

## Do Common Inherited Beliefs and Values Influence CEO Pay?\*

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### Abstract

We expect that common inherited beliefs and values of economic agents guide their behavior and determine their preferences regarding monetary rewards. We use the ethnicity of CEOs across 31 countries as a proxy for their common inherited beliefs and values and find that ethnicity is significantly associated with the level and form of CEO compensation. While we find an ethnicity effect in corporate policy decisions, our documented ethnicity effects in compensation is not a manifestation of the effect of ethnicity on corporate policy decisions. Importantly, we find that changes in CEO compensation are significantly larger when CEOs are replaced with a person from a different ethnicity. Further, we provide evidence that ethnicity captures two innate characteristics expected to shape pay preferences, namely future time reference and religious culture of economic incentives. Finally, negative deviations from ethnicity pay preferences are associated with lower future firm performance.

*Keywords:* Executive compensation, CEO characteristics, ethnicity, cultural persistence

*JEL Classifications:* G30, J15, J33, M5

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### **Abstract**

We expect that common inherited beliefs and values of economic agents guide their behavior and determine their preferences regarding monetary rewards. We use the ethnicity of CEOs across 31 countries as a proxy for their common inherited beliefs and values and find that ethnicity is significantly associated with the level and form of CEO compensation. While we find an ethnicity effect in corporate policy decisions, our documented ethnicity effects in compensation is not a manifestation of the effect of ethnicity on corporate policy decisions. Importantly, we find that changes in CEO compensation are significantly larger when CEOs are replaced with a person from a different ethnicity. Further, we provide evidence that ethnicity captures two innate characteristics expected to shape pay preferences, namely future time reference and religious culture of economic incentives. Finally, negative deviations from ethnicity pay preferences are associated with lower future firm performance.

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## **1. Introduction**

Agency theory argues that separation of ownership and control of the firm results in agency costs and a common solution to mitigate these costs is to design the agent's compensation in a way to align the interest of the owners and the agent (Jensen and Meckling, 1976). However, CEOs (i.e., the agents) do not fully satisfy the rationality assumption of traditional principal-agent models as CEOs make choices and take actions under bounded rationality (Simon, 1955, 1982; Hambrick and Mason, 1984; Tversky and Kahneman, 1986; Finkelstein and Hambrick, 1990; Finkelstein, et al., 2009).

Bounded rationality emerges due to CEOs' orientation being shaped by both observable and unobservable factors, resulting in variation in their filtering process. This filtering process consists of the executives' field of vision, selective perception, and interpretation of information, which ultimately affects their construed reality and maps into their choices and actions. Among the unobservable psychological factors that drive bounded rationality, and therefore induce variation in individuals' choices and actions when faced by a common set of stimuli, are their beliefs and values.

Our objectives in this paper are to (1) examine whether CEOs' common inherited beliefs and values affect their compensation arrangements, (2) explore potential explanations for why these beliefs and values affect compensation, (3) try to identify what innate characteristics may be captured by common inherited beliefs and values, (4) study environmental features that enable CEOs to be compensated close to their preferences, and (5) understand the consequences of overlooking these beliefs and values on firm performance. Prior research has considered how the response of CEOs to given compensation arrangements could vary based on their individual differences (e.g., Wowak and Hambrick, 2010). However, this line of reasoning requires that the

compensation arrangements themselves (i.e., level of pay and form of pay) are largely insensitive to the differences across individuals. We argue that CEOs have the opportunity to influence their pay arrangement as CEOs are in a position to negotiate compensation with the Board and to assert their preferences, which we expect to be shaped by their beliefs and values.

Employing a global sample of CEOs across 31 countries and representing 58 ethnicities, we use the ethnicity of CEOs as a proxy for their common inherited beliefs and values, and examine how compensation contracts are affected by these beliefs and values. We argue that ethnicity captures common inherited beliefs and values that guide the behavior of economic agents and determine their preferences regarding the appropriate level and form of monetary rewards.<sup>1</sup> Therefore, we predict that ethnicity could affect the way CEOs value their compensation packages, both in terms of level of pay as well as the variable pay proportion.<sup>2</sup>

However, we may observe deviations from these pay preferences due to ethnicity triggering bias and discrimination (Becker, 1957).<sup>3</sup> There is prior evidence of discrimination based on ethnicity, in general (Price and Wolfers, 2010, 2012; Larsen et al., 2008), in labor hiring (Bertrand and Mullainathan, 2004), and in wages (Charles and Guryan, 2008).<sup>4</sup> It is possible that even in the highly skilled labor market for CEOs, some ethnicities are subject to discrimination (i.e., negative bias) while others benefit from favoritism (i.e., positive bias).

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<sup>1</sup> Throughout this paper the word “preference” is defined as “a greater liking for one alternative over another or others” (see Oxford Dictionary).

<sup>2</sup> One possible way for preferences to directly and indirectly affect compensation could be via the discount rate that economic agents use to value the compensation they receive. While we cannot directly observe the discount rates of individual CEOs, we believe our empirical tests help us to infer at least some of their preferences.

<sup>3</sup> Effects of ethnicity are frequently discussed in the discrimination context and have generated equal opportunity initiatives around the world (e.g., establishment of the US Equal Employment Opportunity Commission in 1965).

<sup>4</sup> There is also literature in economics that examines the role of identity in consumption and savings, household division of labor, social exclusion and poverty, gender discrimination in the labor market, retirement decisions, and labor relations (see Landa 1994; Akerlof and Kranton, 2000, 2005, 2010; Bénabou and Tirole, 2011; Chen, 2013).

Showing significant ethnicity fixed effects for pay in a single country context cannot disentangle whether given ethnicities prefer specific compensation contracts (i.e., preference), or whether the compensation contracts are imposed given the ethnicity (i.e., bias). We argue that a global setting can help provide evidence on which one of these explanations is more widespread. Specifically, we argue that the ethnicity fixed effect estimated globally approximates each ethnicity's underlying preference for compensation. Once we capture this underlying pay preference of each ethnicity, we can then assess in each country, whether CEOs are paid consistently with their respective ethnicity's pay preference. Specifically, we use cross-country variation in governance and within-country variation in diversity of environment to provide evidence on the preference versus bias explanations. We acknowledge that for levels of pay, our global ethnicity fixed effect will still jointly capture the outcome of preferences shaped by beliefs and values, as well as potential ethnic discrimination and favoritism. Therefore, in most of our subsequent analyses we focus on the variable pay proportion of compensation.<sup>5</sup>

We group CEOs according to their ethnicities and track the ethnicities across multiple countries. We attribute an ethnicity to a CEO based on his/her forename and surname, using software developed by the Department of Geography at University College London, called OnoMAP.<sup>6</sup> Since we observe a large variation in CEO names around the world, we are able to classify the sample of our international CEOs from 2001 to 2012 into 58 unique ethnicities. The ethnicities with the highest representation are English (48.6%), Celtic (9.8%), Scottish (5.4%), Irish (5.4%), Hong Kongese (4.2%), and Indian (3.9%). The ethnicities with the lowest

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<sup>5</sup> We define variable pay proportion as the percentage of total compensation that is not fixed (i.e., salary). This variable enables meaningful cross-sectional comparisons of the form of pay because it controls for the total level of compensation in the denominator.

<sup>6</sup> The name-based approach to infer ethnicity has been used in prior settings such as innovation and healthcare (for example, Petersen et al., 2011; Foley and Kerr, 2013; Schnier et al., 2014; Nathan, 2015).

representation are Bangladeshi, Breton, Catalan, Czech, Hungarian, Lebanese, Malaysian, Northern Irish and Serbian. For the ethnicity effect to be identifiable separately from the country effect (e.g., formal institutions), we require each ethnicity to be present in at least two out of the 31 countries in our sample. The maximum number of countries a given ethnicity appears in is 29 (English), with just five ethnicities appearing in only two countries (Afrikaner, Bangladeshi Hindi, Breton, Malaysian, and Northern Irish). On average, each ethnicity appears in 10 countries providing sufficient variation to separately identify the ethnicity effect.

We document a strong ethnicity fixed effect in level of total compensation as well as in the proportion of variable pay. The ethnicity fixed effect in our global model is incremental to economic determinants of total compensation and variable pay identified in prior literature, and is also incremental to year fixed effects, and industry fixed effects. The increase in adjusted  $R^2$  due to the inclusion of ethnicity fixed effects ranges from 4.2% for total compensation to 6.3% for variable pay. Importantly, the ethnicity fixed effects are jointly significant even after the inclusion of country fixed effects, firm fixed effects and CEO fixed effects.<sup>7</sup> Thus, a significant portion of the global variation in level and form of compensation is captured by ethnicity fixed effects. We also find that a significant portion of the within-country variation in compensation is captured by ethnicity. On average, the incremental explanatory power of ethnicity fixed effects for total compensation is 3.7% for our 31 countries. We show that ethnicity fixed effects indeed capture common inherited beliefs and values; ethnicity matters even amongst US-born CEOs.

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<sup>7</sup> Firm fixed effects are included in a model where we restrict the sample to those firms that experience at least one CEO turnover which enables us to control for firm fixed effects. CEO fixed effects are included in a hybrid model, while simultaneously including country, industry, year and ethnicity as random effects. In all these specifications, we continue to find a significant ethnicity effect in the level and form of CEO compensation (see Table 4). In additional robustness tests for a smaller sample size, we also verify that the ethnicity fixed effects we estimate are significant even after the inclusion of several additional controls for gender, age, a measure of general managerial ability, education level, and whether the CEO is a founder of the firm.

Using the US setting and thereby keeping the corporate pay culture and the institutional environment constant, we also study changes in compensation around CEO turnover events. This turnover analysis enables us to keep the firm constant. We find that for CEO turnover events that involve changes in ethnicities (i.e., when the incumbent CEO is replaced by a CEO of a different ethnicity), both total compensation and variable pay changes significantly more relative to turnover events where the new CEO is of the same ethnicity as his/her predecessor. This finding supports our argument that ethnicity, as a measure of common inherited beliefs and values, captures cross-sectional variation in preferences about monetary rewards. We also conduct placebo tests by randomly assigning CEOs to ethnicities in 1,000 different simulations to ensure that the joint significance of our ethnicity fixed effects is not spurious.

Next, we examine several potential explanations for the ethnicity effect in compensation that we observe. First, we find that the ethnicity effects for several corporate policy decisions are largely unrelated to the ethnicity effects for compensation. As such, financing, investment, and payout policies do not seem to be indirect channels that influence compensation. Second, we find that the ethnicities in our dataset are not overly concentrated in any particular industries, which helps to partially mitigate an ethnicity self-selection explanation for our results. Third, we find that the effect of ethnicity, as a proxy for common inherited beliefs and values, is stronger when firms replace CEOs with the objective to bring in ‘change agents’. This latter analysis helps to uncover the potential source of bargaining power of CEOs that enables them to be compensated in line with their preferences.

Having established that ethnicity matters for compensation, we next conduct tests to enhance our confidence that the estimated ethnicity fixed effects indeed capture preferences regarding pay. Specifically, we allocate our ethnicities into groups based on two features that *a*

*priori* are expected to shape preferences regarding pay, and we then examine whether these two features explain our ethnicity fixed effects. The first feature is *future time reference*. Chen (2013) finds that people who speak languages that grammatically separate the future and the present (i.e., languages with strong future time reference) exhibit economic behavior that is different from those who speak languages with weak future time reference. In particular, people who speak strong future time reference languages disassociate the future from the present and their individual decisions are consistent with less cautious current behavior. We document evidence that ethnicities whose linguistic origin has strong future time reference also prefer higher proportion of variable pay consistent with tolerance for less cautious current compensation structures.<sup>8</sup> The second feature expected to shape individuals' preferences regarding pay is *religious culture of economic incentives*. World-wide value surveys suggest Muslims (relative to Protestants and Catholics) prefer higher pay differences as incentives for individual effort (Norris and Inglehart, 2011, see Chapter 7). We document that ethnicities whose religious origin is Muslim prefer higher proportion of variable pay. This result is consistent with Muslim teachings that prefer profit-sharing contracts, similar to bonuses and equity awards, over pre-determined payments. We also find that ethnicities whose religious origin is Jewish prefer higher proportion of variable pay, consistent with religious scholars' general view that Judaism is closer to Islam than to Christianity. We conclude from these analyses that CEOs with specific inherited beliefs and values indeed prefer specific compensation contracts.

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<sup>8</sup> Ideally, to assess intertemporal preferences we would like to decompose compensation into current versus deferred compensation. However, our global compensation data only enables us to decompose compensation into fixed versus variable pay. An assumption we make is that a greater proportion of variable pay is likely to be comprised of deferred compensation. The widespread practice of using vesting periods for equity-based compensation suggests that this is not a completely unreasonable assumption.



Further, we conduct both global and within-country tests to examine the extent to which observed pay for ethnicities deviates from their preferences. We find evidence in 16 out of the 31 countries that ethnicities receive pay consistent with their preferences, whereas in 15 countries we observe deviation from preferences (i.e., bias). We expect that formal institutions play a monitoring role on contracting by mitigating bias. We find that there is a positive and significant relation between ethnicities receiving their pay preference and the governance environment. In higher quality governance environments across the 31 countries, we observe higher likelihood that ethnicities receive pay consistent with their preference, and lower likelihood of negative bias. Furthermore, using the US setting, we find that the ethnicity fixed effects are closer to ethnicity preferences when the firm is headquartered in a state with a more diverse environment.

Finally, we also provide evidence that negative deviations from the global pay preferences of a CEO's respective ethnicity are associated with lower future firm performance as measured using one-year ahead return on assets and stock returns. Taken together, our results support the role of common inherited beliefs and values in CEO compensation arrangements.

Our paper makes the following contributions. First, by showing that ethnicity may capture a channel through which bounded rationality of CEOs can affect corporate outcomes, we provide empirical evidence on this assumption of behavioral agency theory (e.g., Pepper and Gore, 2012). We also add to the literature that examines how individual differences affect choices and actions that map into different corporate outcomes (e.g., Hambrick and Mason 1984; Finkelstein and Hambrick 1996, Finkelstein, et al., 2009).

Second, we add to the literature on the role of CEO style on corporate outcomes and compensation structures (e.g., Bertrand and Schoar, 2003; Chatterjee and Hambrick, 2007; Chin

et al. (2013); Graham et al., 2012; Dahl et al., 2012).<sup>9</sup> Differently from this literature on variation across individuals, our methodology of grouping CEOs according to their ethnic origins enables us to identify systematically similar but unobservable personal features such as inherited beliefs and values. Furthermore, a distinguishing feature of the individual differences we focus on is that individuals do not consciously choose or ‘acquire’ the inherited beliefs and values associated with their ethnicity. Also, we believe that our method of inferring variation in beliefs and values is less subjective and prone to manipulation, as it does not rely on self-reported data.<sup>10</sup>

Third, we contribute to the growing literature on cultural economics that investigates how beliefs and values affect economic outcomes (Guiso, et al. 2006; Zingales 2015) and, in particular, to the literature on cultural persistence (e.g., Guiso, et al. 2009, 2013; Nunn and Wantchekon, 2011; Alesina, et al., 2013). Our paper shows that ethnic origins of individuals capture a mechanism through which cultural persistence can be facilitated – parents pass on not only their ethnic origins to their offspring, but also their beliefs and values. Finally, our paper also expands our understanding of executive compensation around the world by documenting that ethnicities explain variation in global compensation over and above what we know about international differences in pay (e.g., Lambert, et al., 1993; Conyon and Murphy, 2000; Conyon and Schwalbach, 2000; Conyon, et al., 2011; Fernandes et al., 2013; Gerakos, et al., 2013).

The rest of the paper is organized as follows. Section 2 explains our research design and our data. Section 3 describes our results and Section 4 concludes.

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<sup>9</sup> Related papers have examined specific characteristics, such as ability, interpersonal and communication skills, education, credentials, and gender, among others (e.g., Adams, et al., 2005; Bennedsen, et al., 2010; Graham et al., 2012; Kaplan, et al., 2012; Custodio, et al., 2013; Fernandes et al., 2013; Carter, et al., 2014; Falato, et al., 2015).

<sup>10</sup> Graham et al., 2013 document that CEO traits, data on which they collect using psychometric tests, are associated with CEO compensation. See Morgeson et al., 2007 for a detailed discussion on how subjects can fake / manipulate psychometric tests.

## 2. Hypothesis Development and Research Design

We are motivated by the bounded rationality of individuals to examine whether differences in beliefs and values help to shape CEO compensation arrangements. To examine the effect of common inherited beliefs and values on CEO compensation, we use the ethnicity of the CEO as a measure that is likely correlated with their inherited beliefs and values. We argue that ethnicity captures common inherited beliefs and values that guide the behavior of economic agents and determine their preferences regarding the appropriate level and form of compensation.<sup>11</sup> One way we expect these behaviors and preferences to affect compensation is through the way that CEOs value their compensation packages. Specifically, variation in common beliefs and values across ethnicities may result in differences in the utility derived from the level and form of compensation.<sup>12</sup> In other words, we expect ethnicity to matter for CEO pay.

