=3)**

*Panel C: Cluster membership using institutional variables (excluding accounting) from Leuz (2010) – # of countries =49*

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| <i>Cluster 1</i> | <i>Cluster 2</i> | <i>Cluster 3</i> |
|------------------|------------------|------------------|
| Australia        | Austria          | Argentina        |
| Canada           | Belgium          | Brazil           |
| Hong Kong        | Chile            | Columbia         |
| India            | Denmark          | Ecuador          |
| Ireland          | Finland          | Egypt            |
| Israel           | France           | Indonesia        |
| Malaysia         | Germany          | Jordan           |
| Mexico           | Greece           | Kenya            |
| New Zealand      | Italy            | Mexico           |
| Singapore        | Japan            | Nigeria          |
| South Africa     | Korea (South)    | Pakistan         |
| Taiwan           | Netherlands      | Peru             |
| Thailand         | Norway           | Philippines      |
| UK               | Portugal         | Sri Lanka        |
| USA              | Spain            | Turkey           |
|                  | Sweden           | Uruguay          |
|                  | Switzerland      | Venezuala        |
|                  |                  | Zimbabwe         |

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This table presents results from k-means cluster analyses for a sample of a maximum of 49 countries specifying three distinct clusters (k=3). The results are from Leuz (2010) which uses regulatory variables with respect to securities regulation, investor protection and enforcement.

**TABLE 5 - Country-Level Determinants of Accounting & Disclosure Quality Measures**

$$AQ\ Measure = a + b*Trust\ Proxy + b2*Investor\ Protection + b3*Rule\ of\ Law$$

|                                  | Aggregate EM (based on LNW2003) |          |          |         |          | Timely Bad News Recognition |        |        |        |        | CIFAR INDEX |         |         |        |         |
|----------------------------------|---------------------------------|----------|----------|---------|----------|-----------------------------|--------|--------|--------|--------|-------------|---------|---------|--------|---------|
|                                  | Model1                          | Model2   | Model3   | Model4  | Model5   | Model1                      | Model2 | Model3 | Model4 | Model5 | Model1      | Model2  | Model3  | Model4 | Model5  |
| <i>Trust Index</i>               | -0.27**                         |          | -0.35**  | -0.33** |          | 0.20***                     |        | 0.20** | 0.20** |        | 0.11***     |         | 0.06    | 0.07*  |         |
|                                  | -0.11                           |          | (0.14)   | -0.15   |          | (0.07)                      |        | (0.10) | (0.10) |        | (0.03)      |         | (0.04)  | (0.04) |         |
| <i>-1*Secrecy</i>                |                                 |          |          |         | -0.33*** |                             |        |        |        | 0.13** |             |         |         |        | 0.05**  |
|                                  |                                 |          |          |         | (0.07)   |                             |        |        |        | (0.06) |             |         |         |        | (0.02)  |
| <i>Investor Prot (LLSV 1998)</i> |                                 | -0.07*** | -0.08*** |         | -0.07**  |                             | 0.01   | 0.01   |        | 0.01   |             | 2.13*** | 2.22*** |        | 2.11*** |
|                                  |                                 | (0.02)   | (0.02)   |         | (0.02)   |                             | (0.03) | (0.02) |        | (0.02) |             | (0.80)  | (0.79)  |        | (0.72)  |
| <i>Investor Prot (DLLS 2008)</i> |                                 |          |          | -0.07** |          |                             |        |        | 0.01   |        |             |         |         | 3.39** |         |
|                                  |                                 |          |          | -0.03   |          |                             |        |        | (0.03) |        |             |         |         | (1.09) |         |
| <i>Rule of Law (DLLS 2008)</i>   |                                 | -0.05*   | 0.03     | 0.02    | 0.05     |                             | 0.05*  | -0.00  | -0.00  | 0.02   |             | 3.77*** | 2.49*   | 2.55*  | 2.77*   |
|                                  |                                 | (0.03)   | (0.04)   | (0.05)  | (0.04)   |                             | (0.03) | (0.04) | (0.04) | (0.04) |             | (1.05)  | (1.45)  | (1.42) | 1.54    |
| Adj R2                           | 12%                             | 37%      | 30%      | 17%     | 54%      | 17%                         | 4%     | 13%    | 12%    | 20%    | 21%         | 32%     | 37%     | 39%    | 48%     |
| # Obs                            | 39                              | 39       | 39       | 39      | 34       | 38                          | 38     | 38     | 38     | 34     | 40          | 40      | 40      | 40     | 34      |

