J Bus Ethics (2018) 151:295–317
https://doi.org/10.1007/s10551-016-3211-x

Linking Societal Trust and CEO Compensation

Kiridaran Kanagaretnam[1] · Abdul-Rahman Khokhar[2] · Amin Mawani[1]

Received: 23 October 2015 / Accepted: 12 May 2016 / Published online: 13 June 2016

Abstract We examine the association between societal trust and the levels of CEO compensation and the proportion of equity-based compensation of 897 firm-years from 18 countries over the 2007–2013 period. We find both the levels of CEO compensation as well as the proportion of equity-based compensation to be lower in countries with higher levels of societal trust. This suggests that costly regulations on CEO compensation may not be as necessary in jurisdictions with higher levels of societal trust. We also examine the association between pay disparity and societal trust. Consistent with our finding of lower pay at the CEO rank, we find pay disparities are lower in countries with higher levels of societal trust.

Keywords Trust · CEO pay · Culture · Income disparity

Introduction

Compensation for chief executive officers (CEOs) is often designed to align the interests of CEOs with those of the shareholders wanting to increase firm value. Executive compensation for aligning incentives is deemed necessary under separation of ownership (by shareholders) and control (by senior management) because the incentives to work for self-interest may be stronger than incentives to work for organizational interest. The self-interest of CEOs could include consumption of excessive perquisites (including leisure) and pursuing short-run interests of the firm that match the payoff horizons of CEOs (the trustee) at the expense of payoff horizons of long-term shareholders (the trustors). Aligning management with incentive-based compensation contracts costs firms significant resources that may arguably be avoided if firms could build more trust between shareholders and their CEOs. This study examines whether average CEO compensation is associated with the levels of societal trust across jurisdictions.

Trust is considered to have social and economic consequences at the individual, firm, and national levels. Nobel laureate Kenneth Arrow argues that "virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time" (Arrow 1972). This is echoed by Audi (2008) who claims that "without trust, business as we know it is impossible" (p. 97). Trust is considered to be positively associated with the rate of investment and growth (Arrow 1974) and an integral factor in creating social capital (Fukuyama 1995). Trust seems to matter to most types of economic agents and economic exchanges. Prior studies have also found that having a higher level of societal trust facilitates economic growth and social efficiency (Knack and Keefer 1997; La Porta et al. 1998; Zak and Knack 2001), international trade and investment (Guiso et al. 2009), financial development (Guiso et al. 2004, 2008), corporate financing, and merger and acquisition transactions (Bottazzi et al. 2011; Ahern et al. 2012; Duarte et al. 2012). Since investment, trade, growth, and social capital are generally associated with CEO compensation, it seems

✉ Kiridaran Kanagaretnam
kkanagaretnam@schulich.yorku.ca

Abdul-Rahman Khokhar
rahman.khokhar@smu.ca

Amin Mawani
amawani@schulich.yorku.ca

[1] Schulich School of Business, York University, Toronto, Canada

[2] Sobey's School of Business, Saint Mary's University, Halifax, Canada

reasonable to expect an association between CEO compensation and levels of societal trust.

Trust, as used in this study, is consistent with Castaldo et al.'s (2010) definition derived from their content analysis of how trust is used in the ethics and related literature. They defined it as the performance of "future actions aimed at producing positive results for the trustor" in situations of information asymmetry and risk. Bradach and Eccles (1989) claim that trust leads to "a type of expectation that alleviates the fear that one's exchange partner will act opportunistically." A higher level of trust allows both employees and employers to anticipate the others' actions with more certainty (Darley 2004; Miller 2004; Larcker and Tayan 2013). Shareholders would trust their CEOs to look after their long-run interests and report outcomes truthfully, while CEOs would trust shareholders to evaluate their performance fairly amidst all the noise of controllable and uncontrollable events, firm and environmental performance, and long-run versus short-run performance. Managers would also trust the compensation committees of the boards to reward them fairly with market-competitive rewards commensurate with their performance that is aligned with the shareholders' interests.

We compare trust norms across countries since Kymlicka (1989) and Margolit and Raz (1990) in the political science literature, and Westerman et al. (2007) in the ethics literature, assert that at the margin, one's national culture can be the primary focus of social identity and can be a reasonably powerful influence on norms compared to other plural identities (e.g., gender, race, ethnicity, and religion) that combine within an individual.[1] We rely on this literature to argue that firms operating in countries with higher levels of societal trust may be able to replace complex and costly compensation contracts with a set of mutually accepted norms that are beneficial to both parties and enforced fairly.

There is a substantial literature on the differences between norms and values—e.g., Hechter and Opps (2001), Morris (1956), and Williams (1951). Social norms are rules for conduct between groups and individuals, and constitute shared rules, customs, and guidelines that govern how people should behave in society. In contrast, values or ideals are more individual and reflective of a common ideal of desirable states of being, less specific, less socially imperative, and less subject to sanctions. However, this study considers norms and values to be interchangeable based on Williams (1951) assertion that as norms become detached from specific circumstances and become more generalized, they become practically indistinguishable from value. Norm-adoption becomes value-driven when an individual subscribes to both the norm and the value that is believed to be achieved by the norm.

Trust and organizational trust are multi-layered and profound topics. According to prior literature, drivers of societal trust include homogeneity, education, religion, fairness, and lower levels of corruption. However, we do not directly examine what causes trust. Instead, we study the link between societal trust and CEO compensation without making claims of causality in either direction. While many different definitions of trust exist, Starnes et al. (2010) argue that they all refer to some aspect of "(1) integrity, character, and ability of a leader; (2) reciprocal faith in one's intentions and behaviors; and (3) a confidant reliance on the integrity, honest, or justice of another." Given this, we interpret the literature on trust as saying that at the margin, trust is associated with less moral hazard. Firms located in jurisdictions with greater societal trust may experience less rent-seeking CEOs at the margin.

In general, CEO compensation is (to a large extent) designed to curtail or reduce moral hazard among CEOs (and executives in general). Therefore, we argue that CEO compensation would not have to be as powerful in curtailing moral hazard in jurisdictions with greater societal trust (or lower moral hazard). We believe this allows us to motivate the empirical research question and explore the link (not the causation) between societal trust and CEO compensation.

Larcker and Tayan (2012) assert that appropriate alignment between shareholders and CEOs requires that compensation committees "understand (1) the value drivers of the organization, (2) the impact that the executive has on these value drivers, and (3) the percentage of value created that should be appropriately offered as compensation for performance." These tasks are complex and costly. Besides the direct costs of monitoring and reconciling the above complexities, aligning CEOs' interests with those of the shareholders necessitates contingent pay that introduces risk to the manager. In a competitive labor market, such risk (or variability in compensation) has to be rewarded with a risk premium that adds to the compensation costs of the firm. Furthermore, the task of valuating equity-based contingent rewards is often imprecise and adds to the overall cost.

An executive compensation system that is at least partly based on trust may mitigate some of the above concerns and the associated contracting, monitoring and risk sharing costs, thereby making it more effective and productive. Caldwell and Karri (2005) describe a servant leader who has a covenantal relationship with the employees, and where the leader and the organization owe a broad array of obligations to employees at all levels. This requires managers to pursue organizational interests over self-interest,

[1] Data limitations on gender, race, ethnicity, and religion in the World Values Survey also prevent us from examining the extent to which subgroup characteristics potentially influence social identities.

and may therefore be more feasible in societies or countries that rank high on measures of societal trust.

This study empirically examines whether countries with higher levels of societal trust do indeed have lower levels of CEO compensation and lower proportion of equity-based compensation. Furthermore, we also investigate whether Hofstede's (1984, 2001) measures of individualism,[2] masculinity and uncertainty avoidance—which vary across countries—are associated with CEO compensation. Although our main focus is on societal trust, Hofetede's cultural may be associated with some dimensions of societal trust.[3] Finally, we examine whether income disparity (along the income distribution) within firms is associated with societal trust on the grounds that higher trust may encourage higher pay at the lower ranks and lower pay at the higher ranks.

More specifically, we examine levels of CEO compensation and the proportion of equity-based compensation of non-U.S. cross-listed on a U.S. exchange. We retrieve compensation data from Bloomberg terminals for 897 firm-years from 18 countries over the 2007–2013 period. We then examine the relations between these compensation variables and societal trust levels obtained from World Values Surveys of the corresponding years. We find both the levels of CEO compensation as well as the proportion of equity-based CEO compensation to be lower in countries with higher levels of societal trust. When we replace societal trust scores with Hofstede (1984, 2001) measures of individualism, masculinity and uncertainty avoidance, we find results that are consistent with such Hofstede measures reflecting components of societal trust. To the best of our knowledge, this is the first study to present evidence that levels of CEO compensation and the proportion of equity-based compensation are lower in countries with higher levels of societal trust. We also find that pay disparities are lower in countries with higher levels of societal trust, and a result consistent with our finding that CEOs are paid relatively less in countries with higher levels of societal trust.

[2] Due to data limitations in the Hofstede's cultural dimensions, we examine only the national community or national culture as the primary influence on the individualism–collectivism measure. However, we acknowledge that collectivism can apply at both the whole-group and subgroup levels and that subgroups made up of gender, race, ethnicity and religion can certainly influence where an individual fits on the individualism–collectivism measure in addition to the influence of an individual's national culture. Jasso (2008)—for example—elaborates on the collectivism of Groupistas and Subgroupistas.

[3] For example, Hope et al. (2008) operationalize their measure of secrecy (a proxy for anti-trust) as a linear combination of Hofstede's uncertainty avoidance, power distance, and individualism, implying Hofstede's dimensions of national culture are somewhat associated with some dimensions of societal trust.

Our study makes two major contributions. First, we offer evidence that CEO compensation can be affected by norms of societal trust within a country. This finding is important to regulators since our results suggest that costly regulation may not be necessary in jurisdictions with higher social trust. Second, we document evidence that income disparity is lower in countries with higher levels of social trust. This builds on our earlier result that higher trusting societies pay their CEOs less. This finding is important to the policy debate on the potential economic and social ills associated with income disparity.

The remainder of the paper is organized as follows. "Literature Review and Hypotheses Development" section presents a brief literature review and motivates our hypotheses. "Regression Models" section presents our regression models and "Data" section describes the data. The empirical evidence is presented in "Results" section and we conclude in "Conclusion" section.

Literature Review and Hypotheses Development

CEO Compensation and Societal Trust

Bloom (2004) argues that compensation plays an important role in determining whether employees feel that they are trusted, and whether organizational culture and values are worthy of employees' efforts and commitment. Compensation systems based on trust can be more productive and less costly than relationships based on contracts that codify performance benchmarks expected of the senior management and the compensation to be rewarded for specific-codified outcomes. This is because it is costly and almost impossible to codify all the performance expectations for management. The path to least resistance often results in an increased reliance on short-term profits only because they are produced by the system at little incremental cost and has the appearance of some objectivity. Brandes et al. (2015) argue that complex monitoring and assessment roles for boards have created the need for linking pin directors (i.e., board members that serve on two committees such as audit and compensation committees) and that such linking pin directors are associated with lower executive compensation and a different compensation mix.

The extant literature on executive compensation has focused mostly on agency, human capital, or tournament theories (Tosi and Greckhamer 2004). Caldwell and Karri (2005) argue that traditional agency theory approach to corporate governance often results in suboptimal outcomes at higher costs. They advocate covenantal relationships built on organizational commitment to welfare, growth, and wholeness of others that helps build trust, which then serves as the glue that holds organizational culture together

(Reina and Reina 1999). Tosi and Greckhamer (2004) claim that neoclassic theories based on social comparison theory (O'Reilly et al. 1988), information theory (Henderson and Fredrickson 1996), and power theory (Finkelstein and Hambrick 1989) can provide productive approaches to explain executive compensation. Furthermore, the limited research on non-economic determinants of compensation structure is mostly U.S. based, in part because of lack of publicly available data in non-U.S. jurisdictions.

Tosi and Greckhamer (2004) examine the association between executive compensation levels, proportion of variable compensation, and ratio of CEO pay to the average employee's pay on the one hand and cultural dimensions developed by Hofstede (1984) and (2001) on the other hand. They use the Towers Perrin Worldwide Total Remuneration Survey Reports (Towers Perrin 1997–2001) for 1997 and 2001 which includes average compensation levels and compensation mix for 23 countries. The authors conclude that CEO pay reflects the emphasis on both the power structure and individualism in a society. We extend this research to societal trust and examine whether it is associated with the contracting parameters between shareholders and their CEOs.