Since self-reported data on CEO ethnicity is not available, we use a name-based ethnicity classification software called OnoMAP to link CEO names to their ethnic, religious, and linguistic origin. The software uses a name classification methodology developed in 2009 by researchers at the Department of Geography at University College London. OnoMAP covers over 500,000 forenames and 1 million surnames drawn from public name registries of 28

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<sup>11</sup> For example, the inherited beliefs and values of CEOs could influence (1) their behavior during compensation contract negotiations with the Board of Directors, (2) the extent to which they are motivated by variable incentive components, (3) their intertemporal consumption choice regarding current period compensation and deferred compensation, and (4) their preference over monetary rewards and non-monetary rewards. In our empirical tests, we focus on (2) and to some extent (3), where our assumption is that variable pay is more likely to be comprised of deferred components of compensation.

<sup>12</sup> While utility maximizing economic agents would be expected to always prefer higher levels of pay to lower levels of pay, we believe that heterogeneity in beliefs and values creates variation in the utility derived from the levels of compensation. As such, we entertain the possibility that not all individuals value higher levels of compensation equally. This notion is consistent with Lambert, Larcker and Verrecchia (1991) who define the value of a compensation contract to a manager as a lump-sum payment such that the manager is indifferent between receiving this certainty-equivalent payment or receiving the uncertain payoff that will be provided by the contract, given the structure of the rest of his/her wealth. Their results indicate that as the manager becomes more risk-averse and less diversified, his/her value for a compensation contract with an uncertain payoff can be substantially less than its cost as perceived by shareholders.

countries. Each name in the OnoMAP dictionary has been classified into one of 185 OnoMAP types (the most granular level in the OnoMAP name classification taxonomy), together with a probability score that estimates the likelihood of a particular name belonging to that type based on that share of the population with that name in OnoMAP's database. We use the OnoMAP type as an indication of the likely ethnic root of the name (i.e., ethnicity). When classifying a list of names, the OnoMAP software assesses both elements of a person's name (forename and surname) to assign a final ethnicity classification at the individual level. In cases where a person's forename and surname indicate the same ethnicity (i.e., coincident name classification), the software assigns that ethnicity to the name. In cases where there is a conflict between a person's forename and surname (i.e., divergent name classification), the software assigns the ethnicity with the highest probability score to the name being analyzed.<sup>13</sup>

The OnoMAP classification estimates the most likely origins of a person's name according to the following dimensions of identity: ethnic background, religious tradition, geographic origin, and language (or common linguistic heritage). The diagnostic accuracy of OnoMAP in identifying population groups by ethnicity has been validated in several settings, with >95% classification accuracy (see Lakha, Gorman, and Mateos, 2011). We use OnoMAP to map each CEO's name to their likely ethnic background and the associated religious and linguistic origin.

In order to identify whether each ethnicity's preference matters for compensation, we estimate a global model of compensation. Our main compensation variables of interest are the total level of compensation (*Total Comp*) and the proportion of total compensation that is

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<sup>13</sup> In our empirical analysis, we remove observations with divergent name classifications and those observations where the forename and the surname are unclassified or not found in OnoMAP's dictionaries. We repeat all of our analysis after retaining the divergent name classifications and the results are unchanged (untabulated).

variable (*Variable Pay*). We use 60,950 and 57,630 CEO-year observations drawn from 31 countries over 2001 to 2012 to estimate the following panel regression for *Total Comp* and *Variable Pay*, respectively (CEO subscripts suppressed):

$$\begin{aligned}
 y_t = & \beta_1 \text{Size}_{t-1} + \beta_2 \text{Book to Price}_{t-1} + \beta_3 \text{Idio. Vol}_{t-1} + \beta_4 \text{Stock Return}_t \\
 & + \beta_5 \text{Market Leverage}_{t-1} + \beta_6 \text{Tenure}_{t-1} + \beta_7 \text{Past Performance}_{t-1} \\
 & + \text{Year Fixed Effects} + \text{Industry Fixed Effects} + \text{Country Fixed Effects} \\
 & + \text{Ethnicity Fixed Effects} + \varepsilon_t
 \end{aligned} \tag{1}$$

The dependent variable is either *Total Comp* or *Variable Pay*. Lagged size, book-to-price, idiosyncratic volatility, market leverage, tenure and contemporaneous stock returns are included as economic determinants of total compensation as these variables have been identified by prior literature to be related to CEO compensation. *Size* is proxied by sales, *Book-to-Price* is included as a measure of growth opportunities, *Idiosyncratic Volatility* measures firm-specific risk, *Stock Return* accounts for contemporaneous firm performance, *Market Leverage* measures the degree of financial risk, and *Tenure* is included to control for length of service as a CEO. In addition, we control for the CEO's intrinsic ability by using *Past Performance*, measured as the industry-adjusted stock returns for the previous year during the same CEO's tenure. We include year and industry fixed effects in the model and also control for each country's average effect. The model is estimated without an intercept as we are interested in estimating and extracting each ethnicity's fixed effect. A similar model is estimated for variable pay. We view the ethnicity fixed effects from our global model as an estimate of each ethnicity's pay preference. If these fixed effects are jointly significant it supports a role for ethnicity in determining compensation. We conduct a placebo test to examine whether our findings from the estimation of equation (1) are spurious by assigning CEOs to random ethnicities, and we also re-estimate equation (1) for a

subset of US-born CEOs to assess whether ethnicity fixed effects capture common beliefs and values that are inherited through the generations.

Using the US setting and thereby keeping the corporate pay culture and the institutional environment constant, we also examine firm-level changes in compensation around CEO turnover events. If ethnicity as our measure of common inherited beliefs and values indeed captures variation in preferences for monetary rewards, we would expect to observe bigger changes in total compensation and variable pay in cases where the new CEO and the old CEO are of different ethnicities. This approach provides a clean test to identify the ethnicity effect in pay by keeping the firm constant while exploring the effect of change in ethnicity.

Next, we examine several potential explanations for why the ethnicity of CEOs, as a proxy for their common inherited beliefs and values, may influence compensation. First, different managerial styles of CEOs may influence financing, investment and payout policies of firms. To the extent managerial styles align with CEOs' ethnicity preferences, corporate policies may indirectly influence compensation arrangements. We test whether ethnicity effects for compensation can be explained by, or are related to, ethnicity effects for corporate policies. Second, CEOs from certain ethnicities may self-select into certain industries and firms due to network effects or cultural influences and this may explain cross-ethnicity variation in compensation. We test for this self-selection by measuring the level of ethnicity-industry concentration in our sample. Finally, a replacement CEO brought in as a 'change agent' may have increased power in negotiating compensation arrangements, and this bargaining power might be the reason that firms decide to compensate CEOs in line with their preferences. Using CEO turnover events, we test whether the ethnicity effect is stronger when incumbent CEOs are

not retiring, and in situations where firms are experiencing past declines in performance. We examine these potential explanations in detail in Section 3.4.

In order to enhance our confidence that ethnicities capture inherited beliefs and values shaping preferences regarding pay, we identify two dimensions that *a priori* are expected to shape preferences regarding pay and, then, examine whether these two dimensions explain our estimated ethnicity fixed effects. The first dimension is *future time reference*. Chen (2013) examines the effect of language on economic behavior, such as intertemporal decisions regarding savings, health and retirement assets. The transmission mechanism from language to preferences is in the way different languages encode time differently. English is an example of languages with strong future time reference, as it makes a clear distinction between the present and the future. German is an example of languages with weak future time reference, i.e., it does not make a strong distinction between present and future. Chen (2013) finds that language influences the behavior of economic agents. People who speak weak future time reference languages save more, retire with more wealth, smoke less, practice safer sex, and are less obese. We interpret this pattern of behavior to be consistent with a more cautious, or more future-oriented, approach to economic decisions. We then examine whether our estimated ethnicity fixed effects indeed capture this behavioral dimension. Thus, we predict strong future time reference to be consistent with tolerance for less cautious current compensation structures (i.e., higher variable pay). Specifically, we estimate the following cross-sectional model at the ethnicity level:

$$\text{Ethnicity Fixed Effects}_i = \beta_0 + \beta_1 \text{Strong Future Time Reference}_i + \varepsilon_i \quad (2)$$

*Ethnicity Fixed Effects* are the ethnicity fixed effects for variable pay estimated using equation (1). The *Strong Future Time Reference* variable indicates whether each ethnicity's associated language has a strong (indicated by 1) or weak (indicated by 0) future time reference.

A second feature we examine that is expected to determine pay preference is the *religious culture of economic incentives*. Prior research based on World Values Survey evidence suggests that Muslims prefer higher pay differences as incentives for individual effort relative to Protestants and Catholics (Norris and Inglehart, 2011, see Chapter 7). Furthermore, Muslim beliefs place great importance on the role of God's Will (i.e., Insha Allah) and on divine predestination (i.e., Qadar) in shaping the outcome of uncertain events. Islamic teachings also encourage profit-sharing contractual arrangements to compensate for risk and uncertainty; pre-determined returns and fixed interest payments are strictly forbidden. In fact, many commercial transactions in Islamic economies are structured as contingent contracts with option-like features, similar to the stock and option awards that comprise the variable proportion of CEO compensation. Thus, we predict the ethnicity fixed effects for variable pay to be larger for Muslims. There is no similar World Values Survey evidence about Jewish preferences in Norris and Inglehart (2011) so we do not make a specific prediction. However, we note that amongst the three major monotheistic Abrahamic religions, religious scholars generally view Judaism as being closer to Islam than to Christianity. Indeed, Islam and Judaism are both considered as being closer to orthopraxy, while Christianity is considered as being closer to orthodoxy.<sup>14</sup> Thus, we are interested in observing whether the coefficient on Jewish behaves similarly to the coefficient on Muslim. We identify the most likely religious origin of the CEO's ethnicity and estimate the following model for variable pay ethnicity fixed effects:

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<sup>14</sup> Orthopraxy is defined as right action, and orthodoxy is defined as right belief (see Oxford Dictionary of World Religions). As such, Judaism is similar to Islam in its emphasis on practice rather than belief, on law rather than dogma. The primary religious discipline in Judaism and Islam has been religious law; for Christianity it has been theology. Some examples of similarities between Jewish and Muslim practices include the consumption of 'kosher' and 'halal' meat, and the restriction on consuming pork. Also, Muslim tradition forbids receiving or charging interest, and similar Jewish tradition forbids charging interest within the community, but permits it to outsiders.



$$\begin{aligned}
& \textit{Ethnicity Fixed Effects}_i && (3) \\
& = \beta_0 + \beta_1 \textit{Muslim}_i + \beta_2 \textit{Jewish}_i + \beta_3 \textit{Protestant}_i + \beta_4 \textit{Catholic}_i \\
& + \beta_5 \textit{Orthodox}_i + \varepsilon_i
\end{aligned}$$

where *Muslim*, *Jewish*, *Protestant*, *Catholic* and *Orthodox* are indicator variables for the respective religious origin associated with the ethnicity. The remaining religion groups such as Buddhist, Hindu and Sikh are included in the benchmark group. For both equations (2) and (3) the dependent variable is the ethnicity fixed effects from equation (1) for variable pay.

Next, we use the globally estimated ethnicity fixed effects (our measure of pay preference) as a benchmark against which each country's estimated ethnicity fixed effects can be compared. In order to extract ethnicity fixed effects for each of the 31 countries in our sample, we estimate equation (1) for each country individually. The deviation of a country's estimated fixed effect from the global ethnicity fixed effect provides a way to assess whether ethnicities receive compensation consistent with their preferences. In particular, we are interested in the proportion of ethnicity fixed effects in each country that are not statistically different from the pay preferences revealed by the global ethnicity fixed effects. We label this proportion of statistically insignificant differences as *Preference %*. If the proportion exceeds 50% we allocate that country to the preference group using an indicator variable (*Preference Indicator=1*). We also compute the proportion of country-level ethnicity fixed effects that are statistically different from the global model, and label them as either *Positive Bias %* or *Negative Bias %* depending on the sign of the statistically significant deviation from the global model.

Collectively, these four pay outcome variables summarize the extent to which ethnicities receive their pay preferences in a country. We then test whether these pay outcomes are related to the quality of the governance environment in the cross-section of countries by estimating the following country-level regression:

$$\text{Pay Outcome}_i = \beta_0 + \beta_1 \text{Governance Environment}_i + \varepsilon_i \quad (4)$$

*Pay Outcome* refers to the group of variables described above (i.e., *Preference %*, *Preference Indicator*, *Positive Bias %*, and *Negative Bias %*), and *Governance Environment* is measured using an index that summarizes the quality of governance in a country based on the World Bank's Worldwide Governance Indicators. We use the location of the company's headquarters to identify country affiliation as it is the likely location of the CEO. The World Bank's indicators report percentile ranks for each country along six dimensions of governance: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. We extract the first principal component of these governance indicators to create a measure of the governance environment that ranges from 0 to approximately 100 (86.5% of the variance in governance is explained by this first principal component). We expect *Preference %* and *Preference Indicator* to be positively related, and *Positive Bias %* and *Negative Bias %* to be negatively related to the governance environment. We make these predictions because higher quality governance environments are more likely to formalize institutions that mitigate bias.

Using a within country setting of the US we examine whether the openness of the firm's environment to different ethnicities has an effect on pay bias. We expect high diversity environments to yield ethnicity fixed effects that are closer to the pay preferences of ethnicities. We create two subsamples based on the diversity of the state that firms are headquartered in. Diversity is measured using a Diversity Index based on 2010 US census data developed by Esri ([www.esri.com](http://www.esri.com)). The Esri Diversity Index represents the likelihood that two persons, chosen at random from the same area, belong to different racial or ethnic groups. The Diversity Index ranges from 0 (no diversity) to 100 (complete diversity). High Diversity identifies firms in states

that are above the median Esri Diversity Index for the US, and Low Diversity identifies firms located in states that are below the median Esri Diversity index for the US. We estimate equation (1) for these two subsamples, and compare the estimated ethnicity fixed effects with those estimated from the global model (i.e., pay preference).

Finally, we examine the consequences of overlooking beliefs and values in CEO compensation arrangements. We develop CEO-specific measures to capture the deviation of the level and form of pay from their globally estimated ethnicity preference. We then test whether these deviations are significantly associated with future corporate outcomes measured using one-year ahead return on assets and stock returns. Specifically, we expect negative deviation (i.e., being paid below preference) to be associated with weaker future firm performance.

CEO compensation data for US firms is extracted from ExecuComp, and international compensation data is collected from Capital IQ's People Intelligence database. Using Capital IQ data also increases the sample of US firms that we are able to examine. We combine the compensation data from the two sources using overlapping observations to create a mapping algorithm. We retain all observations with at least a total compensation figure for the CEO that is either reported by the firm or that can be calculated using disclosure of the components of compensation. Compensation data is converted to constant 2005 US Dollars using the average exchange rate for the twelve months prior to the fiscal year end, and the Consumer Price Index for each country (rebased to 100 in 2005).

We collect annual firm fundamentals from Compustat North America for US firms, Compustat Global for international firms, and FactSet Fundamentals for firms not covered by Compustat. Using average currency exchange rates for the flow variables such as sales, and period-end currency exchange rates for the remaining stock variables, the firm fundamentals are

converted to US Dollars. These fundamentals are then used to compute size, book-to-price, and market leverage for use as control variables.

Returns and price data are collected from CRSP for US listed firms, Compustat North America for Canadian firms and Compustat Global for international firms. Daily returns are used to compute annual returns for each fiscal year, and also to compute idiosyncratic volatility of returns. Idiosyncratic volatility is calculated as the standard deviation of the residuals from a market model estimated using daily returns over the prior year, and where the country of exchange for each firm's primary share listing is used to identify the appropriate benchmark. Where available, country level MSCI index levels are used to compute market returns, otherwise returns on the local national stock index are used. For US firms, the CRSP value-weighted market returns are used as the benchmark.