(standard errors presented in parentheses) \*, \*\*, and \*\*\* indicate significance at 10% , 5% and 1% levels respectively

*Aggregate EM Score (1996-2005):* Earnings management and opacity scores based on Leuz, Nanda and Wysocki (LNW 2003) & updated in Leuz (2010).

*Timely Bad News Recognition:* Captures the average country-level association between reported firm-level and bad news stock returns (see Bushman & Piotroski, 2008).

*CIFAR Index 1995:* Counts of inclusion of 90 items in corporate annual reports in a country. See Bushman, Piotroski and Smith (2004) for additional details.

*Trust Index from WVS - measure of interpersonal trust.* "TRUST INDEX" = 100 + (% Most people can be trusted) - (% Can't be too careful).

*Secrecy Index - From Hope et al. (2008) measure of Secrecy as the sum of uncertainty avoidance (UA) and power distance (PD) scores less individualism (IND) score*

$$Secrecy = UA + PD - IND \quad \text{--> where UA, PD, and IND scores are from Hofstede, (1980).}$$

*Investor Protection measures from La Porta et al. (1998) and Djankov et al. (2008)*

*Rule of Law Index is an assessment of overall legal quality and law and order from Kaufmann et al. (2003)*

**TABLE 5 - Continued**  
**Country-Level Determinants of Accounting & Disclosure Quality Measures**  
*AQ Measure = a + b\*Trust Proxy + b2\*InvestorProtection + b3\*Rule of Law*

|                                  | <i>Disclosure Requirments</i> |                   |                   |                 |                  | <i>Reporting Frequency</i> |                 |                 |                 |                 |
|----------------------------------|-------------------------------|-------------------|-------------------|-----------------|------------------|----------------------------|-----------------|-----------------|-----------------|-----------------|
|                                  | Model1                        | Model2            | Model3            | Model4          | Model5           | Model1                     | Model2          | Model3          | Model4          | Model5          |
| <i>Generalized Trust (WVS)</i>   | 0.12<br>(0.10)                |                   | 0.03<br>(0.12)    | 0.11<br>(1.34)  |                  | 0.29<br>(0.43)             |                 | 0.73<br>(0.51)  | 0.26<br>(0.60)  |                 |
| <i>Secrecy Measure (Hope)</i>    |                               |                   |                   |                 | 0.09<br>(0.09)   |                            | 0.078<br>(0.29) |                 |                 | 0.09<br>(0.35)  |
| <i>Investor Prot (LLSV 1998)</i> |                               | 0.08***<br>(0.02) | 0.08***<br>(0.02) | 0.086<br>(3.95) | 0.09**<br>(0.02) |                            |                 | 0.03<br>(0.09)  |                 | 0.02<br>(0.10)  |
| <i>Investor Prot (DLLS2008)</i>  |                               |                   |                   |                 |                  |                            |                 |                 | -0.12<br>(0.14) |                 |
| <i>Rule of Law (DLLS 2008)</i>   |                               | 0.04<br>(0.03)    | 0.04<br>(0.04)    |                 | -0.00<br>(0.05)  |                            |                 | -0.31<br>(0.20) | -0.31<br>(0.20) | -0.19<br>(0.23) |
| Adj R2                           | 2%                            | 29%               | 28%               | 15%             | 34%              | 0%                         | 0%              | 0%              | 2%              | 0%              |
| Nobs                             | 41                            | 41                | 41                | 41              | 33               | 29                         | 29              | 29              | 29              | 28              |

(standard errors presented in parentheses) \*, \*\*, and \*\*\* indicate significance at 10% , 5% and 1% levels respectively

*Disclosure Requirements:* Index of disclosure requirements from La Porta, Lopez-de-Silanes, and Shleifer (2006) capturing disclosure requirements for IPOs on major exchange.