Based on dyadic survey data, Schilke and Cook (2015) find that firms rely on contractual safeguards when the contracting party is unknown or lacks a favorable reputation, while engaging in culture-based relational perspective when the contracting party (such as senior management) is familiar to the firm. Westerman et al. (2007) hypothesize and find evidence for individual identity and decision-making being a function of social identity, thereby leading to internalization of the group's norms, duties, and commitments into the individual's identity. Lopez and Santos (2014) claim that ignoring this sociocultural context constitutes a major omitted that could result in biased results.

As Greenwood and Van Buren III (2010) claim, stakeholders without power have to rely on the trustworthiness of organizations to satisfy fairness obligations that are due to them. Rousseau et al. (1998, p. 395) describe mutually accepted norms in their definition of trust as "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another." Bhattacharya et al. (1998, p. 462) adopt a similar definition. Larcker and Tayan (2013) argue that high powered contingent compensation may not be necessary in trustworthy societies. This would reduce the associated risk premiums that would have to be paid to senior managers by shareholders in a competitive executive labor market. Fixed salaries with cash bonuses for critical performance metrics could replace expensive equity-based rewards.

Higher levels of trust can reduce management's incentives for excessive risk taking and thereby reduce the need for high levels of equity-based compensation. Higher levels of societal trust can also create conditions for less opportunistic behavior, and this could manifest in lower levels of managerial rent extraction. Consistent with this notion, Zingales (2015) argues that rent-seeking activities are exacerbated by stock and option-based incentive compensation, motivating executives to take excessive risks to maximize their own returns.

Trust can reduce intra-firm transaction costs for monitoring and contracting, thereby helping to align incentives across decentralized responsibility centers, improving goal congruence and managerial coordination. This allows senior management and boards to implement their strategy more effectively and efficiently without having to rely as much on incentive pay.

Based on the findings from the literature and the above arguments, we predict a negative association between CEO compensation and societal trust. Our hypotheses (in alternate forms) are as follows:

H1a CEO compensation levels are lower in countries with higher levels of societal trust.

H1b The proportion of equity-based CEO compensation is lower in countries with higher levels of societal trust.

CEO Compensation and Hofstede's Measures

As an alternative to the societal trust measures captured by the World Values Survey, we also test for the association between CEO compensation and three cultural dimensions motivated by Hofstede (1984, 2001). Zhang et al. (2013) review the literature and assert that individualism versus collectivism dimension of cultures has been found "to be a concise, coherent, integrated, and empirically testable dimension of cultural variation" (p. 656). Such measures capture informal institutions and cultural dimensions that may also reflect the level of moral hazard and risk-seeking behavior of firms' management in a jurisdiction, and which executive compensation may attempt to influence or moderate. More specifically, we examine three Hofstede measures: individualism versus collectivism; uncertainty avoidance; and masculinity versus femininity. High individualism cultures, for example, emphasize individual achievements, self-orientation, and autonomy (Hofstede 2001). Managers in a high individualism cultures are therefore often evaluated and rewarded based on firm performance and, hence, have incentives for rent-seeking at the expense of overall shareholder or social welfare. According to Franke et al. (1991), individualism is "the tendency of individuals primarily to look after themselves and their immediate families, and its inverse is the

integration of people into cohesive groups." Thus, higher individualistic societies (or more masculine societies) are more likely to be less trusting and more rent-seeking at the margin. Analogous arguments can be made to suggest that societies with higher uncertainty avoidance are more likely to be trusting and therefore less rent-seeking at the margin. We test the association between CEO compensation and the country-level scores of each of these three measures as reported in Hofstede (2001).

As motivated in Hofstede (1984, 2001) and documented in Tosi and Greckhamer (2004), our hypotheses (in alternate forms) are as follows[4]:

H2a CEO compensation levels are higher in countries with higher Hofstede's individualism dimension.

H2b CEO compensation levels are lower in countries with higher Hofstede's uncertainty avoidance dimension.

H2c CEO compensation levels are higher in countries with higher Hofstede's masculinity dimension.

H3a The proportion of equity-based CEO compensation is higher in countries with higher Hofstede's individualism dimension.

H3b The proportion of equity-based CEO compensation is lower in countries with higher Hofstede's uncertainty avoidance dimension.

H3c The proportion of equity-based CEO compensation is higher in countries with higher Hofstede's masculinity dimension.

Pay Disparity and Societal Trust

Bratton and Blair (2003) offer several arguments why pay disparity (as measured by the ratio of average executive compensation to the median rank-and-file employee compensation) within an organization may be lower in countries with high levels of trust. They contend that implicit employee ranking (by compensation) and high variation in compensation may reduce trust because employees' perception about the fairness of the compensation system affects the ethical climate within an organization, and eventually the ethical climate within a society. They also claim that "ethical climates are driven not by executive pay levels per se, but by the disparities in pay between executive officers and the average employee of the corporation." They question the CEO-centric culture given their observation that all employees are equally necessary to drive firm performance. Sapienza and Zingales (2012) define trust as "the expectation that another person (or institution) will perform actions that are beneficial, or at least not detrimental, to us regardless of our capacity to monitor those actions." At the margin, a more trusting society with lower variation in pay may have less need for monitoring lower paid employees by higher paid employees. Nichols and Subramaniam (2001) describe how it is impossible to assess whether the widening gap between executive and average worker compensation is appropriate or inappropriate.

Crawford et al. (2014) find a positive association between the CEO-to-median-employee pay ratio and firm's risk, poor performance, and dissent on "say on pay" proposals. For reasons suggested by Crawford et al. (2014), disclosure of this CEO-to-median-employee pay ratio has also been advocated by the Securities and Exchange Commission (SEC) in the U.S. The Dodd-Frank Financial Reform Act requires public corporations to disclose the ratio between the pay of their CEOs and the pay of their median workers. However, the disclosure remains complex and most companies have yet to publicly disclose such ratios according to Sorkin (2015) and Solomon (2013).

Greater trust can reduce hierarchies with their cascading levels of pay and thereby reduce the ratio of CEO pay to non-executive pay. Furthermore, rent-seeking by senior executives will likely be less in countries with higher levels of trust. Higher trust may encourage higher pays at the lower ranks and lower pay at the higher ranks, thereby reducing the income disparity within organizations and within countries.

Our hypothesis (in alternate form) is as follows:

H4 Pay disparities are lower in countries with higher levels of societal trust.

Regression Models

CEO Compensation and Societal Trust

We test hypothesis 1a based on the following OLS regression model:

$$\log(Comp)_{ik} = \alpha + \beta TRUST_k + \gamma X_{ik} + \delta W_k + YEAR + INDUSTRY + \varepsilon_{ik}, \quad (1)$$

where $\log(Comp)_{ik}$ is the total CEO compensation for firm i in country k, $TRUST_k$ is the country-level trust measure as described above, X is vector of firm characteristics, W is vector of country-level controls, and *YEAR* and *INDUSTRY*

[4] We use dimensions of national culture for two reasons. First, culture is used as an alternate proxy for societal trust (Hope et al. 2008). Second, following Tosi and Greckhamer (2004), we are interested in seeing whether culture is associated with CEO compensation for our sample of firms and countries. Whereas, Tosi and Greckhamer (2004) use country-level averages from Towers Perrin surveys, we use actual firm-level data in our analysis.

are indicators to control for year and industry fixed effects, respectively.

We test hypothesis 1b using the following tobit regression model:

$$Equity\_Based\_Comp_{ik} = \alpha + \beta TRUST_k + \gamma X_{ik} + \delta W_k + YEAR + INDUSTRY + \varepsilon_{ik}, \quad (2)$$

where $Equity\_Based\_Comp_{ik}$ is the ratio of equity-based to total CEO compensation for firm i in country k, and other variables are as defined above. The tobit model is used to estimate model (2) since the dependent variable is bounded by 0 and 1. Both models (1) and (2) are estimated with country and firm clustered standards errors to correct for heteroskedasticity and serial dependence (Petersen 2009).

We control for firm size, leverage, market-to-book, return-on-assets, risk, R&D, information asymmetry, personal tax rates, and CEO tenure based on the literature. Consistent with the literature, we hypothesize that CEO compensation is positively associated with firm size (log of total assets), growth (market-to-book value of equity), leverage (book value of total debt to book value of assets), firm performance (net income to total assets), risk (equity beta), R&D (research and development expenses), information asymmetry (rated debt), personal tax rates (highest marginal personal tax rate at the country level), and CEO tenure.

We control for country-level variables in this multi-jurisdiction study. Bryan et al. (2010) find that compensation mix is associated with the level of legal protection that varies across countries. Following Kanagaretnam et al. (2014), our proxy for legal environment is constructed by the principal component extracted for rule of law index, efficiency of judicial system (both from La Porta et al. 1998), and law and order index (from the Economic Freedom of the World annual reports). We also control for country-level GDP since variations in this measure have been found to be associated with executive compensation.

CEO Compensation and Hofstede's Measures

Hypotheses 2 and 3 are based on measures developed by Hofstede (1984, 2001) to examine whether CEO compensation is associated with measures that reflect cultural dimensions that may also capture trust in a society, and hence explain the level and form of CEO compensation. We use three measures from Hofstede (individualism, uncertainty avoidance, and masculinity) that—while distinct—are all correlated with trust as motivated earlier.

Hypotheses 2a, 2b, and 2c are estimated with the following OLS models:

$$\log(Comp)_{ik} = \alpha + \beta HOFSTEDE_k + \gamma X_{ik} + \delta W_k + YEAR + INDUSTRY + \varepsilon_{ik}, \quad (3)$$

where $HOFSTEDE_k$ is, respectively, the average national level of $INDIVIDUALISM_k$, $UNCERTAINTY\_AVOIDANCE_k$, and $MASCULINITY_k$. All other variables are as defined for model 1.

Hypotheses 3a, 3b, and 3c are estimated with the following tobit model:

$$Equity\_Based\_Comp_{ik} = \alpha + \beta HOFSTEDE_k + \gamma X_{ik} + \delta W_k + YEAR + INDUSTRY + \varepsilon_{ik}, \quad (4)$$

where $HOFSTEDE_k$ is, respectively, the average national level of $INDIVIDUALISM_k$, $UNCERTAINTY\_AVOIDANCE_k$, and $MASCULINITY_k$. All other variables are as defined for model (2).

Pay Disparity and Societal Trust

For hypothesis 4, income disparity is defined as the ratio of average executive compensation to the median non-executive employee compensation in the same firm in our sample of foreign firms from 18 countries that were cross-listed on a U.S. exchange during 2007 and 2013.

Hypothesis 4 is tested with the following tobit model:

$$ID_{ik} = a + bTRUST_k + cX_{ik} + dW_k + YEAR + INDUSTRY + \mu_{ik}, \quad (5)$$

where ID_{ik} is the income disparity measure calculated as the percentage of CEO compensation to total personnel expense for firm i in country k, $TRUST_k$ is the country-level trust measure, X is vector of firm characteristics, W is vector of country-level controls, and $YEAR$ is an indicator to control for years. The tobit model is employed because the dependent variable is bounded by 0 and 1.

We control for firm size since larger firms likely have to pay their senior management greater levels of compensation, thereby increasing income disparity. We also control for growth (measured by market-to-book value of equity) since higher growth firms may pay all their employees higher levels of compensation, but the levels for senior management is likely to be significantly greater than for average employees. Similarly, we control for R&D, tax rates, information asymmetry, firm-specific risk, and CEO tenure, all of which are expected to be positively correlated with total compensation. We also control for GDP and legal environment as country-level controls.

Data

We examine the association between CEO compensation and trust levels across 18 different jurisdictions during the period 2007–2013.[5] Our sample consists of foreign cross-listed firms in the U.S. and therefore excludes U.S. firms. Including U.S. firms to make up a global sample would have a disproportionately large number of U.S. firms without the corresponding variation in trust measures.

Similar to Nanda and Wysocki (2011) and Pevzner et al. (2014), we proxy societal trust using responses from uniformly and consistently conducted World Values Survey (WVS) that capture scores from nationally representative surveys in almost 100 countries representing around 90 % of the world's population. Our results are based on most recent year's country-level data available in WVS Longitudinal 1981–2014 data file. We limit our analysis on data from 18 countries where executive compensation amounts are publicly disclosed.