Table 1 describes the sample construction procedure and summarizes the composition of the sample by country. After combining the compensation data from ExecuComp and Capital IQ with available fundamental data we have 99,219 CEO-year observations. We trim variables at 1% and 99% by country each year, except tenure, returns, and idiosyncratic volatility. Furthermore, we remove observations that cannot be classified by the OnoMAP name-based classification software, and we also require at least 10 observations for each ethnicity and for each ethnicity to be present in at least two out of the 31 countries in our sample. Finally, we remove those observations where OnoMAP delivers divergent ethnicity classifications using the forename and the surname of the CEO. These exclusion criteria result in a final sample of 60,950 CEO-year observations. In specifications where the dependent variable is variable pay, data availability restricts the sample to 57,630 CEO-year observations. The final sample covers the period from 2001 to 2012 for 31 countries and represents 58 ethnicities. The US is the most

heavily represented country in the sample with 45.7% of the CEO-year observations, followed by Great Britain with 10.4% of the observations. The lowest representation is in Taiwan with less than 1% of the observations relating to an average of 4 firms. The final sample period and country representation is determined largely by the availability of all required data, with the main constraint being disclosure of compensation data that is captured by Capital IQ.

Table 2 (Panel A) reports descriptive statistics for our main variables of interest, and also provides details regarding the computation of each variable. Table 2 (Panel B) reports averages of the main CEO-level and firm-level variables by country. In the cross-section of countries, total CEO compensation varies from an unconditional average of US\$ 128,900 in Pakistan to US\$ 2.4 million in Ireland, compared with the US average of US\$ 2.0 million (all figures are in constant 2005 US\$). Variable pay % ranges from 16% in Iceland to 52% in Switzerland, compared with the US average of 49%. Table 2 (Panel C) reports the averages of the CEO-level variables for each of the 58 unique ethnicities in our sample. The ethnicities with the highest representation are English (48.6%), Celtic (9.8%), Scottish (5.4%), Irish (5.4%), Hong Kongese (4.2%), and Indian (3.9%). The ethnicities with the lowest representation are Bangladeshi, Breton, Catalan, Czech, Hungarian, Lebanese, Malaysian, Northern Irish and Serbian. Table 2 (Panel C) also reports the unconditional average total compensation and variable pay for each ethnicity, as well as the average tenure. Using the language associated with each ethnicity, the table also reports whether the ethnicity's language has a strong future time reference.

Finally, Table 3 reports the average yearly correlations between the main variables. Pearson correlations are reported above the diagonal and Spearman rank correlations are reported below the diagonal. Compensation is positively correlated with size, tenure, returns, and past performance. Book-to-price is negatively correlated with total compensation (Pearson of -0.10)

which is consistent with pay being positively related to growth opportunities as represented by the market-to-book ratio. Idiosyncratic volatility is negatively associated, whereas leverage is positively associated with total compensation. These relations are consistent with those reported in prior research on the determinants of compensation.

### **3. Results**

#### *3.1. Ethnicity Fixed Effects in Global Model of Compensation*

First, we test whether ethnicity, our proxy for inherited beliefs and values, matters for total compensation and variable pay. We estimate a global model of total compensation using all 60,950 CEO-year observations in our sample. Table 4 (Panel A) reports the results. In model 1, we regress the level of total compensation on economic determinants. The coefficients on size, book-to-price, idiosyncratic volatility, stock return, market leverage, tenure, and past performance are all statistically significant and consistent with the signs reported in previous research. The reported t-statistics are based on standard errors that are clustered by ethnicity. Collectively, the model explains 24.4% of the variation in total compensation. Model 2 then includes year and industry fixed effects which increases the explanatory power of the model to 26.0% while taking nothing away from the economic determinants of compensation. Model 3 adds country fixed effects and the explanatory power of the model increases significantly to 47.2%, while the statistical significance of the economic determinants remains unchanged. In model 4, we include ethnicity fixed effects which increases the adjusted  $R^2$  of the model to 51.4%. We formally test whether the estimated ethnicity intercepts are jointly significantly different from zero at conventional levels. The reported F-statistic is large (4.22) and has an associated p-value of 0.000, suggesting that ethnicity is systematically related to compensation. Importantly, 28.1% of the ethnicity fixed effects are statistically significant at conventional

levels, which suggests that their joint significance is not driven by one or two coefficients. We report this additional statistic in order to mitigate potential concerns that in samples with a large number of fixed effects, standard F-tests for joint significance may be less appropriate (see Wooldridge 2002).<sup>15</sup> Thus, the percentage of significant ethnicity coefficients provides a way to corroborate the results of the F-tests.

In Panel B of Table 4, we repeat the analysis with variable pay % as the dependent variable and find similar results. In model 1, the economic determinants collectively explain 13.4% of the variation in variable pay, while adding year fixed effects and industry fixed effects in model 2 increases the variance explained to 17.9%. In model 3, controlling for country fixed effects increases the adjusted  $R^2$  to 70.1%. Finally, including ethnicity fixed effects in model 4 results in an increase in adjusted  $R^2$  to 76.4% and the F-statistic for the joint significance of the ethnicity fixed effects is large (2.62) and significant (p-value of 0.000). Further, 29.8% of the ethnicity fixed effects are statistically significant.<sup>16</sup>

The results in Table 4 support the role for ethnicity in compensation contracts around the world. The increase in adjusted  $R^2$  due to the inclusion of ethnicity fixed effects ranges from 4.2% for total compensation to 6.3% for variable pay. Thus, a significant portion of the global variation in compensation appears to be captured by ethnicity fixed effects.

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<sup>15</sup> Fee, Hadlock and Pierce (2013) have raised this concern primarily regarding CEO style studies that include a large number of manager-specific dummy variables. Our models include at most 58 ethnicity fixed effects which should reduce this concern to some extent.

<sup>16</sup> In robustness tests, we also include several additional control variables which we cannot include in our main specification due to lack of data availability for the full sample. In smaller subsamples, we include (1) the gender and age of the CEO, (2) a measure of generalist versus specialist managerial ability from Custodio, Ferreira and Matos (2013), (3) whether the CEO has received postgraduate education, and (4) whether the CEO is a founder of the firm. In all specifications, we continue to find that the ethnicity fixed effects remain jointly significant and that a sizeable proportion of the ethnicity coefficients are statistically significant.

In order to evaluate the suitability of using a fixed effects model, we also conduct a Hausman (1978) test of the null hypothesis that the coefficients estimated from a random effects model are identical to the coefficients estimated from a fixed effects model. The result of this test favors using the estimates from the less restrictive fixed effects model. Hence, for our primary analyses we continue to rely on the fixed effects model. However, for completeness we also estimate a hybrid correlated random effects model which enables us to control for CEO fixed effects while simultaneously including country, industry, year and ethnicity as random effects (see Allison, 2009).<sup>17</sup> We report these results in model 5 of Table 4 for total compensation (Panel A) and variable pay (Panel B). Even in this more restrictive model, the ethnicity effects remain jointly significant. The results of the hybrid model suggest that even after controlling for CEO fixed effects, the CEO's ethnicity has explanatory power for variation in compensation.

Finally, we conduct a placebo test to assess whether the joint significance of our ethnicity fixed effects is spurious. We randomly assign CEOs to one of 58 bins for ethnicities, and then estimate ethnicity fixed effects and their joint significance using F-tests. We repeat this process 1,000 times and collect the F-statistics for all the simulations. Figure 1 shows that the F-statistic for the joint significance of these random ethnicity fixed effects is significant at the 5% level only 45 out of the 1000 times this exercise was repeated with total compensation and variable pay as the dependent variable. The average F-statistic for the 1,000 different simulations is 0.99 for both total compensation and variable pay. This compares with a critical F-statistic of 1.33 at a

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<sup>17</sup> While the conventional random effects model assumes no correlation between unobserved and observed variables, the less restrictive fixed effects model allows for any correlations between time-invariant and time-varying predictors. Ultimately the choice between a fixed effects model and a random effects model presents a trade-off between bias and efficiency – the Hausman test provides a way to compare the two models. The hybrid correlated random effects model combines some of the benefits of the fixed effects and random effects model by taking advantage of the “within” and “between” variation of the dependent variable. The model is estimated through OLS as a random effects model with both time-invariant and time-varying predictors (see Mundlak, 1978). As such, the hybrid approach enables us to include CEO fixed effects while estimating the other time-invariant variables as random effects. This is something that we would not be able to do with a conventional fixed effects model.



5% level of significance, and our original F-statistics of 4.22 and 2.62 for total compensation and variable pay ethnicity fixed effects, respectively (see Table 4). This gives us confidence (about 95%) that the joint significance of our ethnicity fixed effects is not in fact spurious. Overall, our results suggest that common inherited beliefs and values of CEOs matter for compensation.<sup>18</sup>

### 3.2. *Persistence in Inherited Beliefs and Values*

We then examine whether the ethnicity fixed effects are indeed related to common inherited beliefs and values by focusing on a subset of CEOs that are born and raised in a different country to their ethnic origin. The US setting enables us to do this because of a long history of immigration. However, we want to focus on at least second-generation immigrants in order to identify the persistent effect of inherited beliefs and values. We hand-collect data on place of birth for a subset of US CEOs, and identify those that are US-born. We then estimate equation (1) for these CEOs. Table 5 reports the results for this subset which represents 9 ethnicities. Model 1 of Table 5 shows that the ethnicity fixed effects continue to be jointly significant for US born CEOs (F-statistic of 6.82; p-value of 0.000). This result is robust to using a measure of generalist versus specialist managerial ability from Custodio, Ferreira and Matos (2013) labeled *General Ability Index* instead of *Past Performance* in model 2, and also controlling for postgraduate education and founder status of the CEO, in models 3 and 4. We also repeat the analysis for variable pay and find similar results that the ethnicity coefficients are jointly significant (see model 5).

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<sup>18</sup> There is a potential concern that female CEOs may have changed their surname after marriage to a different ethnicity than their own and this could affect our results. Since we have removed divergent name classifications, we believe that this concern is mitigated. Nevertheless, we observe similar results after removing all female CEOs (less than 3% of observations). Another potential concern is related to slaveholder names being inherited by ex-slaves in the US which could result in incorrect ethnicity classifications for those slaves. We identify African American surnames using slaveholder names and ownership of slaves reported in the 1870 US census. This data is available from the following website: <http://freepages.genealogy.rootsweb.ancestry.com/~ajac/>. We have removed these potentially misclassified names in the US since we do not know for sure whether a CEO in our data is an African American or not, and the results continue to hold.

Overall, Table 5 provides support for our argument that ethnicity captures inherited beliefs and values. We find that even in the subset of CEOs that are born in a different country from their ethnic origin, ethnicity has an effect on compensation. Our results suggest that CEOs' common inherited beliefs and values are persistent and shape their compensation contracts.

### 3.3. *Changes in Ethnicity around CEO Turnover Events*

Next we examine whether the changes in compensation around CEO turnover events are related to changes in ethnicity. We use a single country setting (i.e., the US) to keep the corporate pay culture and the institutional environment constant. Further, by focusing on CEO turnovers we are able to keep the firm constant and therefore all unobservable firm characteristics and potential firm-to-CEO matching issues are also held constant. While there is still a possibility that the firm itself is changing around the turnover event, we believe this analysis allows us to draw stronger inferences about the ethnicity effect on CEO compensation.

Table 6 reports our analysis of 1,391 US firms that experience a CEO turnover once during our sample period. We use compensation data for the last full year prior to the incumbent CEO's departure and the first full year after the replacement CEO's arrival to compute the change in compensation around the turnover event (i.e., turnover years are excluded from the analysis). Our dependent variable is absolute change in total compensation in model 1 and absolute change in variable pay percentage in model 2. Change in total compensation and variable pay percentage is computed as the natural logarithm of the new CEO's compensation for the year after turnover divided by the old CEO's compensation for the year before turnover. Our variable of interest is an indicator variable, *Change in Ethnicity*, which takes the value of 1 if the replacement and incumbent CEOs are of different ethnicities, and zero otherwise. The regression model includes changes in the determinants of compensation used in previous regression

specifications. We exclude ethnicity fixed effects as we are interested in estimating the effect of all ethnicity changes as a group using the *Change in Ethnicity* indicator. We find that for CEO turnover events that involve changes in ethnicities (i.e., when the incumbent CEO is replaced by a CEO of a different ethnicity), both total compensation and variable pay changes significantly more relative to turnover events where the new CEO is of the same ethnicity as his/her predecessor. This ethnicity effect is captured by a statistically significant coefficient for *Change in Ethnicity* in both models 1 and 2. In models 3 and 4 we also control for differences in CEO ability using the generalist versus specialist managerial ability measure from Custodio, Ferreira and Matos (2013). The coefficient for *Change in Ethnicity* remains statistically significant. These results support our argument that ethnicity as a measure of common inherited beliefs and values captures cross-sectional variation in preferences about monetary rewards.

#### 3.4. *Potential Explanations for the Ethnicity Effect in Compensation*

We have argued that the ethnicity effect in compensation captures common inherited beliefs and values. There are several potential explanations for the ethnicity effect we observe. First, different managerial styles of CEOs may influence financing, investment and payout policies of firms, and these policies may indirectly influence compensation arrangements. Second, CEOs from certain ethnicities may self-select into certain industries and firms due to network effects or cultural influences. Finally, a replacement CEO brought in as a ‘change agent’ may have increased power in negotiating compensation arrangements, and this bargaining power might be the reason that firms decide to compensate CEOs in line with their preferences. We examine these potential explanations separately to shed light on which explanation seems to be more prevalent in our data.

### 3.4.1. *The Indirect Effect of Corporate Policy-related ‘Style’*

Graham et al. (2012) find that better-paid managers invest more in R&D and capital investments, use more financial leverage, pay more dividends and hold less cash in the company. They argue that these results suggest that manager compensation fixed effects are related to manager style fixed effects for investment and financing policy. Thus, one explanation for our results could be that CEO styles influence corporate policy, and that CEOs are being compensated for the risk-taking behavior embedded in these corporate policies. To examine this possibility, we perform the following analysis.

First, we extract ethnicity effects for each of the corporate policy variables used in Graham et al. (2012) using the equivalent of model 4 in Table 4. In order to control for firm fixed effects and to still separately identify ethnicity fixed effects, we focus on a subset of observations where the firm experiences at least one CEO turnover event during the sample period. The results are reported in Table 7. For *R&D* (model 2), *Leverage* (model 3) and *Dividend Payer* (model 5) the ethnicity effects are jointly significant at conventional levels, with 14% to 26% of the ethnicity effects being statistically significant. Similarly, there is a strong ethnicity effect for total compensation and variable pay even after controlling for firm fixed effects (see models 7 and 8).<sup>19</sup> Thus, there seems to be an ethnicity effect in both corporate policy and compensation variables.

Next, we examine whether the link between CEOs’ beliefs and values and corporate policy decisions could explain the reason that compensation is associated with beliefs and values.

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<sup>19</sup> Recall that in model 5 of Table 4 we also control for CEO fixed effects using a hybrid correlated random effects model while simultaneously estimating time-invariant explanatory variables, including ethnicity, as random effects. To the extent individuals prefer certain investment and financing policies, including a CEO fixed effect should fully account for this variation. Nevertheless, we still see an ethnicity effect in total compensation and variable pay.

Specifically, we adopt the methodology underlying Table 7 in Graham et al. (2012) and regress our estimated ethnicity fixed effects for compensation variables on estimated ethnicity effects for *R&D*, *Investment*, *Leverage*, *Cash Holding*, *Dividend Payer* and *Dividend Yield*. The ethnicity fixed effects associated with each corporate policy are extracted from separately estimated versions of our global model (model 4 in Table 4). For example, to estimate *Investment* policy-related ethnicity fixed effects, we use the base global model with *Investment* as the dependent variable. We then use the 58 ethnicities to estimate a cross-sectional regression of total compensation ethnicity effects (and variable pay ethnicity effects) on corporate policy-related ethnicity effects.

Table 8 reports the results for total compensation (model 1) and variable pay (model 2). We find that policy-related ethnicity effects jointly explain 5.9% of the cross-sectional variation in total compensation ethnicity effects. Interestingly, the coefficients for all the corporate policy-related ethnicity effects, except for *Leverage*, are insignificant at conventional levels. Turning to variable pay ethnicity effects, which are the focus of our later analyses, we find that the corporate policy-related ethnicity effects have virtually no explanatory power. The adjusted  $R^2$  is below zero (-6.2%) and no coefficient, except the intercept, is significantly different from zero. Thus, we feel confident that the significance of the ethnicity effects in compensation is likely not a manifestation of the influence of beliefs and values on corporate policy decisions.<sup>20</sup>

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<sup>20</sup> Using a different approach, we also include the firm policy variables used by Graham et al. (2012) as additional control variables in our base global model (Table 4). To the extent these corporate policy variables explain much of the variation in compensation variables, ethnicity should lose significance. We find that even after controlling for the investment and financing characteristics of firms, the ethnicity effects for total compensation and variable pay remain jointly significant. We add these variables to the specifications in model 4 of Table 4 (Panels A and B) and the ethnicity fixed effects for total compensation and variable pay remain jointly significant at conventional levels with  $F$ -statistics of 4.46 and 2.48, respectively. In addition, 28.1% and 29.8% of the ethnicity fixed effects are statistically significant for total compensation and variable pay, respectively.