*Average # Financial Reports/Year:* The average frequency of financial reports issued each year by public companies in each country (as report in Choy and Zheng, 2011).

*Generalized Trust from WVS (wave 5) measure of interpersonal trust.* "TRUST INDEX" = 100 + (% Most people can be trusted) - (% Can't be too careful).

*Secrecy Index - From Hope et al. (2008) measure of Secrecy as the sum of uncertainty avoidance (UA) and power distance (PD) scores less individualism (IND) score*

*Secrecy = UA + PD – IND --> where UA, PD, and IND scores are from Hofstede, (1980).*

*Investor Protection measures from La Porta et al. (1998) and Djankov et al. (2008)*

*Rule of Law Index is an assessment of overall legal quality and law and order from Kaufmann et al. (2003)*

**TABLE 6 - 2SLS Regressions of Country-Level Determinants of Accounting & Disclosure Quality**

$$AQ \text{ Measure} = a + b*Trust \text{ Proxy} + b2*InvestorProtection + b3*Rule \text{ of Law}$$

(using lagged GDP and Fraction Population Protestant & Fraction Population Catholic as instruments)

|                                     | Aggregate EM (based on LNW2003) |         | Timely Bad News Recognition |        | CIFAR INDEX |        |
|-------------------------------------|---------------------------------|---------|-----------------------------|--------|-------------|--------|
|                                     | Model1                          | Model2  | Model1                      | Model2 | Model1      | Model2 |
| <i>Trust Index</i>                  | -0.10*                          |         | 0.45*                       |        | 0.15        |        |
|                                     | (0.05)                          |         | (0.25)                      |        | (0.10)      |        |
| <i>-I*Secrecy</i>                   |                                 | -0.64** |                             | 0.20** |             | 0.11*  |
|                                     |                                 | (0.28)  |                             | (0.10) |             | (0.06) |
| <i>Investor Prot</i><br>(LLSV 1998) | 0.18                            | 0.07    | -0.21                       |        | 1.19        | 3.13   |
|                                     | (0.31)                          | (0.15)  | (0.40)                      |        | (4.06)      | (2.93) |
| <i>Investor Prot</i><br>(DLLS 2008) |                                 |         |                             | 0.01   |             |        |
|                                     |                                 |         |                             | (0.03) |             |        |
| <i>Rule of Law</i><br>(DLLS 2008)   | 0.27                            | 0.25    | -0.15                       | -0.00  | -0.07       | 0.55   |
|                                     | (0.29)                          | (0.16)  | (0.38)                      | (0.04) | (4.91)      | (4.01) |
| Adj R2                              | 4%                              | 18%     | 0%                          | 12%    | 2%          | 6%     |
| # Obs                               | 39                              | 34      | 38                          | 34     | 40          | 34     |

(standard errors presented in parentheses) \*, \*\*, and \*\*\* indicate significance at 10% , 5% and 1% levels respectively

*Aggregate EM Score (1996-2005):* Earnings management and opacity scores based on Leuz, Nanda and Wysocki (LNW 2003) & updated in Leuz (2010).

*Timely Bad News Recognition:* Captures the average country-level association between reported firm-level and bad news stock returns (see Bushman & Piotroski, 2008).

*CIFAR Index 1995:* Counts of inclusion of 90 items in corporate annual reports in a country. See Bushman, Piotroski and Smith (2004) for additional details.

*Trust Index from WVS - measure of interpersonal trust.* "TRUST INDEX" = 100 + (% Most people can be trusted) - (% Can't be too careful).