Data for trust is retrieved from Waves 5 and 6 of WVS survey based on responses for the following question: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" WVS codes the responses as 1 if the answer is "most people can be trusted" and 0 otherwise. In the second stage, the national level societal trust measure is computed as the average of all responses at the country level. Table 1 reports the mean level of societal trust scores by country-year.

CEO Compensation levels and the proportion of equity-based compensation for global firms cross-listed in U.S. are retrieved from Bloomberg terminals.[6] Foreign firms can trade equity in the U.S. via American Depository Rights (ADRs). There are four types of ADRs: Level 1, 2, 3, and Rule 144A. Only ADRs classified as Level 2 and Level 3 are subject to SEC disclosure using Form 20-F that includes information about executive compensation.

The ratios of total CEO compensation to the average employee compensation (our proxy for income disparity) for each firm-year are also retrieved from Bloomberg terminals.

Data on financial and accounting variables (firm size, leverage, market-to-book, R&D, and return-on-assets) are retrieved from Compustat. Compensation data and other control variables (debt rating, equity beta, and CEO tenure) for the foreign firms cross-listed on U.S. exchanges as Level 2 and Level 3 ADRs are retrieved from Bloomberg terminals for the period 2007–2013. Both the compensation levels and the proportion of equity-based compensation vary across industries and across years. Gross Domestic Product (GDP) data are obtained from The World Bank website (http://data.worldbank.org/indicator/NY.GDP.PCAP.CD/countries). Finally, data on personal tax rates is sourced from Global Finance website (https://www.gfmag.com/global-data/economic-data/personal-income-tax-rates?page=2).

Data on Hofstede's measures of individualism, uncertainty avoidance, and masculinity are retrieved from Hofstede (2001). All variables used in the study are defined in the Appendix.

We first retrieve all non-U.S.-based firms that are cross-listed in the U.S. as level 2 and level 3 ADRs, and then extract CEO compensation data for such companies from the Bloomberg terminal. Table 1 reports the number of firms from 18 countries for each sample year during 2007–2013 period for which we could source the CEO compensation data. The number of firm-year observations ranges from two in Israel to 210 in U.K. Our final sample is more or less uniformly distributed across each year and contains 897 firm-year observations. Almost half of the observations are from a handful of European countries (U.K., Germany, France, and Netherlands) and Japan.

Table 2 reports the descriptive statistics for the compensation measures and control variables across pooled sample for the 2007–2013 period. The two main compensation measures collected are the total CEO compensation (measured as log of total CEO compensation) and the percentage of equity-based CEO compensation. There is significant variation across countries for the average CEO compensation, ranging from US $ 0.29 million for Taiwan to US $ 11.21 million for Switzerland. Similarly, there is significant variation in the percentage of equity-based compensation across countries, ranging from 0 % of total CEO compensation in Indonesia, Italy, Japan, Korea, and Taiwan to 17 % in Finland. The control variables also vary considerably across jurisdictions. For instance, average firm size (as measured by book value of total assets) ranges from US $ 4574 million in New Zealand to US $ 606,208 million in Spain, while average profitability (as measured by return-on-assets) ranges from 0 % in Spain to 11 % in Israel and New Zealand. The highest (lowest) level of income disparity is in Spain (Israel) where the average

[5] The sample period starts from 2007 which is the first year available in Bloomberg for earnings guidance data. Although, Bloomberg reports earnings guidance data for more recent year; however, we limit our sample until 2013 to avoid missing values because of disparity in fiscal year-end month.

[6] WVS Longitudinal 1981–2014 File reports survey from 32 countries. Using Compustat Annual Fundamental File, we identify foreign firms listed in U.S. from these countries. Foreign firms are listed in the U.S. through ADR and Compustat Annual Fundamental File reports the ADR Ratio for such firms. We then use the company ticker for the identified firms to individually search the company in Bloomberg and extract the CEO compensation data over 2007 and 2013 period. This strategy yields a panel of 897 firm-years for 166 unique firms from 18 countries. No firms from 14 of the 32 countries from WVS Longitudinal 1981–2014 are either listed in the U.S. or report compensation data.

Table 1 Observation (firm-years) across countries and years

Country	2007	2008	2009	2010	2011	2012	2013	Totals
Australia	6	8	5	8	7	9	8	51
Finland	4	4	4	4	4	4	3	27
France	16	19	19	19	19	20	20	132
Germany	12	15	16	14	13	14	14	98
Indonesia	2	3	3	2	3	4	3	20
Israel	0	0	1	0	0	0	1	2
Italy	2	4	4	4	4	4	3	25
Japan	0	0	0	15	15	15	14	59
Korea (South)	0	0	0	0	0	0	5	5
Netherlands	10	11	11	11	12	11	10	76
New Zealand	1	1	1	0	1	1	1	6
Norway	4	3	4	4	5	5	5	30
Singapore	7	8	7	7	1	1	2	33
South Africa	3	3	3	3	8	7	6	33
Spain	2	5	5	5	4	5	6	32
Sweden	5	6	6	7	6	7	7	44
Switzerland	0	0	1	1	7	7	7	23
United Kingdom	28	26	28	29	31	30	29	201
Total	102	116	118	133	140	144	144	897

The sample is obtained from the Annual Compustat file during the period 2007 and 2013 for international firms cross-listed in U.S. The sample excludes the ADR firms in countries with no compensation data available through Bloomberg. In addition, it excludes the Canadian firms. Table presents the number of firm listed as ADR by country for which we could source executive compensation data from Bloomberg. The observations are expressed as firm-years

CEO compensation is 133.12 (5.22) times the average employee compensation.

Average values for trust and cultural measures by country are reported in Table 3. Trust—our main variable of interest—varies widely across countries. Nordic countries (Norway at 69 %, Sweden at 62 %, and Finland at 54 %) have the highest level of interpersonal trust, whereas Singapore (at 14.6 %) and France (at 18.6 %) have some of the lowest levels of societal trust. Three alternate measures for trust based on Hofstede's (2001) cultural dimensions (individualism–collectivism, masculinity–femininity, and uncertainty avoidance) also vary widely across our sample jurisdictions. For instance, the average value for individualism–collectivism dimension ranges from 14 in Indonesia to 89 in U.K.

Table 4 reports the Pearson correlations of the variables used in this study, and they are generally consistent with our hypotheses.[7] We observe a negative correlation between both trust and uncertainty avoidance and CEO compensation (H1a and H2b, respectively), and a positive and significant correlation between both individualism–collectivism and masculinity–femininity and CEO compensation (H2a and H2c, respectively). Similarly, we find a positive and significant correlation between percentage of equity-based CEO compensation and both individualism–collectivism (H3a) and a negative and significant correlation between equity-based CEO compensation and uncertainty avoidance (H3b). Finally, we observe a negative correlation between level of trust and income disparity (H4). However, inconsistent with our expectation (H1b and H2b), the Pearson correlation between the trust and equity-based CEO compensation is positive and significant, where as it is negative between equity-based CEO compensation and masculinity–femininity (H3c).

We report the descriptive statistics across our pooled sample for trust and cultural measures and control variables in Table 5. The mean (median) value in our sample for trust measure is 0.337 (0.316) and is comparable to other studies using this measure (e.g., Pevzner et al. 2014). The mean (median) values for the three cultural dimensions are 71.64 (71.00) for individualism–collectivism; 52.78 (63.00) for masculinity–femininity; and 58.25 (53.00) for uncertainty avoidance. Finally, the mean (median) values of our income disparity measure are 75.04 (52.63).

[7] We observe high correlations in Table 4 among independent variable raising concerns for multicollinearity. For instance, correlation INDIV-COLLECT and LEGAL measures is 0.56. We run Variance Inflation Factor (VIF) test to rule out this concern. The mean VIF value across several multivariate specifications ranges between 1.26 and 2.04.

Table 2 Compensation measures and control variables by country (pooled sample)

Country	T_Comp	L_TC	PCTEQ	SIZE	LEV	MTB	GDP	ROA	LEGAL	ID	R&D	TAX RATE	RISK—equity beta	CEO TENURE	RATED
Australia	6.64	1.60	0.07	10.35	0.21	1.63	27.82	0.03	16.85	68.74	0.01	45.00	1.05	3.05	0.76
Finland	7.18	1.42	0.17	9.84	0.24	1.26	26.25	0.02	17.32	89.43	0.05	49.78	1.06	3.98	1.00
France	3.67	1.16	0.01	10.94	0.21	1.29	28.62	0.03	14.62	59.34	0.02	41.80	0.98	7.14	0.90
Germany	7.33	1.75	0.03	10.90	0.23	1.49	28.87	0.03	15.34	87.43	0.04	45.00	1.04	3.50	0.89
Indonesia	0.37	−1.22	0.00	9.56	0.17	2.34	28.10	0.08	7.57	19.10	0.02	30.60	0.87	4.83	0.70
Israel	5.56	0.28	0.06	9.04	0.35	2.00	26.22	0.11	13.34	5.22	0.02	48.00	0.77	2.30	1.00
Italy	5.36	1.60	0.00	11.33	0.35	1.27	28.39	0.04	12.57	68.72	0.00	43.00	0.93	5.10	1.00
Japan	3.24	0.77	0.00	11.21	0.27	1.14	29.35	0.03	15.77	78.68	0.04	50.20	0.96	6.54	1.00
Korea (South)	2.00	0.60	0.00	11.39	0.25	0.95	27.90	0.02	11.34	.	0.00	38.00	0.84	3.22	0.60
Netherlands	5.57	1.47	0.12	10.53	0.25	1.45	27.41	0.05	17.32	91.10	0.03	52.00	0.98	4.60	0.91
New Zealand	2.04	0.59	0.02	8.38	0.33	1.57	25.73	0.11	16.85	28.34	0.00	35.83	0.48	3.33	1.00
Norway	1.86	0.53	0.01	9.72	0.21	1.31	26.84	0.06	17.32	22.27	0.00	47.80	1.20	4.11	0.90
Singapore	8.23	2.00	0.16	12.51	0.06	1.01	26.39	0.01	15.53	110.19	0.00	20.00	0.81	4.07	0.25
South Africa	2.00	0.25	0.03	9.23	0.21	1.41	26.53	0.02	8.42	69.90	0.00	40.00	0.82	2.88	0.54
Spain	7.89	1.75	0.02	12.13	0.34	1.06	27.98	0.00	12.91	133.12	0.00	46.96	1.17	6.67	0.67
Sweden	2.89	0.95	0.03	9.85	0.26	1.57	26.93	0.06	17.32	43.02	0.02	56.70	0.91	4.32	1.00
Switzerland	11.21	2.16	0.12	11.26	0.25	1.96	27.07	0.09	16.37	117.38	0.05	56.69	0.81	4.03	1.00
Taiwan	0.29	−1.24	0.00	9.60	0.01	1.61	29.32	0.10	13.62	6.15	0.01	40.00	0.53	1.92	1.00
United Kingdom	6.31	1.59	0.04	10.68	0.22	1.70	28.54	0.06	15.79	78.89	0.02	45.20	1.01	4.69	0.75
Total	5.36	1.29	0.04	10.63	0.23	1.49	28.06	0.04	15.15	75.04	0.02	46.00	0.98	4.79	0.85

Table presents the compensation data for ADR firms by country for which we could source executives compensation data from Bloomberg during 2007 and 2013 period for 897 observations. The variables are defined as follows: T_Comp is the total compensation in millions of U.S. dollars, L_TC is the log of total compensation, PCTEQ follows compensation variable from Bryan et al. (2010) and is the ratio of total equity-based compensation (options awards given and stock awards given) to total compensation, SIZE is measured as log of total assets at the end of the year, LEV is book leverage measured as value of current book equity scaled be total assets at the end of the year, MTB is the market value to the book value at the end of the year, GDP is log of annual GDP in US dollars, ROA is net income at the end of the year scaled by end of the year's total assets, LEGAL is principal component factor derived from three legal measures rule of law (RULE_OF_LAW), efficiency of the judicial system (EFF) (both from the La Porta et al. 1998) and law and order index (LAWORDER) from the Economic Freedom of World annual reports, ID is income disparity and represents total compensation paid to the CEO scaled by the average employee compensation, R&D is research and development expense scaled by total assets, TAX RATE is highest marginal personal tax rate at the country level, RISK—equity beta is the firm annual beta reported in Bloomberg, CEO TENURE is in number of years, and RATED is a dummy variable which equals 1 if firm has Standard & Poor's long-term issuer credit rating. Table reports the mean value of each measure at firm-year level