### 3.4.2. *Self-selection by Ethnicities*

It is plausible that CEOs with certain beliefs and values self-select into firms with similar beliefs and values. We examine whether this possibility partially drives our results. Assuming that firms in an industry are more similar to each other compared to firms outside the industry, we investigate the self-selection issue by focusing on ethnic diversity within industries. A potential concern is that if certain ethnicities are concentrated in industries with higher pay or a specific pay structure, this could explain why we observe cross-ethnicity variation in compensation, despite controlling for industry fixed effects in our models. We assess how prevalent self-selection is by constructing a Gini-Simpson Diversity Index for our dataset and examining ethnicity-industry concentration. Figure 2 reports the results for diversity of ethnicities across industries. In Panel A, we report the likelihood of finding that two CEOs from the same ethnicity drawn at random (with replacement) from our dataset are employed in different industries. Across the 58 ethnicities in our sample, the average industry diversity is 76%. In Panel B, we report the industry diversity across ethnicities which can be interpreted as the likelihood of finding that two CEOs in our dataset drawn at random from the same industry belong to different ethnicities. Across the 10 industries in our sample, the average ethnicity diversity is 73%. Overall, these results do not point to a strong self-selection explanation for the ethnicity pay effects we observe.

### 3.4.3. *Bargaining Power of 'Change Agents'*

We expect that the effect of a CEO's beliefs and values on compensation would be bigger when the CEO has more power in compensation negotiations. We explore this further using the CEO turnover setting. We focus on turnover instances where the outgoing CEO is younger than 65 years old. We expect that departures of CEOs aged 65 and over are likely to be planned

retirements, and that the replacement of CEOs in these instances is likely to be arranged through succession planning. Thus, we assume that turnover instances where departing CEOs are younger than 65 years are more likely to be unexpected, and hence may be characterized by more bargaining power for the incoming CEO since the firm is in need to replace the CEO over a shorter time frame. In these instances, we indeed observe that changes in beliefs and values (captured by the *Change in Ethnicity* variable given different ethnic origins of the incumbent and replacement CEO) are accompanied by bigger changes in total compensation and variable pay (see Table 6 models 5 and 6).

We expect that firms may actively be seeking to change the status quo in situations where the outgoing CEO does not leave due to planned retirement. When firms bring in new CEOs with different beliefs and values, they may be looking for a ‘change agent’, and we expect that these individuals would have more bargaining power in negotiating their pay and hence are more likely to receive pay consistent with their preferences. We find evidence consistent with this argument in Table 9. In circumstances where we think firms might want to implement a corporate change (e.g., when faced with a recent decline as captured by increased employee turnover or deterioration in employee productivity), we observe that replacement CEOs with different beliefs and values compared to the incumbent CEOs are more likely to reverse the performance decline. This is especially so when the incumbent CEO is younger than 65 years old, i.e., not likely to be retiring (see columns 2 and 4). Although ex post, this evidence corroborates the argument that these individuals brought in to implement change have relatively greater bargaining power and therefore receive pay consistent with their pay preferences.

### 3.5. *Strong Future Time Reference and Global Pay Preferences*

So far we have documented that there is an ethnicity effect in CEO compensation that is incremental to economic determinants, year, industry, firm and country fixed effects. Further, in a hybrid correlated random effects model, we have shown that ethnicity is incremental to CEO fixed effects. We have also documented that ethnicity fixed effects are statistically significant for a subset of CEOs who are born in a different country from their ethnic origin, i.e., that the beliefs and values captured by ethnicities are persistent across generations. In addition, we have examined potential different explanations for the observed ethnicity effect in compensation.

We now attempt to open the black-box of ethnicity fixed effects in order to understand why ethnicity fixed effects are significant. We do this by investigating whether the ethnicity fixed effects capture underlying characteristics of ethnicities that are expected to influence pay preferences. Chen (2013) finds that languages that grammatically separate the future and the present (i.e., languages with strong future time reference) exhibit economic behavior that is different from those who speak languages with weak future time reference. Specifically, people who speak strong future time reference languages save less, retire with less wealth, smoke more, practice less safer sex, and are more obese. We interpret this pattern of behavior as consistent with a less cautious, or less future-oriented, approach to intertemporal economic decisions.

In Table 10, we use *Strong Future Time Reference* as a variable that proxies for ethnicities' future oriented behavior. *Strong Future Time Reference* takes the value of 1 (0) when the language associated with the CEO's ethnicity incorporates a strong (weak) reference to the future. A testable prediction is that ethnicities with languages that have a strong distinction between the future and the present would prefer higher variable pay since they tend to be less cautious. The results in Table 10 support this prediction. We regress the ethnicity fixed effects



extracted from Table 4 (Panel B), where variable pay is the dependent variable in the global model, on *Strong Future Time Reference*. Across the 58 ethnicities, we find a statistically significant positive coefficient on *Strong Future Time Reference* for variable pay (0.040; t-statistic of 3.45). The explanatory power of this variable for ethnicity fixed effects is 8.1%. Therefore, we take these results as evidence that ethnicities capture characteristics that are expected to influence pay preferences.

### 3.6. *Religious Culture of Economic Incentives and Global Pay Preferences*

Next, we look at the effect of religious culture on pay preferences. Evidence from Worldwide Value Surveys suggests that different religious cultures value economic incentives differently (Norris and Inglehart, 2011). Compared with other religious cultures, the survey results find that Muslim culture values higher pay differences as incentives for individual effort. Furthermore, Muslims have strong beliefs in the role of God's Will (i.e., Insha Allah) and divine predestination (i.e., Qadar) in shaping the outcome of uncertain events. Islamic teachings also tend to favor more variable outcomes as compensation for risk and effort, and as a result many commercial transactions in Islamic economies have option-like features. Thus, we hypothesize that Muslims prefer a higher proportion of variable pay.

In Table 11, we regress the ethnicity fixed effects for variable pay (from Table 4, Panel B) on indicator variables for the religious origin of each ethnicity. We separately identify Muslim, Jewish, Catholic, Protestant and Orthodox. We expect a positive relation if religious culture plays a role in compensation preferences. Consistent with this prediction, we find a positive and statistically significant coefficient on *Muslim* (0.090; t-statistic of 2.55), while the coefficients on *Protestant*, *Catholic* and *Orthodox* are positive but not statistically significant at conventional levels. Interestingly, we observe that the coefficient on *Jewish* is the second largest

after *Muslim* and is statistically significant (0.031; t-statistic of 2.35). While we did not have a specific ex ante hypothesis for the coefficient on *Jewish*, we noted earlier that Judaism is generally viewed by religious scholars as being closer to Islam than to Christianity. We cautiously interpret the positive and significant coefficient on *Jewish* as some evidence of similarity with *Muslim* in terms of the religious culture of economic incentives (i.e., preference for higher proportion of variable pay). The overall explanatory power of religious culture for ethnicity fixed effects is 20.8%. We view these results as additional evidence that ethnicities capture characteristics that are expected to influence pay preferences, namely the religious culture of economic incentives.

In summary, we conclude from the analyses presented in Sections 3.5 and 3.6 that CEOs with specific inherited beliefs and values indeed prefer specific compensation arrangements, and that ethnicity fixed effects partially capture future time reference and religious culture of economic incentives. This evidence is consistent with ethnic origins enabling a systematic and objective way to map individuals to their unobservable beliefs and values.

### 3.7. *Ethnicity Pay Preferences and the Governance Environment*

We next examine to what extent observed pay for ethnicities in each country deviates from their pay preference as indicated by the global ethnicity fixed effects. We estimate equation (1) for each country separately and extract the ethnicity fixed effects. The estimated ethnicity fixed effects for a given country are then compared to the pay preference of each ethnicity extracted from the global model. If for a given country 50% or more of the estimated ethnicity fixed effects are not statistically different from that ethnicity's preference extracted from the global model, we argue that the ethnicities receive pay that is consistent with their preferences in that country. If for a given country more than 50% of the estimated ethnicity fixed effects are

statistically different from their preference, we argue that the observed pay deviates from preferences (i.e., biased).

For each country, Table 12 summarizes the deviations of the ethnicity fixed effects from the global model. Column 1 reports the number of ethnicities (out of 58) that are represented in each country. Japan and Taiwan have the fewest number of unique ethnicities with 3 and 4, respectively. The US has the largest number of unique ethnicities with 54. *Preference %* is the proportion of ethnicity fixed effects in each country that are not significantly different from the global model. The preference % is zero in Japan and Portugal, and less than 15% in India, Pakistan, and the US. In contrast, 100% of CEO ethnicities in Iceland and 92% of CEO ethnicities in Israel receive their pay preference. Other countries with high preference % include Spain (89%) and Norway (80%).

*Positive Bias %* is the proportion of ethnicity fixed effects that are significantly higher than the global model. In the US and the Netherlands, 87% and 71% of the ethnicities receive compensation above their preference, respectively. *Negative Bias %* is the proportion of ethnicity fixed effects that are significantly below the global model. In India, 78% of the 27 ethnicities represented in that country receive compensation below their preference. Similarly, 100% of the 3 ethnicities represented in Japan and the 5 ethnicities represented in Portugal receive compensation below their preference. Finally, column 5 shows the incremental adjusted  $R^2$  which is the difference between the explanatory power of country-level models estimated with, and without, ethnicity fixed effects. The results show that adding ethnicity fixed effects to country models increases explanatory power in all but four cases (Belgium, Iceland, Spain and Taiwan), and the incremental effect ranges from 0.2% in Australia and Japan to over 10% in

Malaysia, Singapore and Pakistan. In the US, the incremental adjusted  $R^2$  from the addition of ethnicity fixed effects is 2.7%. The average incremental explanatory power is 3.7%.

We then examine the effect of the governance environment on pay outcomes in Table 13. In model 1, *Preference Indicator* is *Preference %* converted into an indicator variable which takes the value of 1 if *Preference %* is greater than or equal to 50%, and 0 if *Preference %* is below 50%. In the cross-section of 31 countries, we find that as predicted there is a positive and significant relation between ethnicities receiving their pay preference estimated under the global model, and the governance environment. Higher quality governance increases the likelihood that ethnicities receive compensation consistent with their preference. The negative coefficient on governance environment when *Negative Bias %* is the dependent variable is also consistent with this argument. A strong governance environment may mitigate negative bias for ethnicities.

### 3.8. *Ethnicity Pay Preferences and Diversity of Environment*

Next we examine whether the openness of the environment to different ethnicities has an influence on the ethnicity effect in CEO compensation. To answer this question, we hold the country environment fixed, and find a source of within-country variation. We use the US setting since we have the broadest representation of ethnicities (54 out of 58), and we also have data on cross-sectional variation in openness of the environment where the firm is headquartered. Our proxy for openness to ethnicities is a measure of ethnic diversity. We use the Esri Diversity Index which represents the likelihood that two persons, chosen at random from the same area, belong to different racial or ethnic groups. Based on the state in which corporate headquarters are located, US firms are allocated to High Diversity and Low Diversity partitions using the Esri Diversity Index. We then estimate ethnicity fixed effects for each partition and compare them

with the ethnicity fixed effects estimated using the global model (i.e., our measure of underlying preferences of each ethnicity).

Table 14 presents the results. We report the number of ethnicities represented in high diversity and low diversity states. We observe 54 ethnicities among the CEOs in high diversity states versus 38 ethnicities in low diversity states. We compare the deviations of the ethnicity fixed effects from the global model for each partition. Both partitions exhibit a positive bias relative to the global model. Column 3 shows the difference in means and medians between the high and low diversity partitions. In Panel A of Table 14, the mean and median bias is lower in high diversity states relative to low diversity states, with a mean of 0.618 and 0.982, respectively. Importantly, the differences in mean (-0.364) and median (-0.299) are statistically significant at conventional levels. We interpret this as the ethnicities in diverse environments receiving pay closer to their preferences.

A potential concern with Panel A is that the results may be due to a correlated omitted variable, namely the pay practices of multinational firms. We may observe multinational firms in more diverse environments, or environments may become more diverse due to the presence of multinational firms. Hence, the results in panel A may be capturing the tendency of multinational firms to pay ethnicities closer to their pay preference. In Panel B of Table 14, we estimate the models for both diversity partitions again after controlling for whether the firm is a multinational corporation. We use Compustat segment data to determine whether a firm is a purely domestic firm, or a multinational firm. We use an indicator variable to identify multinational firms based on whether they report a foreign segment. Our conclusion regarding diversity mitigating the deviation from ethnicities' pay preference is unchanged. CEO pay for different ethnicities is

closer to their pay preferences when the firm is located in high diversity states, even after controlling for firms with foreign segments.

### *3.9. Deviations from Pay Preferences and Future Outcomes*

Our last analysis examines the consequences of overlooking inherited beliefs and values in CEO compensation arrangements. If ethnicity fixed effects indeed capture pay preferences then deviations from these pay preferences may have negative consequences for future firm performance. For each CEO we measure the deviation of the level and form of pay from their respective ethnicity's globally estimated pay preference, and we use an indicator variable to identify instances of negative deviation. We then test whether negative deviations are significantly associated with one-year ahead return on assets and stock returns.

The results are presented in Table 15. As predicted, models 1 and 2 show that negative deviations in total compensation and variable pay are significantly associated with lower future return on assets for those firms. For example, in model 1 the coefficient on negative deviation in total compensation is -0.014 with a t-statistic of -8.44. In models 3 and 4, we use one-year ahead stock returns as the dependent variable, and find similarly negative signs for the negative deviation coefficients. While the negative deviation for total compensation is insignificantly associated with future stock returns, the negative deviation for variable pay is significantly associated with future stock returns (coefficient of -0.029 with a t-statistics of -4.39). Collectively, the results in Table 15 provide evidence that negative deviations from the pay preferences of CEOs' ethnicities can have negative consequences for future firm performance.

#### **4. Conclusion**

In this paper, we examine the role of inherited beliefs and values in CEO compensation contracts using an international setting. Research has considered how CEOs' responses to given compensation arrangements could vary based on their individual differences (e.g., Wowak and Hambrick, 2010), relying largely on compensation arrangements that are invariant to differences across individuals. We argue that CEOs' beliefs and values have the opportunity to influence their pay arrangements as CEOs are in a position to negotiate with the Board of Directors about compensation, and assert their preferences shaped by their beliefs and values.

We use ethnicity of CEOs as a proxy for their inherited beliefs and values, and find that ethnicity fixed effects are significantly associated with CEO compensation. We conduct a battery of robustness tests and continue to find significant results. Our results also hold for a sample of US-born CEOs, consistent with ethnicity fixed effects capturing inherited and persistent beliefs and values. CEO turnovers where the replacement CEO is of a different ethnicity to the predecessor are characterized by larger changes in both total compensation and variable pay. Furthermore, we conduct placebo tests by randomly assigning CEOs to ethnicities and confirm that the joint significance of our ethnicity fixed effects is not spurious. Importantly, we present evidence that ethnicity fixed effects capture innate characteristics, such as future time reference and religious culture of economic incentives, which are expected to shape pay preferences.

We examine different explanations for the observed ethnicity effect in compensation and document the following three findings. First, while we find an ethnicity effect in corporate policy decisions, we do not find that our estimated ethnicity fixed effects for compensation are explained by the estimated ethnicity effects for corporate policy decisions, suggesting that the ethnicity fixed effects in compensation are not a manifestation of the effect of common inherited

beliefs and values on corporate policy decisions. Second, we find that the ethnicities in our sample are not overly concentrated in any particular industries, suggesting that self-selection is less likely to be the main driver of our results. Third, we find that the effect of inherited beliefs and values is stronger when firms replace CEOs with the objective to bring in ‘change agents’, suggesting that increased bargaining power might be the more likely reason that firms decide to compensate CEOs in line with their ethnicity preferences.

We document world-wide variation in the extent to which ethnicities’ pay deviates from their preferences. In 16 out of 31 countries in our sample, observed pay for ethnicities deviates from their preference, whereas in 15 countries ethnicities receive pay consistent with their preference. We find that CEOs get paid closer to their preference in environments characterized by higher quality of governance and higher ethnic diversity. Finally, we provide evidence that paying CEOs less than their respective ethnicity's global pay preference can have detrimental effects on future firm performance. Overall, our results are consistent with common inherited beliefs and values of CEOs playing a role in designing compensation arrangements.