*Secrecy Index - From Hope et al. (2008) measure of Secrecy as the sum of uncertainty avoidance (UA) and power distance (PD) scores less individualism (IND) score*

$$Secrecy = UA + PD - IND \quad \text{--> where UA, PD, and IND scores are from Hofstede, (1980).}$$

*Investor Protection measures from La Porta et al. (1998) and Djankov et al. (2008)*

*Rule of Law Index is an assessment of overall legal quality and law and order from Kaufmann et al. (2003)*

**TABLE 7 - Robustness Check of Regression Results Using "Trust Index" Derived from Most Educated Subset of Survey Population  
(Country-Level Determinants of Accounting & Disclosure Quality Measures)**

$$AQ \text{ Measure} = a + b * \text{Trust Proxy} + b2 * \text{Investor Protection} + b3 * \text{Rule of Law}$$

|                                      | <i>Aggregate EM<br/>(Voluntary AQ)</i> | <i>Timely Bad News Recognition<br/>(Voluntary AQ)</i> | <i>CIFAR INDEX<br/>(Voluntary AQ)</i> | <i>Disclosure Requirements<br/>(Mandated AQ)</i> | <i>Reporting Frequency<br/>(Mandated AQ)</i> |
|--------------------------------------|--|---|---------------------------------------|--|--|
| <i>Trust Index</i>                   | -0.35**<br>(0.16)                      | 0.18*<br>(0.10)                                       | 1.38<br>(5.43)                        | -0.04<br>(0.13)                                  | 0.81<br>(0.84)                               |
| <i>Investor Prot<br/>(LLSV 1998)</i> | -0.09***<br>(0.03)                     | 0.01<br>(0.02)  | 1.43<br>(0.97)                        | 0.06**<br>(0.03)                                 | -0.04<br>(0.15)                              |
| <i>Rule of Law<br/>(DLS 2008)</i>    | 0.04<br>(0.06)                         | -0.01<br>(0.05)                                       | 5.49**<br>-2.65                       | 0.07<br>(0.06)                                   | -0.22<br>(0.47)                              |
| Adj R2                               | 34%                                    | 13%   | 46%                                   | 21%  | 0%   |
| # Obs                                | 26                                     | 27  | 27                                    | 27   | 19   |

(standard errors presented in parentheses) \*, \*\*, and \*\*\* indicate significance at 10% , 5% and 1% levels respectively

*Trust Index for most educated set of respondents in each country of Wave 5 of World Values Survey VS - measure of interpersonal trust.*

- "Trust Index = 100% + (% Most people can be trusted) - (% Can't be too careful)

- (Survey respondents must have at least completed secondary education to be in "Trust Index" (generally upper quartile of survey population/country)

*Aggregate EM Score (1996-2005):* Earnings management and opacity scores based on Leuz, Nanda and Wysocki (LNW 2003) & updated in Leuz (2010).

*Timely Bad News Recognition:* Captures the average country-level association between reported firm-level and bad news stock returns (see Bushman & Piotroski, 2008).

*CIFAR Index 1995:* Counts of inclusion of 90 items in corporate annual reports in a country. See Bushman, Piotroski and Smith (2004) for additional details.

*Disclosure Requirements:* Index of disclosure requirements from La Porta, Lopez-de-Silanes, and Shleifer (2006) capturing disclosure requirements for IPOs on major exchange.

*Average # Financial Reports/Year:* The average frequency of financial reports issued each year by public companies in each country (as report in Choy and Zheng, 2011).

*Trust Index from WVS - measure of interpersonal trust.* "TRUST INDEX" = 100 + (% Most people can be trusted) - (% Can't be too careful).

*Secrecy Index - From Hope et al. (2008) measure of Secrecy as the sum of uncertainty avoidance (UA) and power distance (PD) scores less individualism (IND) score*

$$\text{Secrecy} = \text{UA} + \text{PD} - \text{IND} \quad \text{--> where UA, PD, and IND scores are from Hofstede, (1980).}$$

*Investor Protection measures from La Porta et al. (1998) and Djankov et al. (2008)*

*Rule of Law Index is an assessment of overall legal quality and law and order from Kaufmann et al. (2003)*