Table 3 Trust and cultural measures by country (pooled sample)

Country	TRUST	INDIV_COLLECT	MASC_FEMI	UNCERTAVOID
Australia	0.439	90	61	51
Finland	0.540	63	26	59
France	0.186	71	43	86
Germany	0.317	67	66	65
Indonesia	0.316	14	46	48
Israel	0.229	54	47	81
Italy	0.275	76	70	75
Japan	0.383	46	95	92
Korea (South)	0.312	18	39	85
Netherlands	0.422	80	14	53
New Zealand	0.479	79	58	49
Norway	0.690	69	8	50
Singapore	0.146	20	48	8
South Africa	0.191	65	63	49
Spain	0.276	51	42	86
Sweden	0.618	71	5	29
Switzerland	0.361	68	70	58
Taiwan	0.291	17	45	69
United Kingdom	0.295	89	66	35
Total	0.337	71.6	52.8	58.2

Table presents the trust and culture measures for ADR firms by country for which we could source executive compensation data from Bloomberg during 2007 and 2013 period for 897 observations. TRUST is sourced from World Value Survey 1981–2008 (WVS) and is measured depending on whether people believe most other people can be trusted or not. First, positive response to the question is coded as 1 and a negative response is coded as 0. Then the national level TRUST measures is computed as the average value at the country level. INDIV_COLLECT, MASC_FEMI, and UNCERTAVOID are the dimensions (individualism–collectivism, masculinity–femininity, and uncertainty avoidance, respectively) of national culture based on Hofstede (2001) and report the mean value of each measure at the country level

Results

CEO Compensation and Societal Trust

Table 6 reports the results of hypotheses 1a (columns 1–4 for Model (1)) and 1b (columns 5–8 for Model (2)). As predicted, the level of CEO compensation and the proportion of CEO compensation consisting of equity are both negatively associated with societal trust. This is consistent with our hypothesis that societies with higher trust scores require lower levels of compensation to incent CEOs and/or to compensate them to overcome moral hazard. A one standard deviation increase in average national trust levels is associated with 35.45 % decrease in total compensation and 7.78 percentage points decrease in equity-based compensation.

Consistent with the literature on executive compensation (e.g., Murphy 1999), most control variables are statistically significant in the predicted direction. Larger firms, more profitable firms, higher growth firms (as proxied by market-to-book ratio), firms with higher personal tax rates pay their CEOs higher levels of compensation as well as a higher proportion in the form of equity. As predicted, firms with higher leverage (as proxied by debt-to-assets ratio) have higher levels of compensation and lower proportion of equity-based compensation.

As expected, firms in countries with stronger legal institutions (proxied by measures described in La Porta et al. 1998) also pay their senior management higher levels of total compensation and higher proportion in equity compensation. We also observe a positive relationship between tax rates, risk, and CEO tenure and compensation and a positive relationship between R&D and equity-based compensation. Finally, we observe higher CEO tenure results in lower proportion of equity compensation.

CEO Compensation and Hofstede's Cultural Measures

Table 7 reports the results of Hypotheses 2a (columns 1–4 for Model (3)) and 3a (columns 5–8 for Model (4)). As

Table 4 Correlations

	L_TC	PCTEQ	TRUST	INDIV_COLLECT	MASC_FEMI	UNCERTAVOID	SIZE	LEV	MTB
L_TC	1								
PCTEQ	0.3706*	1							
TRUST	−0.0239	0.1451*	1						
INDIV_COLLECT	0.3774*	0.1095*	0.0154	1					
MASC_FEMI	0.0982*	−0.1262*	−0.4628*	−0.0396	1				
UNCERTAVOID	−0.0617	−0.1480*	−0.3140*	−0.4852*	0.1511*	1			
SIZE	0.3884*	−0.0313	−0.1182*	−0.0216	0.1162*	0.1599*	1		
LEV	0.0479	−0.0742*	0.0495	−0.0119	0.0183	0.0878*	0.0693*	1	
MTB	0.0162	0.1155*	0.0196	0.0872*	0.0509	−0.2468*	−0.4186*	−0.1473*	1
GDP	0.1228*	−0.2164*	−0.4461*	0.0125	0.5554*	0.3677*	0.2078*	−0.0049	−0.0382
ROA	0.1320*	0.0794*	0.0796*	0.0823*	−0.0079	−0.2041*	−0.0899*	−0.0206	0.5065*
LEGAL	0.3820*	0.1968*	0.5687*	0.4771*	−0.2315*	−0.1588*	0.0786*	0.0309	−0.0092
ID	0.6018*	0.2842*	−0.0711	0.0446	0.0930*	0.0292	0.1720*	0.0167	0.0485
R&D	0.0057	0.1440*	0.0681*	−0.0248	0.0439	0.0202	−0.3223*	−0.2426*	0.3145*
TAX RATE	0.2614*	0.1752*	0.5448*	0.2053*	−0.1856*	−0.0727*	0.035	0.0938*	0.0107
RATED	0.1989*	−0.0124	0.1512*	−0.0251	−0.0568	0.1513*	0.4126*	0.2199*	−0.2496*
RISK—equity beta	0.1240*	−0.027	0.0920*	0.0879*	−0.0713*	0.0305	0.2550*	−0.0682*	−0.2297*
CEO TENURE	0.0788*	−0.0702*	−0.1148*	−0.0552	−0.0034	0.1947*	−0.0562	−0.0376	0.0518

	GDP	ROA	LEGAL	ID	R&D	TAX RATE	RATED	RISK—equity beta	CEO TENURE
L_TC									
PCTEQ									
TRUST									
INDIV_COLLECT									
MASC_FEMI									
UNCERTAVOID									
SIZE									
LEV									
MTB									
GDP	1								
ROA	−0.0584	1							
LEGAL	0.0555	0.0749*	1						
ID	0.0288	0.1076*	0.0545	1					
R&D	0.0621	0.0212	0.1534*	−0.0209	1				
TAX RATE	−0.1935*	0.0695*	0.5822*	0.0984*	0.1752*	1			
RATED	0.039	0.0476	0.2075*	0.0749	−0.1560*	0.1901*	1		

Table 4 continued

	GDP	ROA	LEGAL	ID	R&D	TAX RATE	RATED	RISK—equity beta	CEO TENURE
RISK—equity beta	0.1159*	−0.0990*	0.1415*	−0.1561*	0.0295	0.0348	0.0674*	1	
CEO TENURE	0.1518*	0.0416	0.0026	0.1027*	−0.0352	0.0103	0.0085	−0.1020*	1

Table presents Pearson Correlation between variables during 2007 and 2013 period for 897 observations. The variables are defined as follows: L_TC is the log of total compensation, PCTEQ follows compensation variable from Bryan et al. (2010) and is the ratio of total equity-based compensation (options awards given and stock awards given) to total compensation, SIZE is measured as log of total assets at the end of the year, LEV is book leverage measured as value of current debt scaled be total assets at the end of the year, MTB is the market value to the book value at the end of the year, GDP is log of annual GDP in US dollars, ROA is net income at the end of the year scaled by end of the year's total assets, LEGAL is principal component factor derived from three legal measures rule of law (RULE_OF_LAW), efficiency of the judicial system (EFF) (both from the La Porta et al. 1998) and law and order index (LAWORDER) from the Economic Freedom of World annual reports, ID is income disparity and represents total compensation paid to the CEO scaled by the average employee compensation, R&D is research and development expense scaled by total assets, TAX RATE is highest marginal personal tax rate at the country level, RISK—equity beta is the firm annual beta reported in Bloomberg, CEO TENURE is in number of years, and RATED is a dummy variable which equals 1 if firm has Standard & Poor's long-term issuer credit rating. TRUST is measured depending on whether people believe most other people can be trusted or not. First, positive response to the question is coded as 1 and a negative response is coded as 0. Then the national level TRUST measure is computed as the average value at the country level. INDIV_COLLECT, MASC_FEMI and UNCERTAVOID are the dimensions (individualism–collectivism, masculinity–femininity, and uncertainty avoidance, respectively) of national culture based on Hofstede (2001) and report the mean value of each measure at the country level. *Asterisk* represents that the coefficient significance at 5 % level

predicted, firms in countries with higher levels of individualism pay their CEOs higher levels of compensation as well as higher proportion of equity-based compensation. A one standard deviation increase in the individualism dimension score is associated with 27.96 % increase in total compensation and a 14.91 percentage point increase in equity-based compensation.

Most of the control variables are statistically significant in the predicted direction with the exception of profitability (as measured by ROA), which is not significantly associated with proportion of equity-based compensation.

Table 8 reports the results of Hypotheses 2b (columns 1–4 for Model (3)) and 3b (columns 5–8 for Model (4)). As predicted, firms in countries with higher levels of uncertainty avoidance pay their CEOs lower levels of compensation as well as lower proportion of equity-based compensation. A one unit increase in the uncertainty avoidance dimension score is associated with 8.70 % decrease in total compensation and a 11.22 percentage point decrease in equity-based compensation.

All the control variables are statistically significant in the predicted direction with the exception of profitability (as measured by ROA), which is not significantly associated with proportion of equity-based compensation, and GDP which is negatively associated only with the proportion of equity-based compensation.

Table 9 reports the results of Hypotheses 2c (columns 1–4 for Model (3)) and 3c (columns 5–8 for Model (4)). As predicted, firms in countries with higher levels of masculinity pay their CEOs higher levels of compensation as well as higher proportion of equity-based compensation. A one unit increase in the masculinity dimension score is associated with 19.06 % increase in total compensation and a 3.02 percentage point increase in equity-based compensation.

Most of the control variables are statistically significant in the predicted direction with the exception of profitability (as measured by ROA) which is not significantly associated with proportion of equity-based compensation.

Pay Disparity and Societal Trust

Table 10 reports the results of Hypotheses 4 (Model (5)). Our results confirm that pay disparities are lower in countries with higher levels of societal trust. This seems consistent with our previous results showing that CEOs are paid relatively less in countries with higher levels of societal trust. Our results also confirm the hypothesis that income disparity goes up in countries with higher levels of individualism and higher levels of masculinity dimension, since firms in such countries are more likely to have CEOs pursuing rent-seeking activities, as well as getting paid higher levels of compensation.

Table 5 Descriptive statistics

Variable	Mean	STD	Median	Min	Max	Obs
Panel A						
TRUST	0.337	0.125	0.316	0.146	0.690	897
INDIV_COLLECT	71.64	16.35	71.00	14.00	90.00	897
MASC_FEMI	52.78	23.22	63.00	5.00	95.00	897
UNCERTAVOID	58.25	20.32	53.00	8.00	92.00	897
Panel B						
SIZE	10.63	1.88	10.50	3.75	14.35	897
LEV	0.23	0.14	0.22	0.00	0.57	897
MTB	1.49	0.67	1.28	0.73	4.06	897
GDP	28.06	0.88	28.46	25.50	29.41	897
ROA	0.04	0.07	0.04	−0.27	0.20	897
LEGAL	15.15	2.36	15.53	7.57	17.32	897
ID	75.04	72.39	52.63	5.22	346.55	684
R&D	0.02	0.04	0.00	0.00	0.20	897
TAX RATE	46.00	6.00	45.00	20.00	57.00	897
RATED	0.85	0.36	1.00	0.00	1.00	897
RISK—equity beta	0.98	0.25	0.98	0.27	1.57	897
CEO TENURE	4.79	4.34	3.83	0.17	25.00	897

Table presents the summary statistics for all variables during 2007 and 2013 period for 897 observations. The variables are defined as follows: TRUST is measured depending on whether people believe most other people can be trusted or not. First, positive response to the question is coded as 1 and a negative response is coded as 0. Then the national level TRUST measure is computed as the average value at the country level. INDIV_COLLECT, MASC_FEMI, and UNCERTAVOID are the dimensions (individualism–collectivism, masculinity–femininity, and uncertainty avoidance, respectively) of national culture based on Hofstede (2001) and report the mean value of each measure at the country level. L_TC is the log of total compensation, PCTEQ follows compensation variable from Bryan et al. (2010) and is the ratio of total equity-based compensation (options awards given and stock awards given) to total compensation, SIZE is measured as log of total assets at the end of the year, LEV is book leverage measured as value of current debt scaled be total assets at the end of the year, MTB is the market value to the book value at the end of the year, GDP is log of annual GDP in US dollars, ROA is net income at the end of the year scaled by end of the year's total assets, LEGAL is principal component factor derived from three legal measures rule of law (RULE_OF_LAW), efficiency of the judicial system (EFF) (both from the La Porta et al. 1998) and law and order index (LAWORDER) from the Economic Freedom of World annual reports, ID is income disparity and represents total compensation paid to the CEO scaled by the average employee compensation, R&D is research and development expense scaled by total assets, TAX RATE is highest marginal personal tax rate at the country level, RISK—equity beta is the firm annual beta reported in Bloomberg, CEO TENURE is in number of years, and RATED is a dummy variable which equals 1 if firm has Standard & Poor's long-term issuer credit rating

Sensitivity Analysis

First, as a robustness test, we examine Models (1) and (2) using alternate measures of trust (that are also based on data obtained from WVS). These alternate measures include:

- Trust_index calculated as 100 + (% responses for "most people can be trusted") − (% responses for "can't be too careful")
- Trust_Govt which constitutes the 4-point liekard scale response to the question "Do you have confidence in the government?"
- Trust_Parl which constitutes the 4-point liekard scale response to the question "Do you have confidence in the parliament?"
- Trust_Corp which constitutes the 4-point liekard scale response to the question "Do you have confidence in the major corporations?"