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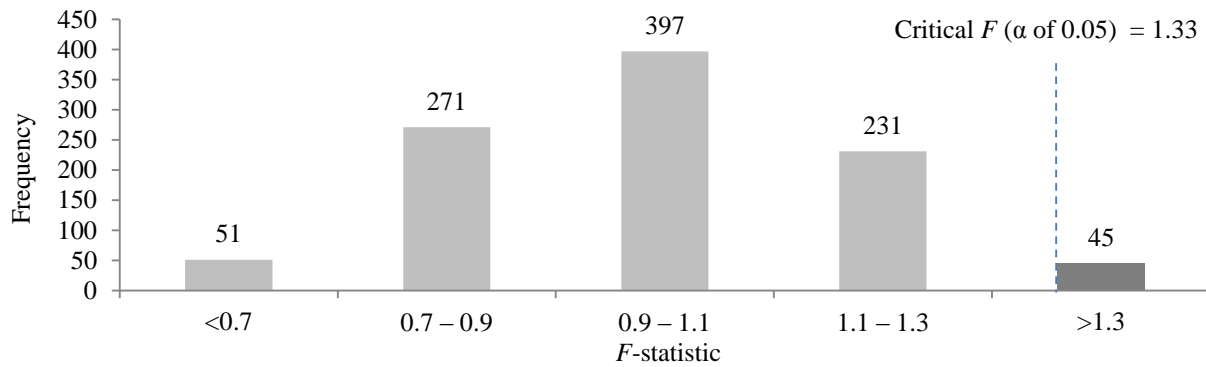
### Figure 1: Placebo Tests for Randomly Assigned Ethnicities

This table reports the distribution of  $F$ -statistics from placebo tests with random assignment of CEOs to one of 58 ethnicities. We estimate the following model for total compensation and variable pay (CEO subscripts suppressed):

$$y_t = \beta_1 Size_{t-1} + \beta_2 Book\ to\ Price_{t-1} + \beta_3 Idio.Vol_{t-1} + \beta_4 Stock\ Return_t + \beta_5 Market\ Leverage_{t-1} + \beta_6 Tenure_{t-1} + \beta_7 Past\ Performance_{t-1} + Year\ Fixed\ Effects + Industry\ Fixed\ Effects + Country\ Fixed\ Effects + Ethnicity\ Fixed\ Effects + \varepsilon_t$$

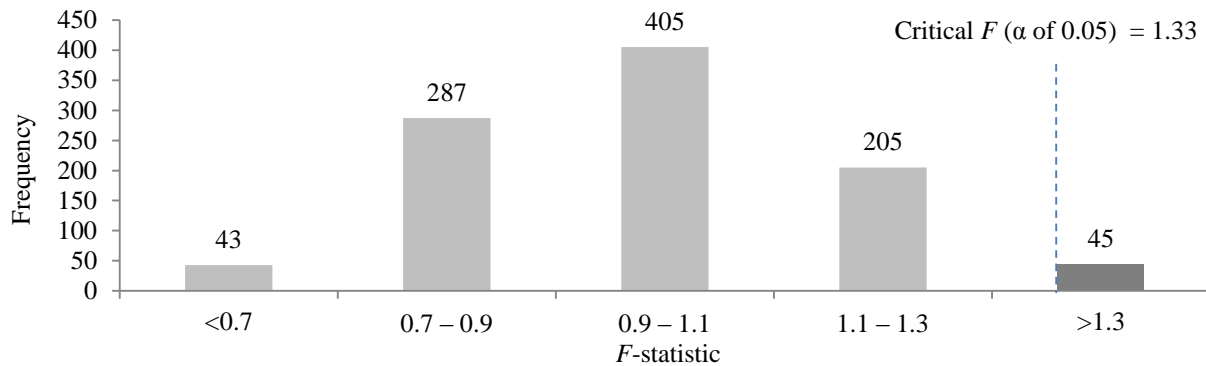
The  $F$ -statistics and associated  $p$ -values from a joint significance test of the random ethnicity fixed effects are then computed. This process (i.e., random assignment to ethnicities and joint significance  $F$ -tests) is simulated 1,000 times and the distribution of  $F$ -statistics is presented below. Panel A presents the distribution of  $F$ -statistics when the dependent variable is total compensation, and Panel B presents the distribution of  $F$ -statistics when the dependent variable is variable pay. There are 60,950 CEO-year observations available when the dependent variable is total compensation and 57,630 CEO-year observations available when the dependent variable is variable pay. Both figures also show the critical  $F$ -statistic at the 5% significance level, given the degrees of freedom in the restricted and unrestricted models.

#### Panel A: Distribution of $F$ -Statistics for Random Ethnicity Fixed Effects (Total Compensation)



Jointly significant  $F$ -statistic estimated 45 out of 1,000 times when ethnicities are randomly assigned.

#### Panel B: Distribution of $F$ -Statistics for Random Ethnicity Fixed Effects (Variable Pay)

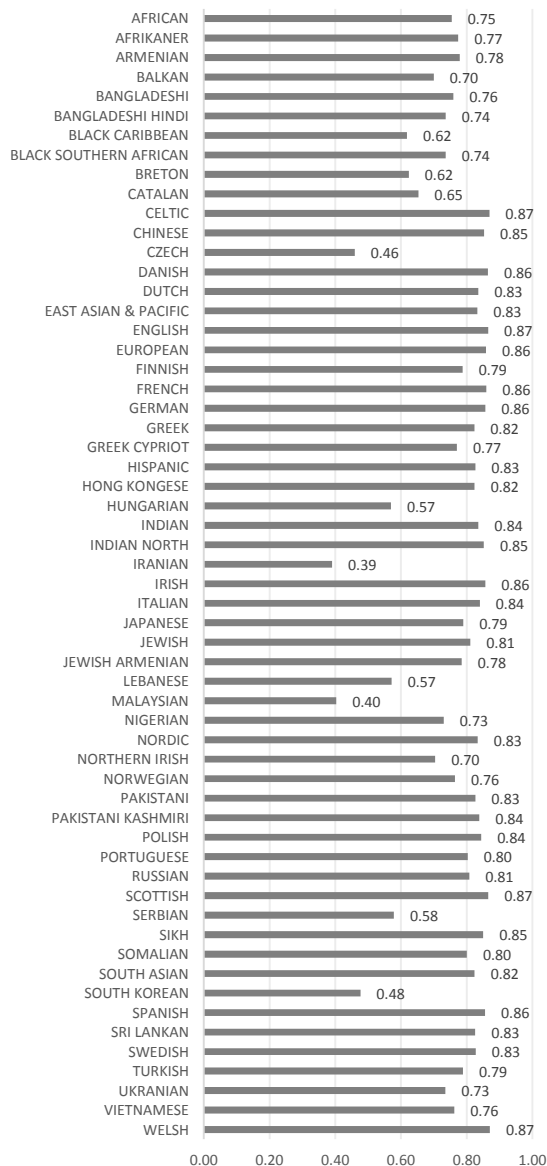


Jointly significant  $F$ -statistic estimated 45 out of 1,000 times when ethnicities are randomly assigned.

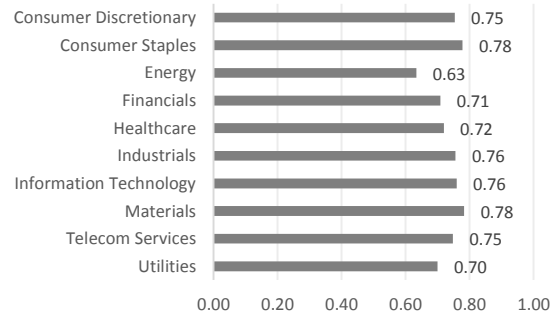
## Figure 2: Gini-Simpson Diversity Index for Sample

This figure reports the Gini-Simpson diversity index for our dataset, calculated by first taking the weighted generalized mean of the proportional abundances of the types (e.g., ethnicities across industries), and subtracting this from 1. Specifically, we compute  $\lambda = \sum_{i=1}^R p_i^q$  where the proportional abundances themselves are used as the nominal weights ( $p$ ). The value of  $q$  is the order of the diversity, with  $q=2$  corresponding to the weighted arithmetic mean. We report the transformation  $(1 - \lambda)$  which is the probability that two entities drawn at random from our dataset (with replacement) represent different types. The diversity index ranges from 0 (perfectly concentrated) to 100% (perfectly diverse). In Panel A, we report the ethnicity diversity across industries which can be interpreted as the likelihood of finding that two CEOs in our dataset drawn from the same ethnicity are employed in different industries. For example, there is an 87% probability that two English CEOs drawn at random from our dataset would be employed in different industries. Across the 58 ethnicities in our sample, the average industry diversity is 76%. In Panel B, we report the industry diversity across ethnicities which can be interpreted as the likelihood of finding that two CEOs in our dataset drawn from the same industry belong to different ethnicities. Across the 10 industries in our sample, the average ethnicity diversity is 73%.

### Panel A: Ethnicity Diversity Across Industries



### Panel B: Industry Diversity Across Ethnicities



**Table 1: Sample Composition**

This table reports the construction and composition of the main sample comprising 60,950 CEO-year observations across 31 countries over the period from 2001 to 2012:

Sample construction and exclusion criteria applied	Firm-years
Initial CEO-year observations from ExecuComp and Capital IQ	99,219
Trim variables at 1% and 99% level by country each year	-6,074
Remove missing name classifications, and ethnicities with less than 10 observations	-1,704
Observations lost due to missing data required for main regression variables	-9,678
Remove divergent name classifications for forename and surname	-20,813
CEO-year observations in main sample used in analyses	60,950

ISO	Country	Data Begins	Data Ends	Average Firms	Country-Years	Firm-Years	Freq. %
AUS	Australia	2001	2012	457	11	5,032	8.3
AUT	Austria	2004	2012	6	8	50	0.1
BEL	Belgium	2004	2011	17	8	138	0.2
CAN	Canada	2001	2012	465	11	5,111	8.4
CHE	Switzerland	2001	2012	51	11	560	0.9
CHN	China	2003	2011	121	9	1,085	1.8
DEU	Germany	2002	2011	96	10	964	1.6
DNK	Denmark	2004	2011	10	8	81	0.1
ESP	Spain	2003	2011	9	9	83	0.1
FIN	Finland	2003	2011	49	9	443	0.7
FRA	France	2001	2011	92	11	1,016	1.7
GBR	Great Britain	2001	2012	577	11	6,347	10.4
HKG	Hong Kong	2001	2012	289	11	3,183	5.2
IND	India	2002	2012	378	10	3,780	6.2
IRL	Ireland	2001	2012	24	11	267	0.4
ISL	Iceland	2005	2009	6	5	31	0.1
ISR	Israel	2001	2011	9	11	103	0.2
ITA	Italy	2001	2011	91	11	996	1.6
JPN	Japan	2010	2012	20	2	39	0.1
MYS	Malaysia	2002	2011	15	10	148	0.2
NLD	Netherlands	2001	2011	51	11	560	0.9
NOR	Norway	2002	2011	44	10	435	0.7
NZL	New Zealand	2001	2012	27	11	294	0.5
PAK	Pakistan	2003	2008	26	6	153	0.3
POL	Poland	2004	2011	43	8	344	0.6
PRT	Portugal	2008	2011	8	4	33	0.1
SGP	Singapore	2002	2012	14	10	135	0.2
SWE	Sweden	2001	2011	60	11	662	1.1
TWN	Taiwan	2003	2011	4	6	26	0.0
USA	USA	2001	2012	2,530	11	27,832	45.7
ZAF	South Africa	2001	2012	93	11	1,019	1.7
	Total				286	60,950	100.0

## Table 2: Descriptive Statistics

These tables report descriptive statistics for the main variables used in this study. Panel A reports means, standard deviations and selected percentiles of variables for CEO-year observations across 31 countries from 2002 to 2012. The top and bottom 1 percent of variables each year for each country were excluded, except tenure, returns, idiosyncratic volatility, and country level variables. Panel B reports country-level means of variables across 31 countries from 2001 to 2012 (with a shorter series for some countries as indicated in Panel A). Panel C reports means of variables across 58 ethnicities for CEOs from 2001 to 2012 (with a shorter series for some ethnicities). CEO ethnicities are identified using OnoMAP's name-based classification software. There are a maximum of 60,950 CEO-year observations (57,630 for variable pay).

### Panel A: Means, Standard Deviations and Selected Percentiles of Variables

Variable	<i>N</i>	Mean	Std. Dev.	P1	P5	P10	P25	P50	P75	P90	P95	P99
<i>Total Compensation</i>	60,950	1,305.11	2,204.64	16.67	64.05	123.83	268.81	557.68	1,321.09	3,134.82	5,167.39	11,615.42
<i>Variable Pay</i>	57,630	0.42	0.29	0.00	0.00	0.02	0.16	0.41	0.65	0.82	0.88	0.97
<i>Size</i>	60,950	5.09	2.37	-1.99	0.99	2.33	3.72	5.18	6.64	8.01	8.83	10.07
<i>Book-to-Price</i>	60,950	0.80	0.37	0.13	0.24	0.33	0.54	0.80	1.01	1.22	1.42	1.93
<i>Idiosyncratic Volatility</i>	60,950	0.03	0.02	0.01	0.01	0.01	0.02	0.03	0.04	0.06	0.08	0.12
<i>Annual Stock Return</i>	60,950	0.17	0.81	-0.86	-0.69	-0.54	-0.25	0.06	0.38	0.89	1.41	3.18
<i>Market Leverage</i>	60,950	0.42	0.27	0.02	0.05	0.08	0.19	0.39	0.63	0.83	0.89	0.95
<i>Tenure</i>	60,950	5.91	6.38	1.00	1.00	1.00	1.00	4.00	8.00	14.00	19.00	30.00
<i>Past Performance</i>	60,950	0.13	0.81	-0.97	-0.62	-0.46	-0.22	0.00	0.28	0.74	1.24	3.13
<i>Governance Environment</i>	60,950	87.10	15.21	36.34	41.97	60.72	89.12	91.73	94.51	95.83	96.96	99.58
<i>Strong Future Time Reference</i>	60,950	0.88	0.32	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00

The source of annual CEO compensation data is ExecuComp for US firms, and Capital IQ for international firms as well as those US firms not available in ExecuComp. Compensation data in local currencies is converted using the twelve-month average US\$ exchange rate. Each firm is assigned to a country based on the geographic location of firm headquarters. *Total Compensation* is the total annual compensation reported by the firm or is computed using all available cash and non-cash components of compensation, in constant 2005 US\$ thousands. The Consumer Price Index in each country is used to adjust all compensation to constant 2005 figures. *Variable Pay* is variable pay as a percentage of total compensation, where variable pay is calculated as total compensation less the fixed component of compensation (i.e., salary).

Firm fundamentals are collected from a Compustat North America, Compustat Global and FactSet Fundamentals to ensure the broadest coverage. *Size* is the annual sales level of the firm, presented in natural logarithms. *Book-to-Price* is the enterprise book-to-price ratio calculated as book value of assets divided by market value of assets, calculated as the sum of book value of liabilities and market value of equity. *Idiosyncratic Volatility (Idio. Vol.)* is the annual standard deviation of the residuals from a market model estimated using daily returns over the prior year, where market returns are proxied by the MSCI index returns for

the location of each firm's primary stock exchange listing. *Annual Stock Return* is the annual stock return of the firm. For US stocks, returns are from CRSP, for Canadian stocks, returns are calculated using price data from Compustat North America, and for stocks outside North America, returns are computed using price data from Compustat Global. *Market Leverage* is book value of liabilities divided by market value of assets, calculated as the sum of book value of liabilities and market value of equity. *Tenure* is the number of years the individual has served as CEO of the firm. *Past Performance* is the annual stock return for the prior year during the CEO's tenure, adjusted for the industry median stock return.

*Governance Environment* is the first principal component extracted from six dimensions of World Bank governance indicators for each country rescaled to range from 0 to approximately 100. Annual country level governance scores are collected from the World Bank Governance Indicators dataset ([http://info.worldbank.org/governance/wgi/sc\\_country.asp](http://info.worldbank.org/governance/wgi/sc_country.asp)). Six dimensions of governance are collected for each country: Voice and Accountability; Political Stability and Absence of Violence; Government Effectiveness; Regulatory Quality; Rule of Law; and Control of Corruption. On each dimension, the data shows the percentile rank for each country ranging from 0 (lowest) to 100 (highest).

*Strong Future Time Reference* is a variable that measures the degree to which the language associated with CEO's ethnicity incorporates a "Future Time Reference" that is strong (indicated by 1) or weak (indicated by 0). The Future Time Reference variable is from Chen (2013) which examines the effect of language on economic behavior, such as decisions regarding savings, health and retirement assets. A name-based ethnicity classification software from OnoMAP ([www.onomap.org](http://www.onomap.org)) is used to link CEO names to their ethnic origin. The future time reference (strong/weak) for the language associated with the ethnicity is then used to determine the value of *Strong Future Time Reference*.



**Panel B: Country-level Averages of Variables**

ISO	Country	<i>N</i>	<i>Total Comp</i>	<i>Variable Pay</i>	<i>Size</i>	<i>Book-to-price</i>	<i>Idio. Vol.</i>	<i>Annual Stock Return</i>	<i>Market Leverage</i>	<i>Tenure</i>	<i>Governance Environment</i>
AUS	Australia	5,032	560.5	0.33	2.40	0.72	0.05	0.18	0.26	3.60	95.50
AUT	Austria	50	1,165.6	0.43	6.87	0.93	0.02	0.14	0.52	4.10	96.17
BEL	Belgium	138	1,122.9	0.39	6.43	0.91	0.02	0.10	0.48	3.41	88.38
CAN	Canada	5,111	865.8	0.42	4.23	0.83	0.04	0.18	0.38	4.76	95.16
CHE	Switzerland	560	2,324.7	0.52	6.69	0.78	0.02	0.05	0.42	4.98	96.51
CHN	China	1,085	207.8	0.32	5.75	0.96	0.04	0.44	0.42	2.81	37.60
DEU	Germany	964	1,072.8	0.39	5.66	0.80	0.03	0.11	0.44	2.59	93.10
DNK	Denmark	81	1,124.4	0.33	6.41	0.68	0.02	0.09	0.42	5.38	99.67
ESP	Spain	83	950.2	0.31	7.43	0.85	0.02	0.03	0.63	3.46	83.35
FIN	Finland	443	706.9	0.19	5.94	0.76	0.02	0.11	0.40	4.56	99.84
FRA	France	1,016	1,134.1	0.35	6.72	0.82	0.02	0.13	0.51	4.06	89.45
GBR	Great Britain	6,347	758.8	0.30	4.78	0.78	0.03	0.10	0.40	4.49	93.06
HKG	Hong Kong	3,183	521.7	0.29	4.55	1.06	0.04	0.30	0.39	3.35	94.83
IND	India	3,780	207.0	0.35	4.83	0.90	0.03	0.38	0.51	4.18	43.72
IRL	Ireland	267	2,419.3	0.47	6.57	0.74	0.03	0.11	0.46	5.57	94.07
ISL	Iceland	31	955.8	0.16	5.97	0.72	0.02	0.09	0.52	3.32	98.81
ISR	Israel	103	1,120.1	0.34	5.41	0.96	0.03	0.18	0.61	3.78	76.46
ITA	Italy	996	987.6	0.35	6.18	0.86	0.02	0.02	0.55	2.57	62.74
JPN	Japan	39	2,034.3	0.29	8.38	0.91	0.02	0.12	0.51	5.90	89.20
MYS	Malaysia	148	305.9	0.33	4.80	1.03	0.03	0.15	0.49	4.03	64.20
NLD	Netherlands	560	1,240.8	0.42	6.51	0.80	0.03	0.12	0.48	3.69	96.35
NOR	Norway	435	669.0	0.30	5.34	0.75	0.03	0.17	0.47	3.70	97.23
NZL	New Zealand	294	487.4	0.26	4.55	0.72	0.03	0.06	0.34	5.50	99.08
PAK	Pakistan	153	128.9	0.41	4.31	0.81	0.03	0.47	0.50	1.90	19.90
POL	Poland	344	392.9	0.29	5.68	0.88	0.03	0.22	0.50	2.33	67.69
PRT	Portugal	33	1,089.5	0.38	7.90	0.82	0.02	0.00	0.60	2.61	81.91
SGP	Singapore	135	1,593.1	0.42	5.38	0.84	0.04	0.28	0.41	4.71	98.83
SWE	Sweden	662	873.5	0.37	5.59	0.71	0.03	0.18	0.37	3.56	98.45
TWN	Taiwan	26	241.8	0.20	6.63	0.72	0.02	0.43	0.36	9.27	77.19
USA	USA	27,832	2,012.0	0.49	5.61	0.76	0.03	0.14	0.45	8.18	90.72
ZAF	South Africa	1,019	604.4	0.45	5.58	0.79	0.03	0.33	0.41	4.20	59.91

**Panel C: Ethnicity-level Averages of Selected Variables**

<i>Ethnicity</i>	<i>N</i>	<i>Total Comp</i>	<i>Variable Pay</i>	<i>Tenure</i>	<i>Strong Future Time Reference</i>
AFRICAN	29	805.4	0.43	4.10	1
AFRIKANER	55	558.2	0.40	3.60	1
ARMENIAN	38	609.9	0.33	2.26	1
BALKAN	37	575.6	0.32	5.08	1
BANGLADESHI	18	344.0	0.44	2.61	1
BANGLADESHI HINDI	24	97.1	0.36	5.04	1
BLACK CARIBBEAN	26	824.2	0.42	3.38	1
BLACK SOUTHERN AFRICAN	22	829.6	0.52	2.23	1
BRETON	18	1,282.4	0.49	9.78	1
CATALAN	12	877.6	0.29	7.58	1
CELTIC	5,976	1,702.7	0.45	6.66	1
CHINESE	1,671	304.8	0.32	3.00	0
CZECH	14	864.3	0.46	3.71	1
DANISH	278	955.6	0.33	3.47	0
DUTCH	121	852.7	0.40	4.60	0
EAST ASIAN & PACIFIC	456	677.1	0.32	5.11	1
ENGLISH	29,611	1,451.5	0.43	6.46	1
EUROPEAN	1,160	1,814.3	0.46	6.53	1
FINNISH	391	669.4	0.19	4.53	0
FRENCH	1,214	1,148.4	0.40	4.98	1
GERMAN	1,236	1,327.4	0.43	4.53	0
GREEK	153	1,324.5	0.36	5.46	1
GREEK CYPRIOT	136	1,146.6	0.31	5.32	1
HISPANIC	102	2,025.7	0.48	4.09	1
HONG KONGESE	2,559	601.3	0.29	3.65	0
HUNGARIAN	12	660.4	0.36	5.83	1
INDIAN	2,406	330.0	0.35	4.37	1
INDIAN NORTH	748	469.6	0.36	4.14	1
IRANIAN	28	1,608.9	0.47	8.96	1
IRISH	3,270	1,768.3	0.47	6.46	1
ITALIAN	1,409	1,149.4	0.38	4.22	1
JAPANESE	98	954.1	0.28	4.62	0
JEWISH	354	1,475.1	0.45	10.05	1
JEWISH ARMENIAN	245	1,621.6	0.46	7.97	1
LEBANESE	14	735.0	0.43	2.50	1

**Panel C: Ethnicity-level Means of Selected Variables (continued)**

<i>Ethnicity</i>	<i>N</i>	<i>Total Comp</i>	<i>Variable Pay</i>	<i>Tenure</i>	<i>Strong Future Time Reference</i>
MALAYSIAN	12	1,097.4	0.57	8.50	1
NIGERIAN	40	1,033.7	0.33	12.15	0
NORDIC	161	1,439.8	0.41	5.06	0
NORTHERN IRISH	14	1,113.9	0.37	4.14	1
NORWEGIAN	31	873.1	0.35	4.84	0
PAKISTANI	305	477.4	0.36	4.63	1
PAKISTANI KASHMIRI	62	546.3	0.40	3.39	1
POLISH	641	704.1	0.36	3.86	1
PORTUGUESE	94	1,076.2	0.39	4.26	1
RUSSIAN	44	808.9	0.33	3.91	1
SCOTTISH	3,321	1,456.1	0.44	6.53	1
SERBIAN	11	410.7	0.38	2.00	1
SIKH	400	469.8	0.37	4.95	1
SOMALIAN	37	965.6	0.48	4.03	1
SOUTH ASIAN	389	355.4	0.41	4.96	1
SOUTH KOREAN	19	640.9	0.36	16.42	1
SPANISH	156	1,141.5	0.45	6.67	1
SRI LANKAN	167	186.3	0.35	4.54	1
SWEDISH	583	828.6	0.36	3.76	0
TURKISH	35	3,703.2	0.62	5.46	1
UKRANIAN	29	2,258.9	0.41	10.03	1
VIETNAMESE	92	902.3	0.33	5.34	1
WELSH	366	1,643.4	0.45	7.15	1

**Table 3: Average Yearly Correlations between Variables**

This table reports time-series averages of yearly Pearson and Spearman correlations between CEO-year variables for the 31 countries from 2001 to 2012. Pearson correlations are reported above the diagonal, and Spearman correlations are reported below the diagonal. See Table 2 (Panel A) for description of variables.

	1	2	3	4	5	6	7	8	9
1 <i>Total Compensation</i>		0.579	0.519	-0.103	-0.240	0.026	0.048	0.131	0.002
2 <i>Variable Pay</i>	0.691		0.399	-0.133	-0.247	0.106	0.012	0.095	0.049
3 <i>Size</i>	0.671	0.424		0.002	-0.510	-0.012	0.251	0.106	-0.036
4 <i>Book-to-price</i>	-0.138	-0.125	-0.013		0.002	0.107	0.575	-0.039	-0.247
5 <i>Idiosyncratic Volatility</i>	-0.409	-0.291	-0.530	-0.009		0.037	-0.114	-0.081	0.095
6 <i>Annual Stock Return</i>	0.118	0.184	0.085	0.126	-0.122		0.074	-0.002	-0.019
7 <i>Market Leverage</i>	0.052	0.020	0.237	0.658	-0.168	0.111		-0.021	-0.185
8 <i>Tenure</i>	0.283	0.169	0.151	-0.086	-0.084	0.021	-0.033		0.001
9 <i>Past Performance</i>	0.092	0.118	0.068	-0.284	-0.089	0.006	-0.184	0.026	

**Table 4: Global Model of Total Compensation and Variable Pay**

These tables report coefficient estimates from panel regressions of CEO Total Compensation (Panel A) and Variable Pay (Panel B) on various characteristics. Specifically, in model 1 we estimate the following base regression (CEO subscripts suppressed):

$$y_t = \beta_1 \text{Size}_{t-1} + \beta_2 \text{Book to Price}_{t-1} + \beta_3 \text{Idio.Vol}_{t-1} + \beta_4 \text{Stock Return}_t + \beta_5 \text{Market Leverage}_{t-1} + \beta_6 \text{Tenure}_{t-1} + \beta_7 \text{Past Performance}_{t-1} + \varepsilon_t$$

In Panel A, the dependent variable is Total Compensation and in Panel B, the dependent variable is Variable Pay. In models 2–4, we include year and industry fixed effects. In model 3, country fixed effects are added, and in model 4 ethnicity fixed effects are added. In model 5, we estimate a hybrid model which includes CEO fixed effects and random effects for year, industry, country, ethnicity and firm. There are a maximum of 60,950 CEO-year observations for total compensation (57,630 for variable pay). The reported *t*-statistics are based on standard errors clustered by ethnicity. The asterisks \*, \*\*, and \*\*\* indicate two-tailed statistical significance at the 10%, 5% and 1% levels, respectively. The tables also reports *F*-statistics and associated *p*-values from a joint significance test of the ethnicity effects estimated in models 4 and 5, as well as the percentage of ethnicity effects that are statistically significant. See Table 2 (Panel A) for description of variables.

**Panel A: Global Model of Total Compensation**

Estimation Method:	(1)	Fixed (2)	Fixed (3)	Fixed (4)	Hybrid (5)
	<i>Total Comp</i>	<i>Total Comp</i>	<i>Total Comp</i>	<i>Total Comp</i>	<i>Total Comp</i>
<i>Size</i>	0.182*** (3.92)	0.181*** (3.91)	0.175*** (4.15)	0.175*** (4.17)	0.182*** (5.82)
<i>Book-to-price</i>	-0.656*** (-10.97)	-0.713*** (-10.11)	-0.440*** (-5.38)	-0.460*** (-5.32)	-0.014 (-0.48)
<i>Idiosyncratic Volatility</i>	-0.125*** (-14.48)	-0.129*** (-13.03)	-0.135*** (-13.45)	-0.134*** (-13.50)	-0.023*** (-6.00)
<i>Annual Stock Return</i>	0.066*** (2.90)	0.071** (2.34)	0.100*** (5.46)	0.108*** (6.67)	0.085*** (11.48)
<i>Leverage</i>	0.350*** (3.63)	0.432*** (3.11)	0.212* (1.94)	0.248** (2.24)	-0.408*** (-4.67)
<i>Tenure</i>	0.040*** (12.72)	0.041*** (11.65)	0.009*** (3.80)	0.008*** (3.38)	0.015*** (3.87)
<i>Past Performance</i>	0.035** (2.05)	0.037** (2.15)	0.068*** (6.99)	0.066*** (7.00)	0.062*** (7.22)
Observations (CEO-years)	60,950	60,950	60,950	60,950	60,950
Adjusted R-squared	24.4%	26.0%	47.2%	51.4%	34.8%
Year Effects		Yes	Yes	Yes	Yes
Industry Effects		Yes	Yes	Yes	Yes
Country Effects			Yes	Yes	Yes
Ethnicity Effects				Yes	Yes
Firm Effects					Yes
CEO Effects					Yes
<i>Joint Sig. F (Ethnicity Effects)</i>				4.22	1.65
<i>Prob &gt; F (Ethnicity Effects)</i>				(0.000)	(0.001)
<i>Significant Ethnicity Effects (%)</i>				28.1	14.0

**Panel B: Global Model of Variable Pay**

Estimation Method:	(1)	Fixed (2)	Fixed (3)	Fixed (4)	Hybrid (5)
	<i>Variable Pay</i>	<i>Variable Pay</i>	<i>Variable Pay</i>	<i>Variable Pay</i>	<i>Variable Pay</i>
<i>Size</i>	0.010*** (3.87)	0.010*** (3.78)	0.009*** (4.55)	0.009*** (4.57)	0.001 (0.97)
<i>Book-to-price</i>	-0.122*** (-21.57)	-0.135*** (-26.91)	-0.097*** (-12.58)	-0.100*** (-11.40)	-0.047*** (-7.26)
<i>Idiosyncratic Volatility</i>	-0.025*** (-26.66)	-0.025*** (-28.24)	-0.026*** (-27.75)	-0.026*** (-28.49)	-0.006*** (-5.60)
<i>Annual Stock Return</i>	0.038*** (7.63)	0.041*** (6.30)	0.042*** (7.33)	0.044*** (7.90)	0.033*** (19.52)
<i>Leverage</i>	0.050*** (4.81)	0.050*** (3.31)	0.010 (0.93)	0.015 (1.25)	-0.030** (-2.36)
<i>Tenure</i>	0.003*** (9.08)	0.004*** (8.17)	-0.000 (-0.22)	-0.000 (-0.46)	-0.001** (-2.39)
<i>Past Performance</i>	0.016*** (4.13)	0.015*** (3.92)	0.019*** (6.24)	0.019*** (6.31)	0.016*** (10.85)
Observations (CEO-years)	57,630	57,630	57,630	57,630	57,630
Adjusted R-squared	13.4%	17.9%	70.1%	76.4%	27.4%
Year Effects		Yes	Yes	Yes	Yes
Industry Effects		Yes	Yes	Yes	Yes
Country Effects			Yes	Yes	Yes
Ethnicity Effects				Yes	Yes
Firm Effects					Yes
CEO Effects					Yes
<i>Joint Sig. F (Ethnicity Effects)</i>				2.62	1.67
<i>Prob &gt; F (Ethnicity Effects)</i>				(0.000)	(0.001)
<i>Significant Ethnicity Effects (%)</i>				29.8	21.1

**Table 5: Ethnicity Effect on Pay for US Born CEOs**

This table reports coefficient estimates from panel regressions of total compensation and variable pay on various characteristics using only a subset of CEOs in the US for whom place of birth was available, and that were born in the US. Specifically, the following base model is estimated (CEO subscripts suppressed):

$$y_t = \beta_1 \text{Size}_{t-1} + \beta_2 \text{Book to Price}_{t-1} + \beta_3 \text{Idio.Vol}_{t-1} + \beta_4 \text{Annual Stock Return}_t + \beta_5 \text{Market Leverage}_{t-1} + \beta_6 \text{Tenure}_{t-1} + \beta_7 \text{Past Performance}_{t-1} + \text{Year Fixed Effects} + \text{Industry Fixed Effects} + \varepsilon_t$$

Models 1–4 report results for total compensation and model 5 reports results for variable pay. In model 1 we use the above specification, while in model 2 we replace Past Performance with General Ability Index as an alternative measure of ability. The measure is from Custodio, Ferreira and Matos (2013) and uses the following aspects of a CEO’s professional career to develop an index of general managerial skill: past number of positions, firms, and industries in which a CEO worked; whether the CEO held a CEO position at a different company; and whether the CEO worked for a conglomerate. Data on *General Ability Index* for 1993 to 2007 was downloaded from: <http://www.public.asu.edu/~cpcustod/research.htm> and is available upon request. In model 3, we include an additional control for Postgraduate Education which is an indicator variable taking the value of 1 if the CEO holds a masters or doctoral degree, and 0 otherwise. In model 4, we control for CEOs that are a ‘Founder’ of the firm. Finally, model 5 repeats the same specification as in model 4 except that the dependent variable is variable pay instead of total compensation. The reported t-statistics are based on standard errors clustered by ethnicity. The asterisks \*, \*\*, and \*\*\* indicate two-tailed statistical significance at the 10%, 5% and 1% levels, respectively. The table also reports *F*-statistics and associated *p*-values from a joint significance test of the estimated ethnicity fixed effects, as well as the percentage of ethnicity effects that are statistically significant. See Table 2 (Panel A) for description of variables.