The results reported in Table 11 show that CEO compensation levels and proportion of equity-based compensation of CEOs remain negatively associated with the all four alternate measures of societal trust. In other words, societal trust measures captured by different trust measures in the World Values Survey are congruent with our trust

Table 6 Is societal trust associated with executive compensation?

Variables	L_TC				PCTEQ			
	1	2	3	4	5	6	7	8
TRUST	−3.128***	−3.244***	−2.836***	−2.836***	−0.789***	−0.842***	−0.622***	−0.622**
	(0.3349)	(0.3306)	(0.3233)	(0.5438)	(0.1849)	(0.1791)	(0.1913)	(0.3065)
SIZE	0.202***	0.200***	0.301***	0.301***	0.0123	0.0102	0.00435	0.00435
	(0.0189)	(0.0191)	(0.0236)	(0.0410)	(0.0100)	(0.0100)	(0.0129)	(0.0228)
LEV	0.358*	0.377**	0.0965	0.0965	−0.196*	−0.197*	−0.0321	−0.0321
	(0.1896)	(0.1893)	(0.2036)	(0.3155)	(0.1017)	(0.1025)	(0.1183)	(0.1779)
MTB	0.229***	0.235***	0.254***	0.254***	0.0456*	0.0427	0.0216	0.0216
	(0.0577)	(0.0580)	(0.0577)	(0.0866)	(0.0264)	(0.0266)	(0.0271)	(0.0429)
GDP	−0.168***	−0.189***	−0.244***	−0.244***	−0.144***	−0.150***	−0.150***	−0.150***
	(0.0421)	(0.0422)	(0.0386)	(0.0658)	(0.0190)	(0.0190)	(0.0191)	(0.0293)
ROA	0.958	1.113*	0.162	0.162	0.172	0.316	0.399	0.399
	(0.5909)	(0.6018)	(0.5876)	(0.6072)	(0.2416)	(0.2518)	(0.2649)	(0.3465)
LEGAL	0.201***	0.211***	0.210***	0.210***	0.0673***	0.0718***	0.0691***	0.0691***
	(0.0176)	(0.0174)	(0.0168)	(0.0279)	(0.0121)	(0.0119)	(0.0116)	(0.0178)
R&D	0.798	0.737	−0.0457	−0.0457	0.659*	0.651*	1.153**	1.153
	(0.7797)	(0.7788)	(1.0907)	(2.1580)	(0.3385)	(0.3369)	(0.5862)	(0.9802)
TAX RATE	0.0209***	0.0162***	0.00973*	0.00973	0.00467*	0.00321	0.00269	0.00269
	(0.0051)	(0.0053)	(0.0052)	(0.0075)	(0.0028)	(0.0028)	(0.0029)	(0.0041)
RATED	0.00256	0.0286	−0.0691	−0.0691	−0.00507	0.00985	0.0110	0.0110
	(0.0861)	(0.0838)	(0.0933)	(0.1502)	(0.0491)	(0.0480)	(0.0498)	(0.0672)
RISK—equity beta	0.217*	0.232**	0.420***	0.420**	−0.0510	−0.0384	0.0194	0.0194
	(0.1182)	(0.1165)	(0.1280)	(0.2008)	(0.0679)	(0.0666)	(0.0696)	(0.1112)
CEO TENURE	0.0159***	0.0138**	0.0183***	0.0183**	−0.00627	−0.00725*	−0.00749**	−0.00749
	(0.0055)	(0.0055)	(0.0055)	(0.0087)	(0.0038)	(0.0037)	(0.0035)	(0.0050)
Year fixed effects		Yes	Yes	Yes		Yes	Yes	Yes
Industry fixed effect			Yes	Yes			Yes	Yes
Firm-level clustering				Yes				Yes
N	897	897	897	897	897	897	897	897
R^2/pseudo R^2	0.3971	0.4108	0.4733	0.4733	0.2020	0.2210	0.2945	0.2945

Table report the results of the OLS and Tobit models using annual variables. The dependent variable in columns 1 to 4 is L_TC and columns 5 to 8 is PCTEQ. L_TC is the log of total compensation, PCTEQ follows compensation variable from Bryan et al. (2010) and is the ratio of total equity-based compensation (options awards given, stock awards given) to total compensation. TRUST is measured based on World Value Survey (1981–2008) question on whether people believe most other people can be trusted or not. First, positive response to the question is coded as 1 and a negative response is coded as 0. Then the national level TRUST measure is computed as the average value at the country level. SIZE is measured as log of total assets at the end of the year, LEV is book leverage measured as value of current debt scaled be total assets at the end of the year, MTB is the market value to the book value at the end of the year, GDP is log of annual GDP in US dollars, ROA is net income at the end of the year scaled by end of the year's total assets, and LEGAL is principal component factor derived from three legal measures rule of law (RULE_OF_LAW), efficiency of the judicial system (EFF) (both from the La Porta et al. 1998) and law and order index (LAWORDER) from the Economic Freedom of World annual reports, R&D is research and development expense scaled by total assets, TAX RATE is highest marginal personal tax rate at the country level, RISK—equity beta is the firm annual beta reported in Bloomberg, CEO TENURE is in number of years, and RATED is a dummy variable which equals 1 if firm has Standard & Poor's long-term issuer credit rating. Standard errors are reported in parentheses. *Note* * means $p < 0.10$, ** means $p < 0.05$, and *** means $p < 0.01$

index, trust in government, trust in parliament, and trust in major corporations. Both the proportion of equity-based compensation and the level of CEO compensation remain negatively associated with the trust measure (as predicted). The association between compensation and control variables remains largely qualitatively similar to the results reported in Table 6.

Second, we address the sample selection bias since we primarily choose international firms that trade as ADR in U.S. stock markets. Non-U.S. firms generally do not report

Table 7 Is Hofstede's individualism measure associated with executive compensation?

Variables	L_TC				PCTEQ			
	1	2	3	4	5	6	7	8
INDIV_COLLECT	0.0176***	0.0183***	0.0171***	0.0171***	0.00228*	0.00257**	0.000912	0.000912
	(0.0024)	(0.0022)	(0.0022)	(0.0038)	(0.0012)	(0.0011)	(0.0011)	(0.0017)
SIZE	0.240***	0.240***	0.344***	0.344***	0.0249**	0.0240**	0.0135	0.0135
	(0.0191)	(0.0191)	(0.0231)	(0.0409)	(0.0097)	(0.0096)	(0.0128)	(0.0221)
LEV	0.402**	0.427**	0.213	0.213	−0.185*	−0.184*	−0.0285	−0.0285
	(0.1865)	(0.1876)	(0.2058)	(0.3414)	(0.1034)	(0.1046)	(0.1218)	(0.1898)
MTB	0.176***	0.176***	0.198***	0.198**	0.0432	0.0397	0.0207	0.0207
	(0.0607)	(0.0614)	(0.0600)	(0.0918)	(0.0266)	(0.0269)	(0.0271)	(0.0435)
GDP	0.0131	−0.00203	−0.0791**	−0.0791	−0.106***	−0.110***	−0.120***	−0.120***
	(0.0377)	(0.0379)	(0.0387)	(0.0702)	(0.0169)	(0.0168)	(0.0166)	(0.0271)
ROA	0.964	1.151*	0.202	0.202	0.212	0.351	0.427	0.427
	(0.5981)	(0.6112)	(0.5899)	(0.6260)	(0.2410)	(0.2528)	(0.2658)	(0.3427)
LEGAL	0.0536**	0.0590***	0.0714***	0.0714**	0.0358***	0.0375***	0.0461***	0.0461***
	(0.0209)	(0.0200)	(0.0197)	(0.0305)	(0.0103)	(0.0097)	(0.0094)	(0.0122)
R&D	2.578***	2.606***	1.782*	1.782	1.008***	1.032***	1.466***	1.466
	(0.8206)	(0.8267)	(1.0658)	(2.0859)	(0.3364)	(0.3358)	(0.5616)	(0.9503)
TAX RATE	0.0121	0.00670	0.000260	0.000260	0.00198	0.000348	0.000582	0.000582
	(0.0076)	(0.0077)	(0.0075)	(0.0114)	(0.0031)	(0.0031)	(0.0030)	(0.0043)
RATED	−0.00302	0.0223	−0.0992	−0.0992	−0.0177	−0.00426	0.000366	0.000366
	(0.0905)	(0.0866)	(0.0940)	(0.1474)	(0.0495)	(0.0479)	(0.0494)	(0.0670)
RISK—equity beta	0.00443	0.0110	0.228*	0.228	−0.118*	−0.112*	−0.0171	−0.0171
	(0.1166)	(0.1146)	(0.1280)	(0.2000)	(0.0666)	(0.0653)	(0.0689)	(0.1134)
CEO TENURE	0.0255***	0.0236***	0.0271***	0.0271***	−0.00477	−0.00554	−0.00651*	−0.00651
	(0.0054)	(0.0054)	(0.0054)	(0.0086)	(0.0039)	(0.0038)	(0.0035)	(0.0050)
Year fixed effects		Yes	Yes	Yes		Yes	Yes	Yes
Industry fixed effect			Yes	Yes			Yes	Yes
Firm-level clustering				Yes				Yes
N	897	897	897	897	897	897	897	897
R^2/pseudo R^2	0.3940	0.4079	0.4761	0.4761	0.1848	0.2015	0.2818	0.2818

Table report the results of the OLS and Tobit models using annual variables. The dependent variable in columns 1 to 4 is L_TC and columns 5 to 8 is PCTEQ. L_TC is the log of total compensation, PCTEQ follows compensation variable from Bryan et al. (2010) and is the ratio of total equity-based compensation (options awards given, stock awards given) to total compensation. INDIV_COLLECT represents the Individualism versus Collectivism dimension of the national culture based on Hofstede (2001) and reports the mean value of at the country level. SIZE is measured as log of total assets at the end of the year, LEV is book leverage measured as value of current debt scaled be total assets at the end of the year, MTB is the market value to the book value at the end of the year, GDP is log of annual GDP in US dollars, ROA is net income at the end of the year scaled by end of the year's total assets, and LEGAL is principal component factor derived from three legal measures rule of law (RULE_OF_LAW), efficiency of the judicial system (EFF) (both from the La Porta et al. 1998) and law and order index (LAWORDER) from the Economic Freedom of World annual reports, R&D is research and development expense scaled by total assets, TAX RATE is highest marginal personal tax rate at the country level, RISK—equity beta is the firm annual beta reported in Bloomberg, CEO TENURE is in number of years, and RATED is a dummy variable which equals 1 if firm has Standard & Poor's long-term issuer credit rating. Standard errors are reported in parentheses. *Note* * means $p < 0.10$, ** means $p < 0.05$, and *** means $p < 0.01$

compensation data with the exception of firms that are listed as ADR in the U.S. We mitigate this concern by selecting a control sample of matching U.S. firms based on size, growth opportunities, and industry. We then create a difference in compensation variable (C_LTC) between ADR firm's CEO total compensation and a matching U.S. counterpart. We estimate Model (1) using the difference in compensation variable and various trust measures while including similar set of independent variables. The results are consistent with main findings and are reported in Table 12.