	(1)	(2)	(3)	(4)	(5)
	<i>Total Comp</i>	<i>Total Comp</i>	<i>Total Comp</i>	<i>Total Comp</i>	<i>Variable Pay</i>
<i>Size</i>	0.067** (2.58)	0.080*** (3.92)	0.095*** (7.17)	0.097*** (6.88)	-0.000 (-0.55)
<i>Book-to-price</i>	-0.653 (-0.19)	-1.021 (-0.33)	-0.994 (-0.31)	-0.610 (-0.20)	-0.027 (-0.25)
<i>Idiosyncratic Volatility</i>	-1.170*** (-3.69)	-0.993*** (-5.63)	-0.891** (-3.13)	-0.736** (-2.63)	-0.032** (-3.57)
<i>Annual Stock Return</i>	0.690** (2.60)	0.550 (1.77)	0.645* (2.03)	0.690* (2.17)	0.072*** (8.02)
<i>Leverage</i>	0.659 (0.12)	1.997 (0.44)	1.006 (0.21)	0.044 (0.01)	0.018 (0.10)
<i>Tenure</i>	-0.008 (-1.69)	0.008 (0.52)	0.015 (0.92)	0.055* (2.00)	-0.000 (-0.09)
<i>Past Performance</i>	0.684* (2.12)				
<i>General Ability Index</i>		1.013*** (12.63)	1.036*** (7.18)	1.048*** (7.49)	0.008 (0.60)
<i>Postgraduate Education</i>			1.538* (2.34)	1.330 (1.83)	0.047** (2.61)
<i>Founder</i>				-1.766*** (-5.07)	-0.000 (-0.00)
Observations	708	602	602	602	593
Adjusted R-squared	40.4%	41.9%	43.3%	43.7%	47.8%
<i>Joint Sig. F (Ethnicity Effects)</i>	6.82	5.08	5.06	5.18	3.17
<i>Prob &gt; F (Ethnicity Effects)</i>	(0.000)	(0.000)	(0.000)	(0.000)	(0.005)
<i>Significant Ethnicity Effects (%)</i>	62.5	66.7	66.7	83.3	33.3

**Table 6: Effect of Change in Ethnicity around CEO Turnover Events on Compensation**

This table reports coefficient estimates from regressions of changes in CEO compensation on changes in various characteristics around CEO turnover events. The sample is reduced to include only the 1,391 US firms that experience CEO turnover once during our sample period, and where all data is available. Changes are computed using compensation and characteristics data for the last full year prior to the incumbent CEO's departure (i.e., OLD CEO) and the first full year after the replacement CEO's arrival (i.e., NEW CEO). CEO turnover years are excluded. The following base model is estimated (firm and year subscripts suppressed):

$$\Delta y = \beta_1 \Delta \text{Size} + \beta_2 \Delta \text{Book to Price} + \beta_3 \Delta \text{Idio. Vol} + \beta_4 \Delta \text{Annual Stock Return} + \beta_5 \Delta \text{Market Leverage} + \beta_6 \Delta \text{General Ability Index} + \beta_7 \text{Change in Ethnicity} + \text{Year Fixed Effects} + \varepsilon$$

In models 1, 3, and 5 the dependent variable is the absolute change in *Total Compensation* where change is computed as  $\ln(\text{TotalComp}_{\text{NEW CEO}}/\text{TotalComp}_{\text{OLD CEO}})$  and  $\ln$  is the natural logarithm operator. Similarly, in models 2, 4, and 6 the dependent variable is the absolute change in *Variable Pay %* where change is computed as  $\ln(\text{VariablePay}_{\text{NEW CEO}}/\text{VariablePay}_{\text{OLD CEO}})$ . The observations are reduced slightly to 1,305 firms in models 2 due to missing variable pay data. The primary variable of interest is *Change in Ethnicity* which is an indicator variable that takes on the value of 1 if the ethnicity of the replacement CEO is different from the ethnicity of the incumbent CEO, zero otherwise. We exclude ethnicity fixed effects as we are interested in estimating the effect of all ethnicity changes as a group using the *Change in Ethnicity* indicator variable. In models 3–6, we also control for differences in ability between the replacement and incumbent CEO. Due to data unavailability, the sample size in models 3–6 is reduced to 452 and 440 observations for Total Comp and Variable Pay, respectively. *General Ability Index* is a measure of ability from Custodio, Ferreira and Matos (2013) and uses the following aspects of a CEO's professional career to develop an index of general managerial skill: past number of positions, firms, and industries in which a CEO worked; whether the CEO held a CEO position at a different company; and whether the CEO worked for a conglomerate. Data on *General Ability Index* was downloaded from the following website: <http://docentes.fe.unl.pt/~mferreira/> and is available upon request. Finally, models 5 and 6 examine whether turnover events where the incumbent CEO was not retiring are associated with a stronger effect of *Change in Ethnicity* on changes in compensation. We include *CEO Not Retiring* as an indicator variable that equals 1 if the age of the incumbent CEO is less than 65 years, zero otherwise. We also include the interaction term for *Change in Ethnicity* × *CEO Not Retiring*. All specifications include year fixed effects. The reported *t*-statistics are based on standard errors clustered by ethnicity. The asterisks \*, \*\*, and \*\*\* indicate two-tailed statistical significance at the 10%, 5% and 1% levels, respectively. See Table 2 (Panel A) for description of variables.

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Abs. Δ</i>	<i>Abs. Δ</i>	<i>Abs. Δ</i>	<i>Abs. Δ</i>	<i>Abs. Δ</i>	<i>Abs. Δ</i>
	<i>Total Comp</i>	<i>Variable Pay</i>	<i>Total Comp</i>	<i>Variable Pay</i>	<i>Total Comp</i>	<i>Variable Pay</i>
<i>ΔSize</i>	-0.000 (-0.00)	-0.137** (-2.48)	-0.042 (-0.49)	-0.272*** (-6.54)	-0.039 (-0.46)	-0.287*** (-7.46)
<i>ΔBook-to-price</i>	-0.098 (-1.62)	-0.026 (-0.19)	-0.466*** (-3.10)	-0.112 (-0.73)	-0.474*** (-3.23)	-0.102 (-0.70)
<i>ΔIdiosyncratic Volatility</i>	-0.017 (-0.40)	0.181*** (3.47)	-0.067 (-1.67)	0.216 (1.21)	-0.059 (-1.51)	0.219 (1.31)
<i>ΔAnnual Stock Return</i>	0.038* (1.99)	0.048** (2.08)	0.099* (1.83)	0.078 (0.97)	0.098* (1.84)	0.074 (0.89)
<i>ΔLeverage</i>	-0.001 (-0.01)	0.050 (0.49)	0.196* (1.99)	0.107 (1.50)	0.208** (2.22)	0.130* (1.93)
<i>ΔGeneral Ability Index</i>			0.021* (1.75)	0.103*** (4.50)	0.021* (1.81)	0.107*** (4.57)
<i>Change in Ethnicity</i>	0.053** (2.54)	0.062** (2.04)	0.066** (2.31)	0.083* (1.75)	0.031 (1.41)	-0.108* (-1.89)
<i>CEO Not Retiring</i>					0.013 (1.10)	-0.314*** (-17.57)
<i>Change in Ethnicity × CEO Not Retiring</i>					0.075*** (2.86)	0.385** (2.68)
Observations	1,391	1,305	452	440	452	440
Adjusted R-squared	1.7%	3.0%	5.6%	4.1%	5.9%	4.7%



**Table 7: Ethnicity Effect on Corporate Policy and CEO Compensation**

This table reports coefficient estimates from panel regressions of corporate policy and compensation variables on various firm and CEO characteristics, as well as various fixed effects. We restrict the sample to firms that experience at least one CEO turnover events which enables us to include firm fixed effects. Specifically, we estimate the following base regression (CEO subscripts suppressed):

$$y_t = \beta_1 \text{Size}_{t-1} + \beta_2 \text{Book to Price}_{t-1} + \beta_3 \text{Idio. Vol}_{t-1} + \beta_4 \text{Stock Return}_t + \beta_5 \text{Market Leverage}_{t-1} + \beta_6 \text{Tenure}_{t-1} + \beta_7 \text{Past Performance}_{t-1} + \text{Fixed Effects} + \varepsilon_t$$

In all models we include year, firm and ethnicity fixed effects. We use different dependent variables for columns 1–8. *Investment* is capital expenditures scaled by average total assets, *R&D* is R&D spending scaled by average total assets, *Cash Holdings* is cash and cash equivalents scaled by average total assets, *Dividend Paying Firm* is a yearly indicator for whether the firm pays dividend, *Dividend Yield* is common dividends scaled by price, *Total Compensation* is CEO total annual compensation in constant 2005 US\$ thousands, and *Variable Pay* is the percentage of CEO total compensation that is variable. The reported *t*-statistics are based on standard errors clustered by ethnicity. The asterisks \*, \*\*, and \*\*\* indicate two-tailed statistical significance at the 10%, 5% and 1% levels, respectively. The table also reports *F*-statistics and associated *p*-values from a joint significance test of the ethnicity effects, as well as the percentage of ethnicity effects that are statistically significant. See Table 2 (Panel A) for description of all variables.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Investment</i>	<i>R&amp;D</i>	<i>Leverage</i>	<i>Cash Holdings</i>	<i>Dividend Payer</i>	<i>Dividend Yield</i>	<i>Total Comp</i>	<i>Variable Pay</i>
<i>Size</i>	-0.000 (-0.53)	-0.000* (-1.94)	-0.000 (-0.94)	0.000 (0.10)	0.005*** (5.32)	0.001*** (3.19)	0.228*** (5.03)	0.000 (0.41)
<i>Book-to-price</i>	-0.017*** (-4.55)	-0.005*** (-2.78)	-0.091*** (-17.88)	-0.017** (-2.30)	0.010 (0.77)	0.003 (1.52)	0.001 (0.02)	-0.044*** (-4.59)
<i>Idiosyncratic Volatility</i>	0.000 (0.27)	0.000** (2.43)	-0.003** (-2.55)	0.003*** (3.20)	-0.013*** (-8.00)	-0.001*** (-4.73)	-0.027*** (-3.36)	-0.007*** (-4.03)
<i>Annual Stock Return</i>	0.002* (1.98)	0.001 (1.06)	-0.010*** (-7.71)	0.026*** (14.30)	0.016*** (5.13)	-0.002*** (-3.76)	0.131*** (7.27)	0.037*** (9.10)
<i>Leverage</i>	-0.039*** (-11.18)	-0.004** (-2.57)	0.280*** (18.78)	-0.151*** (-10.87)	-0.281*** (-13.29)	-0.006** (-2.13)	-0.584*** (-6.59)	0.006 (0.50)
<i>Tenure</i>	0.000 (1.39)	-0.000* (-1.83)	0.000* (1.72)	-0.001** (-2.62)	0.001** (2.45)	0.000 (0.47)	0.015*** (3.71)	-0.001** (-2.07)
<i>Past Performance</i>	0.001 (0.63)	-0.001*** (-2.84)	-0.003** (-2.24)	0.004* (1.77)	0.002 (0.50)	-0.000 (-1.65)	0.094*** (7.32)	0.019*** (8.79)
Observations	18,822	18,822	18,822	18,822	18,822	18,822	18,822	18,358
Adjusted R-squared	59.3%	77.1%	70.9%	69.0%	77.8%	22.9%	69.8%	60.7%
<i>Joint Sig. F (Ethnicity Effects)</i>	0.85	1.53	2.29	1.20	1.63	0.50	2.09	2.96
<i>Prob &gt; F (Ethnicity Effects)</i>	0.766	0.010	0.000	0.160	0.003	0.999	0.000	0.000
<i>Significant Ethnicity Effects (%)</i>	10.0%	16.0%	26.0%	16.0%	14.0%	4.0%	26.0%	30.0%

**Table 8: Ethnicity Pay Preferences and Policy-Related Ethnicity Fixed Effects**

This table reports results from a regression of compensation-related ethnicity fixed effects estimated from the global model on various policy-related ethnicity fixed effects. The ethnicity fixed effects associated with various firm policies are extracted from separately estimated versions of the global model. For example, to estimate *Investment* policy-related ethnicity fixed effects, we use the base global model from Table 5 (i.e., model 4) with *Investment* as the dependent variable. We then repeat this procedure for each policy variable and store the ethnicity coefficients for use in this analysis. We then estimate cross-sectional regressions of total compensation ethnicity fixed effects (model 1) and variable pay ethnicity fixed effects (model 2) on these policy-related ethnicity fixed effects. *Investment* is capital expenditures scaled by average total assets, *R&D* is R&D spending scaled by average total assets, *Cash Holdings* is cash and cash equivalents scaled by average total assets, *Dividend Paying Firm* is a yearly indicator for whether the firm pays dividend, and *Dividend Yield* is common dividends scaled by price. Robust *t*-statistics are reported below each coefficient. The asterisks \*, \*\*, and \*\*\* indicate two-tailed statistical significance at the 10%, 5% and 1% levels, respectively.

	(1) <i>Total Compensation Ethnicity Fixed Effects</i>	(2) <i>Variable Pay Ethnicity Fixed Effects</i>
<i>R&amp;D Ethnicity Fixed Effects</i>	-2.276 (-0.75)	0.243 (0.59)
<i>Investment Ethnicity Fixed Effects</i>	-9.155 (-1.27)	-0.562 (-0.73)
<i>Leverage Ethnicity Fixed Effects</i>	1.912* (1.86)	0.049 (0.35)
<i>Cash Holding Ethnicity Fixed Effects</i>	0.579 (0.37)	0.073 (0.41)
<i>Dividend Payer Ethnicity Fixed Effects</i>	-0.382 (-0.64)	-0.026 (-0.44)
<i>Dividend Yield Ethnicity Fixed Effects</i>	-16.451 (-1.59)	0.652 (0.57)
Constant	1.352 (1.42)	0.753*** (7.12)
Observations (Ethnicities)	58	58
Adjusted R-squared	5.9%	-6.2%

**Table 9: Effect of Change in Ethnicity around CEO Turnover Events on Future Outcomes**

This table reports coefficient estimates from regressions of post-turnover outcomes in the future (i.e., future employee increase and future productivity increase) on whether the replacement CEO has a different ethnicity than the incumbent CEO (*Change in Ethnicity*), conditional on the firm experiencing a *Past Decline* in the outcome of interest. The sample is reduced to include only the 1,391 US firms that experience CEO turnover once during our sample period, and where all data is available. We examine the last full year prior to the incumbent CEO's departure and the first full year after the replacement CEO's arrival. CEO turnover years are excluded. The following model is estimated (firm and year subscripts suppressed):

$$\text{Future Outcome} = \beta_1 \text{Change in Ethnicity} + \beta_2 \text{Past Decline} + \beta_3 \text{Change in Ethnicity} \times \text{Past Decline} + \Sigma \gamma X_t + \text{Year Fixed Effects} + \varepsilon$$

$X_t$  is a vector of control variables including *Size*, *Book-to-price*, *Idiosyncratic Volatility*, *Annual Stock Return* and *Past Performance*. In columns 1 and 2, the future outcome of interest is Future Employee Increase and in columns 3 and 4, it is Future Productivity Increase. Future Employee Increase is an indicator variable that takes on the value of 1, if employee growth is positive in the first full year after the replacement CEO is hired, zero otherwise. Future Productivity Increase is an indicator variable that takes on the value of 1, if productivity growth is positive in the first full year after the replacement CEO is hired, zero otherwise. Productivity is defined as sales per employee, and productivity growth is defined as log changes in productivity. *Past Decline* is an indicator variable that takes on the value of 1, if employee growth (productivity growth) was negative in the last full year prior to the departure of the incumbent CEO, zero otherwise. In columns 1 and 2, *Past Decline* refers to past employee decline and in columns 3 and 4, *Past Decline* refers to past productivity decline. *Change in Ethnicity* is an indicator variable that takes on the value of 1, if the ethnicity of the replacement CEO is different from the ethnicity of the incumbent CEO, zero otherwise. The interaction term for *Change in Ethnicity*  $\times$  *Past Decline* identifies the incremental effect of a change in CEO ethnicity around turnover events on future outcomes (either future employee growth or future productivity growth), conditional on the firm experiencing past declines in these outcomes. In columns 2 and 4, we restrict the sample to those observations where the incumbent CEO was not just retiring measured as the age of the incumbent CEO being less than 65 years. All specifications include year fixed effects. The reported *t*-statistics are based on standard errors clustered by ethnicity. The asterisks \*, \*\*, and \*\*\* indicate two-tailed statistical significance at the 10%, 5% and 1% levels, respectively. See notes below Table 2 for description of the control variables.

	(1) <i>Future Employee Increase</i>	(2) <i>Future Employee Increase</i>	(3) <i>Future Productivity Increase</i>	(4) <i>Future Productivity Increase</i>
<i>Change in Ethnicity</i>	-0.039** (-2.43)	-0.015 (-0.84)	0.036* (1.73)	-0.001 (-0.04)
<i>Past Decline</i>	-0.120*** (-8.22)	-0.098*** (-9.07)	0.010 (0.31)	-0.038 (-1.48)
<i>Change in Ethnicity</i> $\times$ <i>Past Decline</i>	0.071** (2.48)	0.057** (2.53)	0.029 (0.59)	0.068* (1.72)
<i>Size</i>	-0.007*** (-5.14)	-0.008*** (-4.44)	-0.001 (-1.00)	-0.001 (-0.72)
<i>Book-to-price</i>	-0.228*** (-5.88)	-0.212*** (-6.81)	0.108*** (4.08)	0.109*** (4.47)
<i>Idiosyncratic Volatility</i>	-0.008* (-1.98)	-0.004 (-0.65)	0.017* (2.00)	0.018* (1.75)
<i>Annual Stock Return</i>	0.043*** (4.84)	0.033*** (3.07)	-0.040 (-1.59)	-0.041 (-1.36)
<i>Past Performance</i>	0.029** (2.40)	0.042*** (3.11)	-0.009 (-0.72)	0.000 (0.01)
Observations	1,391	920	1,391	920
Adjusted R-squared	11.1%	12.6%	10.1%	11.0%
Year Effects	Yes	Yes	Yes	Yes

**Table 10: Variable Pay Ethnicity Preferences and Future Time Reference**

This table reports results from a regression of ethnicity fixed effects estimated from the global model for variable pay on a measure of future time reference for each ethnicity using the language associated with that ethnicity. Specifically, the following model is estimated for variable pay:

$$\text{Variable Pay Ethnicity Fixed Effects}_i = \beta_0 + \beta_1 \text{Strong Future Time Reference}_i + \varepsilon_i$$

*Strong Future Time Reference* is an indicator variable that takes the value of 1 (0) if the language associated with the ethnicity incorporates a strong (weak) “Future Time Reference”. The future time reference variable is based on data from Chen (2013) who examines the effect of language on economic behavior, such as decisions regarding savings, health and retirement assets. A name-based ethnicity classification software from OnoMAP is used to link CEO names to their ethnic origin. The degree of future time reference (strong/weak) exhibited by the language associated with the ethnicity is then used to determine the value of *Strong Future Time Reference*. Robust *t*-statistics are reported below each coefficient. The asterisks \*, \*\*, and \*\*\* indicate two-tailed statistical significance at the 10%, 5% and 1% levels, respectively.

	(1) <i>Variable Pay Ethnicity Fixed Effects</i>
<i>Strong Future Time Reference</i>	0.040*** (3.45)
Constant	0.695*** (89.30)
Observations (Ethnicities)	58
R-squared	8.1%

**Table 11: Variable Pay Ethnicity Preferences and Religious Culture of Economic Incentives**

This table reports results from a regression of ethnicity fixed effects estimated from the global model for variable pay on the most common religious affiliation of each ethnicity. Specifically, the following model is estimated for variable pay ethnicity fixed effects:

$$\begin{aligned} \text{Variable Pay Ethnicity Fixed Effects}_i \\ = \beta_0 + \beta_1 \text{Muslim}_i + \beta_2 \text{Jewish}_i + \beta_3 \text{Protestant}_i + \beta_4 \text{Catholic}_i + \beta_5 \text{Orthodox}_i + \varepsilon_i \end{aligned}$$

A name-based ethnicity classification software from OnoMAP is used to link CEO names to the religious affiliation of their ethnicity. In model 1, we include an indicator variable for *Muslim* with all other religions being in the benchmark group. In model 2 five religion groups are identified using indicator variables: *Muslim*, *Jewish*, *Protestant*, *Catholic* and *Orthodox*. In this specification, the remaining religion groups such as Buddhist, Hindu and Sikh are included in the benchmark group. The *t*-statistics are reported below each coefficient. The asterisks \*, \*\*, and \*\*\* indicate two-tailed statistical significance at the 10%, 5% and 1% levels, respectively.

	(1) <i>Variable Pay Ethnicity Fixed Effects</i>	(2) <i>Variable Pay Ethnicity Fixed Effects</i>
<i>Muslim</i>	0.079** (2.44)	0.090** (2.55)
<i>Jewish</i>		0.031** (2.35)
<i>Protestant</i>		0.012 (0.80)
<i>Catholic</i>		0.024 (1.61)
<i>Orthodox</i>		0.001 (0.03)
Constant	0.716*** (136.76)	0.705*** (57.93)
Observations (Ethnicities)	58	58
Adjusted R-squared	23.6%	20.8%

**Table 12: Deviations from Global Model of CEO Total Compensation**

This table summarizes deviations of ethnicity fixed effects for total compensation estimated within each of the 31 countries from ethnicity fixed effects for total compensation estimated using all 60,950 firm-year observations across the 31 countries. The following global model is estimated globally and by country (CEO subscripts suppressed):

$$\begin{aligned} Total\ Comp_t = & \beta_1 Size_{t-1} + \beta_2 Book\ to\ Price_{t-1} + \beta_3 Idio.\ Vol_{t-1} + \beta_4 Annual\ Stock\ Return_t \\ & + \beta_5 Market\ Leverage_{t-1} + \beta_6 Tenure_{t-1} + \beta_7 Past\ Performance_{t-1} + Year\ Fixed\ Effects \\ & + Industry\ Fixed\ Effects + Country\ Fixed\ Effects + Ethnicity\ Fixed\ Effects + \varepsilon_t \end{aligned}$$

The table below summarizes the total number of *Ethnicities Represented* in each country, *Preference %* which is the proportion of ethnicity fixed effects estimated within each country that are not significantly different from ethnicity fixed effects estimated in the global model for total compensation in Table 4 (Panel A), *Positive Bias %* which is the proportion of ethnicity fixed effects estimated in each country that are significantly higher than ethnicity fixed effects estimated using the global model, and *Negative Bias %* which is the proportion of ethnicity fixed effects estimated in each country that are significantly lower than ethnicity fixed effects estimated using the global model. Statistical significance of the difference between the estimated ethnicity fixed effect coefficients is assessed using cross-model hypothesis testing. Finally, *Incremental Adjusted R<sup>2</sup>* is the increase in the adjusted R<sup>2</sup> of country models estimated with ethnicity fixed effects compared with the same country models estimated without ethnicity-fixed effects.

Country	(1) <i>Ethnicities Represented</i>	(2) <i>Preference %</i>	(3) <i>Positive Bias %</i>	(4) <i>Negative Bias %</i>	(5) <i>Incremental Adjusted R<sup>2</sup></i>
Australia	40	35.0%	0.0%	65.0%	0.2%
Austria	10	70.0%	10.0%	20.0%	8.2%
Belgium	16	56.3%	0.0%	43.8%	Negative
Canada	36	61.1%	22.2%	16.7%	0.3%
China	13	38.5%	7.7%	53.8%	4.1%
Denmark	9	55.6%	0.0%	44.4%	3.8%
Finland	13	53.8%	23.1%	23.1%	0.6%
France	25	64.0%	32.0%	4.0%	1.9%
Germany	27	59.3%	29.6%	11.1%	0.7%
Great Britain	35	20.0%	8.6%	71.4%	0.5%
Hong Kong	15	20.0%	6.7%	73.3%	2.1%
Iceland	6	100.0%	0.0%	0.0%	Negative
India	27	14.8%	7.4%	77.8%	1.5%
Ireland	9	66.7%	11.1%	22.2%	7.4%
Israel	13	92.3%	7.7%	0.0%	7.0%
Italy	11	63.6%	18.2%	18.2%	1.4%
Japan	3	0.0%	0.0%	100.0%	0.2%
Malaysia	13	30.8%	7.7%	61.5%	10.4%
Netherlands	21	28.6%	71.4%	0.0%	6.8%
New Zealand	12	25.0%	8.3%	66.7%	1.2%
Norway	20	80.0%	5.0%	15.0%	0.8%
Pakistan	7	14.3%	14.3%	71.4%	17.1%
Poland	11	18.2%	0.0%	81.8%	0.7%
Portugal	5	0.0%	0.0%	100.0%	1.2%
Singapore	9	55.6%	33.3%	11.1%	10.5%
South Africa	28	28.6%	10.7%	60.7%	2.7%
Spain	9	88.9%	11.1%	0.0%	Negative
Sweden	19	47.4%	10.5%	42.1%	1.3%
Switzerland	22	68.2%	13.6%	18.2%	3.3%
Taiwan	4	75.0%	0.0%	25.0%	Negative
USA	54	13.0%	87.0%	0.0%	2.7%
Average	17	46.6%	14.8%	38.7%	3.7%

**Table 13: Global Pay Preferences and the Governance Environment**

This table reports coefficient estimates from a country-level cross-sectional regression of ethnicity pay preference variables on the governance environment. Specifically, the following model is estimated:

$$Pay\ Outcome_i = \beta_0 + \beta_1 Governance\ Environment_i + \varepsilon_i$$

*Pay Outcome* refers to either *Preference %*, *Preference Indicator*, *Positive Bias %*, and *Negative Bias %*. *Preference %* is the proportion of ethnicity fixed effects estimated for each country that are not significantly different from ethnicity fixed effects estimated from the global model for total compensation in Table 4 (Panel A). *Preference indicator* measures whether the majority of ethnicities represented in each country receive their pay preference according to the global model (i.e., whether *Preference %* is over 50%). *Positive Bias %* is the proportion of ethnicity fixed effects that are significantly higher than the global model, and *Negative Bias %* is the proportion of ethnicity fixed effects that are significantly below the global model. *Governance Environment* is measured as the first principal component extracted from six dimensions of World Bank governance indicators for each country. Robust *t*-statistics are reported below each coefficient. The asterisks \*, \*\*, and \*\*\* indicate two-tailed statistical significance at the 10%, 5% and 1% levels, respectively.

	(1) <i>Preference Indicator</i>	(2) <i>Preference %</i>	(3) <i>Positive Bias %</i>	(4) <i>Negative Bias %</i>
Predicted Sign	+	+	-	-
<i>Governance Environment</i>	0.009*** (3.35)	0.004*** (2.97)	0.001 (1.41)	-0.006** (-3.65)
Constant	-0.260 (-1.22)	0.114 (0.99)	0.024 (0.36)	0.862*** (6.83)
Observations (Countries)	31	31	31	31
R-squared	14.0%	9.8%	2.3%	13.4%

**Table 14: The Effect of Diversity of Environment on Ethnicity Pay Preferences**

This table reports deviations of ethnicity fixed effects, estimated for two partitions of the US, from the ethnicity fixed effects estimated using the following global model for CEO total compensation (CEO subscripts suppressed):

$$Total\ Comp_t = \beta_1 Size_{t-1} + \beta_2 Book\ to\ Price_{t-1} + \beta_3 Idio.\ Vol_{t-1} + \beta_4 Stock\ Return_t + \beta_5 Market\ Leverage_{t-1} + \beta_6 Tenure_{t-1} + \beta_7 Past\ Performance_{t-1} + Year\ Fixed\ Effects + Industry\ Fixed\ Effects + Country\ Fixed\ Effects + Ethnicity\ Fixed\ Effects + \varepsilon_t$$

The above model is estimated for two partitions using only US data. Based on the state in which corporate headquarters are located, firms are allocated to *High Diversity* and *Low Diversity* states. Diversity is measured using a *Diversity Index* based on 2010 US census data developed by Esri. The Esri Diversity Index represents the likelihood that two persons, chosen at random from the same area, belong to different race or ethnic groups. The Diversity Index ranges from 0 (no diversity) to 100 (complete diversity). High Diversity identifies firms in states that are above the median Esri Diversity Index for the US, and Low Diversity identifies firms located in states that are below the median Esri Diversity index for the US. The table below reports the total number of ethnicities represented, as well as the mean and median deviation of each partition's ethnicity fixed effects from the ethnicity fixed effects estimated using the global model. The High Minus Low column then computes the difference in the deviation from the global model for both High Diversity and Low Diversity partitions. The reported *p*-value tests the significance of the difference in means and medians between the two partitions. The table also reports the dispersion of the deviation of ethnicity fixed effects from the global model. Panel B reports results after including an additional control for whether the firm is a multinational corporation or a domestic only corporation. A firm is categorized as either multinational or domestic based on whether the firm has a reported foreign sales segment in the Compustat segment files (i.e., multinational) or not (i.e., domestic). The asterisks \*, \*\*, and \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively.

	(1) High Diversity	(2) Low Diversity	(3) High Minus Low	(4) <i>p</i> -value of <i>difference</i>
Ethnicities Represented	54	38	16	

**Panel A: Deviations from Global Model of Total Compensation**

Mean	0.618	0.982	-0.364**	(0.0195)
Median	0.534	0.833	-0.299**	(0.0158)
Standard Deviation	0.579	0.943		

**Panel B: Deviations from Global Model (Controlling for Multinational Firms)**

Mean	0.170	0.526	-0.355**	(0.0270)
Median	0.074	0.477	-0.404**	(0.0324)
Standard Deviation	0.626	0.982		



**Table 15: Deviations from Global Ethnicity Pay Preference and Future Outcomes**

This table reports coefficient estimates from panel regressions of one-year ahead Return on Assets (ROA) and stock returns on various characteristics at time  $t$ . Specifically, the following model is estimated (CEO subscripts suppressed):

$$y_{t+1} = \beta_1 \text{Deviation}_t + \beta_2 \text{ROA}_t + \beta_3 \text{Size}_t + \beta_4 \text{Book to Price}_t + \beta_5 \text{Idio. Vol}_t + \beta_6 \text{Stock Return}_t + \beta_7 \text{Market Leverage}_t + \beta_8 \text{Past Performance}_t + \varepsilon_t$$

In all models we include year, industry, country and ethnicity effects. In models 1 and 2, the dependent variable is  $ROA_{t+1}$  and in models 3 to 4, the dependent variable is  $Return_{t+1}$ . We examine whether the total compensation and variable pay for each CEO deviates below their ethnicity pay preference estimated using the global model. *Negative Deviation – Total Comp* and *Negative Deviation – Variable Pay* are indicators for whether the total compensation and variable pay for each CEO is below their respective ethnicity's pay preference. Since we require one-year ahead data, the sample size is reduced. Maximum of 40,684 (38,923) CEO-year observations are available for total compensation (variable pay) deviation variables. The reported  $t$ -statistics are based on standard errors clustered by ethnicity. The asterisks \*, \*\*, and \*\*\* indicate two-tailed statistical significance at the 10%, 5% and 1% levels, respectively. See Table 2 (Panel A) for description of variables.

	(1)	(2)	(3)	(4)
	$ROA_{t+1}$	$ROA_{t+1}$	$Return_{t+1}$	$Return_{t+1}$
<i>Negative Deviation – Total Comp</i>	-0.014*** (-8.44)		-0.011 (-1.14)	
<i>Negative Deviation – Variable Pay</i>		-0.006*** (-3.64)		-0.029*** (-4.39)
<i>Return on Assets</i>	0.556*** (64.93)	0.558*** (63.77)	0.030 (1.27)	0.016 (0.52)
<i>Size</i>	-0.000*** (-2.77)	-0.000 (-0.57)	-0.001*** (-4.82)	-0.002*** (-6.04)
<i>Book-to-price</i>	-0.020*** (-3.20)	-0.023*** (-3.07)	0.049** (2.06)	0.051** (2.15)
<i>Idiosyncratic Volatility</i>	-0.009*** (-14.42)	-0.010*** (-15.48)	0.013*** (8.49)	0.012*** (7.79)
<i>Annual Stock Return</i>	0.033*** (10.63)	0.034*** (10.32)	-0.071*** (-3.84)	-0.069*** (-4.12)
<i>Leverage</i>	0.010 (1.01)	0.014 (1.41)	0.033 (1.39)	0.039* (1.68)
<i>Past Performance</i>	0.011*** (5.84)	0.012*** (6.31)	-0.028*** (-4.00)	-0.028*** (-4.23)
Observations	40,684	38,923	40,684	38,923
Adjusted R-squared	48.8%	48.8%	10.7%	10.4%