Finally, we add additional controls to Models (1) and (2), such as, CEO Age (age in years), Sales Growth (annual sales

Table 8 Is Hofstede's uncertainty avoidance measure associated with executive compensation?

Variables	L_TC				PCTEQ			
	1	2	3	4	5	6	7	8
UNCERTAVOID	−0.00365**	−0.00350**	−0.00428***	−0.00428	−0.00105	−0.000922	−0.000552	−0.000552
	(0.0015)	(0.0015)	(0.0015)	(0.0027)	(0.0009)	(0.0008)	(0.0008)	(0.0015)
SIZE	0.235***	0.234***	0.343***	0.343***	0.0238**	0.0226**	0.0129	0.0129
	(0.0184)	(0.0186)	(0.0231)	(0.0414)	(0.0096)	(0.0096)	(0.0128)	(0.0216)
LEV	0.394*	0.402**	0.173	0.173	−0.181*	−0.182*	−0.0316	−0.0316
	(0.2041)	(0.2047)	(0.2201)	(0.3645)	(0.1027)	(0.1037)	(0.1223)	(0.1911)
MTB	0.203***	0.208***	0.215***	0.215**	0.0454*	0.0434	0.0214	0.0214
	(0.0649)	(0.0660)	(0.0638)	(0.1021)	(0.0269)	(0.0273)	(0.0270)	(0.0432)
GDP	0.0429	0.0318	−0.0517	−0.0517	−0.0932***	−0.0967***	−0.115***	−0.115***
	(0.0372)	(0.0373)	(0.0374)	(0.0705)	(0.0170)	(0.0170)	(0.0169)	(0.0298)
ROA	0.864	0.994	−0.00966	−0.00966	0.189	0.323	0.406	0.406
	(0.6050)	(0.6179)	(0.6031)	(0.5916)	(0.2452)	(0.2558)	(0.2674)	(0.3415)
LEGAL	0.113***	0.119***	0.123***	0.123***	0.0395***	0.0423***	0.0469***	0.0469***
	(0.0176)	(0.0174)	(0.0162)	(0.0288)	(0.0094)	(0.0091)	(0.0088)	(0.0124)
R&D	1.582**	1.534*	2.312*	2.312	0.947***	0.943***	1.459***	1.459
	(0.7887)	(0.7899)	(1.1911)	(2.4492)	(0.3342)	(0.3329)	(0.5605)	(0.9456)
TAX RATE	0.0101*	0.00653	0.000791	0.000791	0.00219	0.000692	0.000872	0.000872
	(0.0056)	(0.0057)	(0.0055)	(0.0083)	(0.0028)	(0.0029)	(0.0029)	(0.0042)
RATED	−0.0619	−0.0450	−0.110	−0.110	−0.0175	−0.00696	0.00275	0.00275
	(0.0927)	(0.0916)	(0.0960)	(0.1623)	(0.0487)	(0.0476)	(0.0493)	(0.0673)
RISK—equity beta	0.0575	0.0662	0.289**	0.289	−0.111*	−0.103	−0.0123	−0.0123
	(0.1224)	(0.1213)	(0.1288)	(0.2031)	(0.0663)	(0.0651)	(0.0686)	(0.1123)
CEO TENURE	0.0239***	0.0224***	0.0266***	0.0266***	−0.00486	−0.00572	−0.00643*	−0.00643
	(0.0061)	(0.0062)	(0.0059)	(0.0094)	(0.0039)	(0.0038)	(0.0036)	(0.0050)
Year fixed effects		Yes	Yes	Yes		Yes	Yes	Yes
Industry fixed effect			Yes	Yes			Yes	Yes
Firm-level clustering				Yes				Yes
N	897	897	897	897	897	897	897	897
R^2/pseudo R^2	0.3328	0.3416	0.4285	0.4285	0.1814	0.1960	0.2815	0.2815

Table report the results of the OLS and Tobit models using annual variables. The dependent variable in columns 1–4 is L_TC and columns 5–8 is PCTEQ. L_TC is the log of total compensation, PCTEQ follows compensation variable from Bryan et al. (2010) and is the ratio of total equity-based compensation (options awards given, stock awards given) to total compensation. UNCERTAVOID represents the Uncertainty Avoidance dimension of the national culture based on Hofstede (2001) and reports the mean value of at the country level. SIZE is measured as log of total assets at the end of the year, LEV is book leverage measured as value of current debt scaled be total assets at the end of the year, MTB is the market value to the book value at the end of the year, GDP is log of annual GDP in US dollars, ROA is net income at the end of the year scaled by end of the year's total assets, and LEGAL is principal component factor derived from three legal measures rule of law (RULE_OF_LAW), efficiency of the judicial system (EFF) (both from the La Porta et al. 1998) and law and order index (LAWORDER) from the Economic Freedom of World annual reports, R&D is research and development expense scaled by total assets, TAX RATE is highest marginal personal tax rate at the country level, RISK—equity beta is the firm annual beta reported in Bloomberg, CEO TENURE is in number of years, and RATED is a dummy variable which equals 1 if firm has Standard & Poor's long-term issuer credit rating. Standard errors are reported in parentheses. *Note* * means $p < 0.10$, ** means $p < 0.05$, and *** means $p < 0.01$

growth over previous fiscal year), Analyst Following (number of analyst following the firm) as a measure for information asymmetry and Stock Return Volatility (volatility of stock return over previous 260 trading days) as proxy for firm-specific risk. Although, this estimation results in significant reduction of the sample (as we lose almost two-third of the observations), the results (not reported here) are qualitatively similar.

Conclusion

Sapienza and Zingales (2012) define trust as "the expectation that another person (or institution) will perform actions that are beneficial, or at least not detrimental, to us regardless of our capacity to monitor those actions." This is relevant in executive compensation arrangements since

Table 9 Is Hofstede's masculinity measure associated with executive compensation?

Variables	L_TC				PCTEQ			
	1	2	3	4	5	6	7	8
MASC_FEMI	0.00754***	0.00773***	0.00821***	0.00821***	0.00111	0.00109	0.00130	0.00130
	(0.0016)	(0.0016)	(0.0015)	(0.0026)	(0.0008)	(0.0007)	(0.0008)	(0.0015)
SIZE	0.225***	0.224***	0.326***	0.326***	0.0213**	0.0202**	0.0107	0.0107
	(0.0183)	(0.0186)	(0.0233)	(0.0412)	(0.0099)	(0.0099)	(0.0128)	(0.0224)
LEV	0.318	0.325	0.0887	0.0887	−0.195*	−0.195*	−0.0279	−0.0279
	(0.2034)	(0.2033)	(0.2179)	(0.3547)	(0.1029)	(0.1039)	(0.1176)	(0.1825)
MTB	0.212***	0.216***	0.222***	0.222**	0.0460*	0.0439	0.0181	0.0181
	(0.0621)	(0.0631)	(0.0617)	(0.0972)	(0.0265)	(0.0267)	(0.0270)	(0.0431)
GDP	−0.109***	−0.122***	−0.221***	−0.221***	−0.115***	−0.118***	−0.137***	−0.137***
	(0.0418)	(0.0417)	(0.0404)	(0.0684)	(0.0192)	(0.0192)	(0.0199)	(0.0340)
ROA	0.905	1.039*	0.0754	0.0754	0.211	0.343	0.412	0.412
	(0.6012)	(0.6161)	(0.5934)	(0.6015)	(0.2455)	(0.2570)	(0.2645)	(0.3433)
LEGAL	0.147***	0.153***	0.161***	0.161***	0.0464***	0.0487***	0.0534***	0.0534***
	(0.0172)	(0.0170)	(0.0155)	(0.0272)	(0.0096)	(0.0092)	(0.0092)	(0.0139)
R&D	1.133	1.081	1.485	1.485	0.829**	0.834**	1.379**	1.379
	(0.7622)	(0.7627)	(1.1106)	(2.2038)	(0.3350)	(0.3332)	(0.5602)	(0.9465)
TAX RATE	0.00513	0.00153	−0.00423	−0.00423	0.00174	0.000279	0.000663	0.000663
	(0.0055)	(0.0056)	(0.0053)	(0.0078)	(0.0028)	(0.0029)	(0.0029)	(0.0041)
RATED	−0.0628	−0.0426	−0.102	−0.102	−0.0236	−0.0118	−0.00147	−0.00147
	(0.0862)	(0.0848)	(0.0918)	(0.1463)	(0.0481)	(0.0469)	(0.0497)	(0.0681)
RISK—equity beta	0.146	0.158	0.402***	0.402*	−0.0907	−0.0830	0.00761	0.00761
	(0.1243)	(0.1230)	(0.1307)	(0.2051)	(0.0683)	(0.0673)	(0.0689)	(0.1111)
CEO TENURE	0.0254***	0.0240***	0.0275***	0.0275***	−0.00490	−0.00567	−0.00600*	−0.00600
	(0.0063)	(0.0064)	(0.0057)	(0.0091)	(0.0038)	(0.0037)	(0.0034)	(0.0048)
Year fixed effects		Yes	Yes	Yes		Yes	Yes	Yes
Industry Fixed Effect			Yes	Yes			Yes	Yes
Firm-level clustering				Yes				Yes
N	897	897	897	897	897	897	897	897
R^2/pseudo R^2	0.3482	0.3584	0.4456	0.4456	0.1825	0.1974	0.2852	0.2852

Table report the results of the OLS and Tobit models using annual variables. The dependent variable in columns 1–4 is L_TC and columns 5–8 is PCTEQ. L_TC is the log of total compensation, PCTEQ follows compensation variable from Bryan et al. (2010) and is the ratio of total equity-based compensation (options awards given, stock awards given) to total compensation. MASC_FEMI represents the Masculinity versus Femininity dimension of the national culture based on Hofstede (2001) and reports the mean value of at the country level. SIZE is measured as log of total assets at the end of the year, LEV is book leverage measured as value of current debt scaled be total assets at the end of the year, MTB is the market value to the book value at the end of the year, GDP is log of annual GDP in US dollars, ROA is net income at the end of the year scaled by end of the year's total assets, and LEGAL is principal component factor derived from three legal measures rule of law (RULE_OF_LAW), efficiency of the judicial system (EFF) (both from the La Porta et al. 1998) and law and order index (LAWORDER) from the Economic Freedom of World annual reports, R&D is research and development expense scaled by total assets, TAX RATE is highest marginal personal tax rate at the country level, RISK—equity beta is the firm annual beta reported in Bloomberg, CEO TENURE is in number of years, and RATED is a dummy variable which equals 1 if firm has Standard & Poor's long-term issuer credit rating. Standard errors are reported in parentheses. *Note* * means $p < 0.10$, ** means $p < 0.05$, and *** means $p < 0.01$

firms are built on the notion of separation of ownership and control, and shareholders cannot monitor every aspect of executives' performance.

In the absence of high levels of trust, shareholders need to engage in costly monitoring, writing contingent contracts, and offering risk premiums for variable compensation. Such contracts are necessary since shareholders cannot monitor management given the separation of ownership and management. These costs are arguably lower in societies with higher levels of trust.

We examine levels of CEO compensation and the proportion of equity-based compensation of 897 firm-years from 18 countries over the 2007–2013 period. We find both the levels of CEO compensation as well as the proportion

Table 10 Is societal trust associated with income disparity?

Variables	ID			
TRUST	−100.4***			
	(27.9222)			
INDIV_COLLECT		0.252		
		(0.2126)		
UNCERTAVOID			0.0573	
			(0.1442)	
MASC_FEMI				0.379**
				(0.1636)
SIZE	11.75***	12.64***	12.62***	12.10***
	(1.7876)	(1.8028)	(1.8026)	(1.7671)
MTB	12.99**	11.91**	12.80**	12.09**
	(5.1088)	(5.1662)	(5.4072)	(5.1622)
GDP	−7.234	−1.113	−0.856	−5.975
	(4.7624)	(3.9764)	(4.0663)	(4.3182)
LEGAL	2.180	−1.175	−0.0738	0.665
	(1.5519)	(1.7198)	(1.4965)	(1.4599)
R&D	96.16	124.3	103.6	100.0
	(93.4422)	(90.5356)	(90.2250)	(93.0442)
TAX RATE	1.471***	1.094*	1.098**	1.132**
	(0.5521)	(0.5735)	(0.5467)	(0.5569)
RATED	−1.796	−3.840	−5.869	−3.965
	(8.6830)	(8.3582)	(8.6579)	(8.5122)
RISK—equity beta	−63.15***	−69.56***	−68.23***	−65.22***
	(14.6582)	(14.9588)	(14.9078)	(14.6796)
CEO TENURE	1.496**	1.729***	1.616***	1.795***
	(0.5918)	(0.5757)	(0.5923)	(0.6084)
Year fixed effects	Yes	Yes	Yes	Yes
N	687	687	687	687
Pseudo R^2	0.1349	0.1250	0.1231	0.1313

Table reports the results of the Tobit models using annual variables. The dependent variable in all specification is income disparity (ID) which is defined as total compensation paid to the CEO scaled by the average employee compensation. SIZE is measured as log of total assets at the end of the year, MTB is the market value to the book value at the end of the year, GDP is log of annual GDP in US dollars, and LEGAL is principal component factor derived from three legal measures rule of law (RULE_OF_LAW), efficiency of the judicial system (EFF) (both from the La Porta et al. 1998) and law and order index (LAWORDER) from the Economic Freedom of World annual reports, R&D is research and development expense scaled by total assets, TAX RATE is highest marginal personal tax rate at the country level, RISK—equity beta is the firm annual beta reported in Bloomberg, CEO TENURE is in number of years, and RATED is a dummy variable which equals 1 if firm has Standard & Poor's long-term issuer credit rating. Standard errors are reported in parentheses. *Note* * means $p < 0.10$, ** means $p < 0.05$, and *** means $p < 0.01$

of equity-based CEO compensation to be lower in countries with higher levels of societal trust. This suggests that firms operating in countries with higher levels of societal trust may be able to replace complex and costly executive compensation contracts with a set of mutually accepted norms that are beneficial to both parties and enforced fairly. Reduced moral hazard and risk-seeking behavior allows such norms to be self-reinforcing.

When we replace societal trust scores with Hofstede (1984, 2001) measures of individualism, masculinity, and uncertainty avoidance, our results reinforce the evidence that Hofstede's measures do indeed reflect societal trust.

Finally, we examine whether income disparity across countries is associated with societal trust on the grounds that higher trust may encourage higher pays at the lower ranks and lower pay at the higher ranks. Our results confirm the predictions that pay disparities are lower in countries with higher levels of societal trust, and higher in countries with higher levels of individualism and higher levels of masculinity dimension. These findings are consistent with all our earlier hypotheses.

Acknowledgments Funding from the Social Sciences and Humanities Research Council (SSHRC) of Canada is gratefully acknowledged.

Table 11 Alternate trust measures

Variables	L_TC				PCTEQ			
	1	2	3	4	5	6	7	8
TRUST_INDEX	−0.0131***				−0.00269*			
	(0.0027)				(0.0016)			
TRUST_GOVT		−2.288***				−0.489*		
		(0.5429)				(0.2698)		
TRUST_PARL			−2.237***				−0.464**	
			(0.4956)				(0.2337)	
TRUST_COMP				−0.948**				−0.259
				(0.4716)				(0.2012)
SIZE	0.309***	0.333***	0.321***	0.329***	0.00713	0.0138	0.00994	0.00984
	(0.0406)	(0.0408)	(0.0414)	(0.0423)	(0.0226)	(0.0214)	(0.0221)	(0.0225)
LEV	0.104	0.0181	0.103	0.112	−0.0353	−0.0520	−0.0256	−0.0362
	(0.3219)	(0.3377)	(0.3305)	(0.3531)	(0.1812)	(0.1846)	(0.1825)	(0.1861)
MTB	0.262***	0.237**	0.230**	0.230**	0.0230	0.0229	0.0240	0.0246
	(0.0859)	(0.0927)	(0.0907)	(0.0971)	(0.0428)	(0.0422)	(0.0413)	(0.0406)
GDP	−0.232***	−0.229***	−0.286***	−0.164**	−0.147***	−0.147***	−0.156***	−0.138***
	(0.0669)	(0.0684)	(0.0760)	(0.0697)	(0.0300)	(0.0293)	(0.0306)	(0.0266)
ROA	0.176	−0.0506	−0.333	−0.162	0.408	0.352	0.282	0.316
	(0.6115)	(0.5935)	(0.5802)	(0.5732)	(0.3465)	(0.3374)	(0.3413)	(0.3427)
LEGAL	0.195***	0.0989***	0.0928***	0.114***	0.0652***	0.0403***	0.0394***	0.0428***
	(0.0266)	(0.0234)	(0.0260)	(0.0318)	(0.0177)	(0.0122)	(0.0129)	(0.0135)
R&D	0.277	1.495	0.619	1.644	1.252	1.388	1.175	1.292
	(2.1231)	(2.2131)	(2.2920)	(2.4380)	(0.9730)	(0.9454)	(0.9534)	(0.9322)
TAX RATE	0.0143*	0.00354	0.00239	−0.00208	0.00366	0.00298	0.00203	0.000396
	(0.0077)	(0.0082)	(0.0082)	(0.0079)	(0.0044)	(0.0043)	(0.0042)	(0.0039)
RATED	−0.0651	−0.0735	−0.0680	−0.102	0.0100	0.00187	0.00689	0.00694
	(0.1509)	(0.1444)	(0.1480)	(0.1646)	(0.0673)	(0.0659)	(0.0658)	(0.0675)
RISK—equity beta	0.382*	0.397**	0.407**	0.338*	0.00378	0.00677	0.0174	0.00373
	(0.1991)	(0.1965)	(0.1920)	(0.2002)	(0.1116)	(0.1119)	(0.1115)	(0.1127)
CEO TENURE	0.0178**	0.0269***	0.0292***	0.0248***	−0.00761	−0.00603	−0.00573	−0.00644
	(0.0087)	(0.0087)	(0.0084)	(0.0086)	(0.0051)	(0.0049)	(0.0050)	(0.0050)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level clustering	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	897	897	897	897	897	897	897	897
R^2/pseudo R^2	0.4689	0.4557	0.4644	0.4325	0.2904	0.2912	0.2954	0.2870

Table report the results of the OLS and Tobit models using annual variables. The dependent variable in columns 1–4 is L_TC and columns 5–8 is PCTEQ. L_TC is the log of total compensation, PCTEQ follows compensation variable from Bryan et al. (2010) and is the ratio of total equity-based compensation (options awards given, stock awards given) to total compensation. All the alternative measures of trust are computed using World Value Survey (1981–2008). TRUST_INDEX is calculated for each country based on the following formula: TRUST_INDEX = 100 + (% most people can be trusted) − (% cannot be too careful). Following Kanagaretnam et al. (2014), TRUST_GOVT and TRUST_PARL measure indicates society's confidence in the government and parliament, respectively. TRUST_COMP measure indicates society's confidence in the major companies. SIZE is measured as log of total assets at the end of the year, LEV is book leverage measured as value of current debt scaled be total assets at the end of the year, MTB is the market value to the book value at the end of the year, GDP is log of annual GDP in US dollars, ROA is net income at the end of the year scaled by end of the year's total assets, and LEGAL is principal component factor derived from three legal measures rule of law (RULE_OF_LAW), efficiency of the judicial system (EFF) (both from the La Porta et al. 1998) and law and order index (LAWORDER) from the Economic Freedom of World annual reports, R&D is research and development expense scaled by total assets, TAX RATE is highest marginal personal tax rate at the country level, RISK—equity beta is the firm annual beta reported in Bloomberg, CEO TENURE is in number of years, and RATED is a dummy variable which equals 1 if firm has Standard & Poor's long-term issuer credit rating. Standard errors are reported in parentheses. *Note* * means $p < 0.10$, ** means $p < 0.05$ and *** means $p < 0.01$

Table 12 Matched sample results

Variables	C_LTC			
	1	2	3	4
TRUST	−2.460***			
	(0.7646)			
INDIV_COLLECT		0.0177***		
		(0.0045)		
UNCERTAVOID			−0.00372	
			(0.0034)	
MASC_FEMI				0.00975***
				(0.0031)
SIZE	0.0338	0.0728	0.0701	0.0516
	(0.0556)	(0.0523)	(0.0521)	(0.0527)
LEV	−0.145	−0.0252	−0.0789	−0.155
	(0.4253)	(0.4429)	(0.4505)	(0.4516)
MTB	0.132	0.0767	0.0979	0.0987
	(0.1389)	(0.1395)	(0.1521)	(0.1438)
GDP	−0.153*	−0.00799	0.0141	−0.175**
	(0.0804)	(0.0782)	(0.0816)	(0.0796)
ROA	−0.499	−0.456	−0.649	−0.596
	(0.8366)	(0.8294)	(0.7940)	(0.8135)
LEGAL	0.219***	0.0883***	0.144***	0.185***
	(0.0376)	(0.0326)	(0.0351)	(0.0334)
R&D	−0.434	1.099	1.611	0.696
	(2.7069)	(2.5508)	(2.8038)	(2.5623)
Tax Rate	0.0199**	0.0118	0.0121	0.00665
	(0.0096)	(0.0117)	(0.0099)	(0.0095)
Rated	−0.105	−0.127	−0.140	−0.126
	(0.1924)	(0.1870)	(0.1990)	(0.1809)
RISK—equity beta	0.290	0.110	0.176	0.303
	(0.2742)	(0.2834)	(0.2773)	(0.2814)
CEO Tenure	0.00481	0.0132	0.0120	0.0144
	(0.0121)	(0.0118)	(0.0126)	(0.0125)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Firm-level clustering	Yes	Yes	Yes	Yes
N	897	897	897	897
R^2/pseudo R^2	0.2122	0.2253	0.1887	0.2079

Table report the results of the OLS models using annual variables. The dependent variable is the difference in Total Compensation (C_LTC) of ADR firm and a matched U.S. firm. We match each ADR firm with a U.S. firm using nearest matching approach based on firm size, market-to-book, and industry in each fiscal year. L_TC is the log of total compensation. TRUST is measured depending on whether people believe most other people can be trusted or not. First, positive response to the question is coded as 1 and a negative response is coded as 0. Then the national level TRUST measure is computed as the average value at the country level. INDIV_COLLECT, MASC_FEMI, and UNCERTAVOID are the dimensions (individualism–collectivism, masculinity–femininity and uncertainty avoidance, respectively) of national culture based on Hofstede (2001) and report the mean value of each measure at the country level. SIZE is measured as log of total assets at the end of the year, LEV is book leverage measured as value of current debt scaled be total assets at the end of the year, MTB is the market value to the book value at the end of the year, GDP is log of annual GDP in US dollars, ROA is net income at the end of the year scaled by end of the year's total assets, and LEGAL is principal component factor derived from three legal measures rule of law (RULE_OF_LAW), efficiency of the judicial system (EFF) (both from the La Porta et al. 1998) and law and order index (LAWORDER) from the Economic Freedom of World annual reports, R&D is research and development expense scaled by total assets, Tax Rate is highest marginal personal tax rate at the country level, RISK—equity beta is the firm annual beta reported in Bloomberg, CEO Tenure is in number of years, and Rated is a dummy variable which equals 1 if firm has Standard & Poor's long-term issuer credit rating. Standard errors are reported in parentheses. *Note* * means $p < 0.10$, ** means $p < 0.05$, and *** means $p < 0.01$

Appendix

See Table 13.

Table 13 Definitions of variables

L_TC	Total compensation measure is calculated as natural log of total CEO compensation, which is sum of all compensation received by the CEO including salary, bonuses, stock option awards, restricted stock awards and all other compensation
PCTEQ	The equity-based compensation measure is computed as ratio of sum of stock options awards and restricted stocks awards to the total compensation for the CEO
TRUST	This measure for societal trust is based on responses from uniformly and consistently conducted World Value Survey (1981–2008) question on "whether people believe most other people can be trusted or not". First, a positive response to the question is coded as 1 and a negative response is coded as 0. Then the national level TRUST measure is computed as the average value at the country level
TRUST_INDEX	This alternative measure for societal trust is based on responses from World Value Survey (1981-2008). TRUST_INDEX is calculated for each country based on the following formula: TRUST_INDEX = 100 + (% most people can be trusted) − (% can't be too careful)
TRUST_GOVT	TRUST_GOVT measure indicates society's confidence in the government. It is constructed based on the following question from the WVS: Do you have a lot of confidence, quite a lot of confidence, not very much confidence, no confidence at all in the following: Government? We recode the response to the question to one if a survey participant reports that s/he has a lot of confidence or quite a lot of confidence in government, and zero otherwise. We then calculate the mean response for each country-year as alternative measure of societal trust
TRUST_PARL	TRUST_PARL measure indicates society's confidence in the parliament. It is constructed based on the following question from the WVS: Do you have a lot of confidence, quite a lot of confidence, not very much confidence, no confidence at all in the following: Parliament? We recode the response to the question to one if a survey participant reports that he/she has a lot of confidence or quite a lot of confidence in parliament, and zero otherwise. We then calculate the mean response for each country-year as alternative measure of societal trust
TRUST_COMP	TRUST_COMP indicates society's confidence in the major companies and is constructed based on the following question from the WVS: Do you have a lot of confidence, quite a lot of confidence, not very much confidence, no confidence at all in the following: Major Companies? We recode the response to the question as one if a survey participant reports that he/she has a lot of confidence or quite a lot of confidence in the major companies, and zero otherwise. We then calculate the mean response for each country-year as an alternative measure of societal trust
INDIV_COLLECT	Represents "Individualism versus Collectivism" dimension of the national culture based on Hofstede (2001), and it is the mean value at the country level
UNCERTAVOID	Represents the "Uncertainty Avoidance" dimension of the national culture based on Hofstede (2001) and is the mean value at the country level
MASC_FEMI	Represents the "Masculinity versus Femininity" dimension of the national culture based on Hofstede (2001) and is the mean value at the country level
SIZE	Size is the natural log of total assets at the end of the year
LEV	Leverage is book value of total debt at end of year scaled by book value of total assets at the end of the year
MTB	Market-to-Book ratio proxied for growth opportunities is calculated as the market value to the book value at the end of the year
ROA	Return-on-Asset (a measure of profitability) is net income at the end of the year scaled by end of the year's total assets
GDP	Gross Domestic Product is the natural log of annual GDP in US dollars
LEGAL	Measure for country-level legal environment is a principal component factor derived from three legal measures rule of law (RULE_OF_LAW), efficiency of the judicial system (EFF) (both from the La Porta et al. 1998) and law and order index (LAWORDER) from the Economic Freedom of World annual reports
R&D	R&D is research and development expense scaled by total assets
TAX RATE	Tax Rate is highest marginal personal tax rate at the country level
RATED	Measure for information asymmetry and is a dummy variable which equals 1 if firm has Standard & Poor's long-term issuer credit rating reported in Bloomberg
RISK	Measure for firm-specific risk, which is measured using annual equity beta for the firm reported in Bloomberg
CEO TENURE	CEO Tenure is the number of years in the position available in Bloomberg
INDUSTRY	Industry dummy based on Fama and French 12 industry portfolios available at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html
INCOME DIVERSITY	Total CEO pay relative to average employee compensation for firm *i* in country *k*. Calculated as total compensation paid to the CEO scaled by average personnel expenses (total personnel expenses divided by number of employees

References

Ahern, K. R., Daminelli, D., & Fracassi, C. (2012). Lost in translation? The effect of cultural values on mergers around the world. *Journal of Financial Economics, 117*, 165–189.

Arrow, K. J. (1972). Gifts and exchanges. *Philosophy & Public Affairs, 1*(4), 343–362.

Arrow, K. J. (1974). *The limits of organization*. Philadelphia, PA: University of Pennsylvania, Fels Center of Government.

Audi, R. (2008). Some dimensions of trust in business practices: From financial and product representation to licensure and voting. *Journal of Business Ethics, 80*(1), 97–102.

Bhattacharya, R., Devinney, T. M., & Pillutla, M. M. (1998). A formal model of trust based on outcomes. *Academy of Management Review, 23*(3), 459–472.

Bloom, M. (2004). The ethics of compensation systems. *Journal of Business Ethics, 52*, 149–152.

Bottazzi, L., Da Rin, M., & Hellmann, T. F. (2011). *The importance of trust for investment: Evidence from venture capital*. National Bureau of Economic Research, Working Paper, Cambridge, MA. http://www.nber.org/papers/w16923.

Bradach, J. L., & Eccles, R. G. (1989). Price, authority, and trust: From ideal types to plural forms. *Annual Review of Sociology, 15*, 97–118.

Brandes, P., Dharwadkar, R., & Suh, S. (2015). I know something you don't know! The role of linking pin directors in monitoring and incentive alignment. *Strategic Management Journal, 26*, 473. doi:10.1002/smj.2353.

Bratton, W. W., & Blair, M. M. (2003). Restoring trust in America's business institutions. *Georgetown Law and Economics Research Paper*, 784526, 05-25.

Bryan, S., Nash, R., & Patel, A. (2010). How the legal system affects the equity mix in executive compensation. *Financial Management, 39*(1), 393–418.

Caldwell, C., & Karri, R. (2005). Organizational governance and ethical systems: A covenantal approach to building trust. *Journal of Business Ethics, 58*, 249–259.

Castaldo, S., Premazzi, K., & Zerbini, F. (2010). The meaning(s) of trust. A content analysis on the diverse conceptualizations of trust in scholarly research on business relationships. *Journal of Business Ethics, 96*, 657–668.

Crawford, S., Nelson, K. K., & Rountree, B. (2014). *The CEO–employee pay ratio*. SSRN Working Paper. http://ssrn.com/abstract=2529112.

Darley, J. M. (2004). Commitment, trust, and worker effort expenditure in organizations. In R. M. Kramer & K. S. Cook (Eds.), *Trust and distrust in organizations: Dilemmas and approaches*. New York: Russell Sage Foundation.

Duarte, J., Siegel, S., & Young, L. (2012). Trust and credit: The role of appearance in peer-to-peer lending. *Review of Financial Studies, 25*(8), 2455–2484.

Finkelstein, S., & Hambrick, D. C. (1989). Chief executive compensation: A study of the intersection of markets and political processes. *Strategic Management Journal, 10*(2), 121–134.

Franke, R. H., Hofstede, G., & Bond, M. H. (1991). Cultural roots of economic performance: A research note. *Strategic Management Journal, 12*(S1), 165–173.

Fukuyama, F. (1995). *Trust: Social virtues and the creation of prosperity*. New York: Free Press.

Greenwood, M., & Van Buren, H. J, III. (2010). Trust and stakeholder theory: Trustworthiness in the organisation–stakeholder relationship. *Journal of Business Ethics, 95*, 425–438.

Guiso, L., Sapienza, P., & Zingales, L. (2004). The role of social capital in financial development. *The American Economic Review, 94*(3), 526–556.

Guiso, L., Sapienza, P., & Zingales, L. (2008). Trusting the stock market. *The Journal of Finance, 63*(6), 2557–2600.

Guiso, L., Sapienza, P., & Zingales, L. (2009). Cultural biases in economic exchange? *The Quarterly Journal of Economics, 124*(3), 1095–1131.

Hechter, M., & Opps, K. D. (2001). What have we learned about the emergence of social norms? In M. Hechter & K. D. Opps (Eds.), *Social norms*. New York: Russell Sage Foundation.

Henderson, A. D., & Fredrickson, J. W. (1996). Information-processing demands as a determinant of CEO compensation. *Academy of Management Journal, 39*(3), 575–606.

Hofstede, G. H. (1984). *Culture's consequences: International differences in work-related values* (Vol. 5). Newbury Park, CA: Sage.

Hofstede, G. H. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Thousand Oaks, CA: Sage.

Hope, O., Kang, T., Thomas, W., & Yoo, Y. K. (2008). Culture and auditor choice: A test of the secrecy hypothesis. *Journal of Accounting and Public Policy, 27*(5), 357–373.

Jasso, G. (2008). A new unified theory of sociobehavioural forces. *European Sociological Review, 24*(4), 411–434.

Kanagaretnam, K., Lim, C. Y., & Lobo, G. J. (2014). Effects of international institutional factors on earnings quality of banks. *Journal of Banking & Finance, 39*, 87–106.

Knack, S., & Keefer, P. (1997). Does social capital have an economic payoff? A cross-country investigation. *The Quarterly Journal of Economics, 112*(4), 1251–1288.

Kymlicka, W. (1989). *Liberalism, community, and culture*. Oxford: Oxford University Press.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *The Journal of Political Economy, 106*, 1113–1155.

Larcker, D. F., & Tayan, B. (2012). *What is CEO talent worth?*. Stanford, CA: Rock Center for Corporate Governance—Stanford University.

Larcker, D. F., & Tayan, B. (2013). *Trust: The unwritten contract in corporate governance*. Stanford, CA: Rock Center for Corporate Governance—Stanford University.

Lopez, J. A. P., & Santos, J. M. S. (2014). Does corruption have social roots? The role of culture and social capital. *Journal of Business Ethics, 132*, 697–708.

Margolit, A., & Raz, J. (1990). National self-determination. *Journal of Philosophy, 87*(9), 439–461.

Miller, G. J. (2004). Monitoring, rules, and the control paradox: Can the good soldier Svejk be trusted? In R. M. Kramer & K. S. Cook (Eds.), *Trust and distrust in organizations: Dilemmas and approaches*. New York: Russell Sage Foundation.

Morris, C. W. (1956). *Varieties of human value*. Chicago: University of Chicago Press.

Murphy, K. J. (1999). Executive compensation. In O. Ashenfelter & D. Card (Eds.), *Handbook of labor economics* (Vol. 3, pp. 2485–2563). Amsterdam: North Holland.

Nanda, D., & Wysocki, P. (2011). The relation between trust and accounting quality. *Working Paper*, University of Miami. http://www.bu.edu/questrom/files/2011/02/Nanda-Wysocki-2011.pdf.

Nichols, D., & Subramaniam, C. (2001). Executive compensation: Excessive or equitable? *Journal of Business Ethics, 29*, 339–351.

O'Reilly, C. A, I. I. I., Main, B. G., & Crystal, G. S. (1988). CEO compensation as tournament and social comparison: A tale of two theories. *Administrative Science Quarterly, 33*(2), 257–274.

Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies, 22*(1), 435–480.

Pevzner, M., Xie, F., & Xin, X. (2014). When firms talk, do investors listen? The role of trust in stock market reactions to corporate

earnings announcements. *Journal of Financial Economics, 117*(1), 190–223. doi:10.1016/j.jfineco.2013.08.004.

Reina, D. S., & Reina, M. L. (1999). *Trust and betrayal in the workplace: Building effective relationships in your organization*. San Francisco: Berrett-Koehler.

Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review, 23*(3), 393–404.

Sapienza, P., & Zingales, L. (2012). A trust crisis. *International Review of Finance, 12*(2), 123–131.

Schilke, O., & Cook, K. S. (2015). Sources of alliance partner trustworthiness: Integrating calculative and relational perspectives. *Strategic Management Journal, 36*, 276–297.

Solomon, S. D. (2013, August 27). A simple solution on CEO pay is not so simple. *The New York Times*.

Sorkin, A. R. (2015, January 26). S.E.C. has yet to set rule on tricky ratio of C.E.O.'s pay to workers. *The New York Times*.

Starnes, B. J., Truhon, S. A., & McCarthy, V. (2010). *Organizational trust: Employer–employee relationships*. ASQ Human Development & Leadership Division. http://rube.asq.org/hdl/2010/06/a-primer-on-organizational-trust.pdf.

Tosi, H. L., & Greckhamer, T. (2004). Culture and CEO compensation. *Organization Science, 15*(6), 657–670.

Towers Perrin. (1997–2001). *Managing global pay and benefits: Worldwide total remuneration*. New York: Towers Perrin.

Westerman, J. W., Beekun, R. I., Stedham, Y., & Yamamura, J. (2007). Peers versus national culture: An analysis of antecedents to ethical decision-making. *Journal of Business Ethics, 75*, 239–252.

Williams, R. M. (1951). *American society: A sociological interpretation*. New York: Knopf.

Zak, P. J., & Knack, S. (2001). Trust and growth. *The Economic Journal, 111*(470), 295–321.

Zhang, X., Sing, L., & Sun, H. (2013). Individualism–collectivism, private benefits of control, and earnings management: A cross-culture comparison. *Journal of Business Ethics, 114*, 655–664.

Zingales, L. (2015). *Does finance benefit society?* Chicago Booth Research Paper No. 15-09. SSRN: http://ssrn.com/abstract=2585194.