Do Common Inherited Beliefs and Values Influence CEO Pay?[☆]

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Abstract

We use the ethnicity of CEOs across 31 countries as a proxy for their common inherited beliefs and values and find an ethnicity effect in CEO compensation. We find that the ethnicity effect in variable pay is not driven by the ethnicity effects in corporate policy decisions, and that changes in CEO compensation are significantly larger when CEOs are replaced with a person from a different ethnicity. Our estimated ethnicity effect capture the future time reference and religion of CEOs' ancestors. Finally, we find an ethnicity effect in performance-firing sensitivities (i.e., the sensitivity to being fired due to poor performance).

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1. Introduction

Do inherited beliefs and values influence CEO pay? CEOs, like any other individual, have their own preferences, which are likely to be reflected in their compensation arrangements. Understanding where these preferences originate and what shapes them helps us understand why some compensation packages might be effective in alleviating agency problems while others are not. In this paper we examine one potential source shaping CEOs' preferences over compensation packages: their common inherited beliefs and values (i.e., the beliefs and values of their ancestors). We use the ethnicity of CEOs as a proxy for their common inherited beliefs and values. On the premise that ethnicity guides the behavior of economic agents and determines their preferences regarding the appropriate form of monetary rewards, we predict that ethnicity could explain variation in CEOs' compensation arrangements (measured as the proportion of variable pay).

Employing a global sample of CEOs across 31 countries, 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. We are able to classify the sample of our international CEOs from 2001 to 2012 into 58 unique ethnicities. We document a strong ethnicity fixed effect in the proportion of compensation that is variable. The ethnicity fixed effect in our global model is incremental to economic determinants of variable pay, 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 is 6.3%. Importantly, the ethnicity effects are jointly significant after controlling for firm fixed effects. In addition, we find that a significant portion of the within-country variation in the form of compensation is captured by ethnicity. On average,

including ethnicity effects increases the incremental explanatory power of within-country models for variable pay by an average of 2.3% across the 31 countries examined in our study. We also show that ethnicity matters even amongst US-born CEOs. Using the US setting and thereby keeping the corporate pay culture and the institutional environment constant, we 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 beliefs and values (i.e., when the incumbent CEO is replaced by a CEO of a different ethnicity), variable pay changes significantly more relative to turnover events when the new CEO is of the same ethnicity as his/her predecessor.

Next, we perform a battery of tests that rule out potential alternative explanations for the ethnicity effect in compensation. First, we find that the ethnicity effects for several corporate policy decisions and the ethnicity effects for compensation are related, indicating that they may capture similar preferences. However, the ethnicity preferences for compensation that we estimate are not subsumed by ethnicity preferences for corporate policy. As such, financing, investment, and payout policies do not seem to be indirect channels that entirely drive compensation. Thus, individual preferences of CEOs are observable in their compensation packages, notwithstanding corporate policy outcomes that are likely to reflect the collective preferences of the broader management team and Board of Directors, not just those of the CEO. This could explain why the ethnicity effects for CEO variable pay are related to, but also distinct from, the ethnicity effects for corporate policy.

Second, we find that the effect of ethnicity, as a proxy for common inherited beliefs and values, is stronger when firms experience poor past performance. Under certain circumstances, typically adverse, firms implement a corporate change by bringing in new CEOs with different

beliefs and values. These circumstances can increase the potential bargaining power of the CEOs in negotiations, allowing them to receive a compensation arrangement in line with their preferences.

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 variable pay, and we then examine whether these two features explain our ethnicity fixed effects. The first feature is *future time reference*.[1] We document evidence that ethnicities whose linguistic origin has strong future time reference (i.e., people who speak languages that grammatically separate the future and the present) also prefer higher proportion of variable pay, consistent with tolerance for less cautious current compensation structures.[2] The second feature expected to shape individuals' preferences regarding pay is *religious culture of economic incentives.* World Values Surveys suggest Muslims (relative to Protestants and Catholics) prefer higher pay differences as incentives for individual effort (Norris and Inglehart, 2011). 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

[1] 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.

[2] 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 the greater the variable pay proportion, the more likely it is to be comprised of more deferred compensation. The widespread practice of using vesting periods for equity-based compensation suggests that this is not a completely unreasonable assumption.

higher proportion of variable pay, consistent with religious scholars' general view that Judaism is closer to Islam than to Christianity.

Finally, we examine the relation between common inherited beliefs and values and performance-firing sensitivity (i.e., responsiveness of the likelihood to terminate a CEO based on poor performance). We estimate performance-firing sensitivities at the firm-level using the observed relation between CEO turnover and poor past stock price performance. We find an ethnicity effect in performance-firing sensitivities. Further, we find that the ethnicity effects for performance-firing sensitivities are positively correlated with the ethnicity effects for variable pay suggesting that these measures capture similar inherited beliefs and values. However, due to the demanding data requirements of this analysis, we are only able to estimate the ethnicity effect in performance-firing sensitivities for 31 ethnicities. Therefore, we interpret these results with caution.

Prior literature demonstrates that CEO and managerial style affects corporate outcomes and compensation structures (e.g., Bertrand and Schoar, 2003; Chatterjee and Hambrick, 2007; Chin et al., 2013; Graham et al., 2012; Graham et al., 2013; and Dahl et al., 2012).[3] Graham et al. (2012) study top executives at US firms and find that manager fixed effects explain much of the variation in executive pay, and that compensation is related to personal characteristics, such as education, gender, age, etc. They also find that better-paid managers invest more in R&D and capital expenditures, use more debt, hold less cash, and pay out more dividends. Relatedly, using data gathered from psychometric tests, Graham et al. (2013) find that individual behavioral traits of CEOs such as optimism, risk-aversion and time preference are related to their attitudes toward

[3] 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; Kaplan, et al., 2012; Custodio, et al., 2013; Fernandes et al., 2013; Carter, et al., 2014; Falato, et al., 2015).

mergers and acquisitions and capital structure, as well as toward their own compensation packages.

Our paper contributes to these prior studies along several important dimensions. First, our methodology of grouping a global set of CEOs according to their ethnic origins enables us to identify systematically similar but unobservable personal features such as common inherited beliefs and values. Specifically, our results suggest that ethnicity captures *common* attitudes and behavioral traits across individuals around the world – this is different from previous research which has focused primarily on the individual. Second, we focus on *inherited* beliefs and values, which we expect to be persistent, compared to CEOs' current behavioral traits that might be transient. Thus, 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.

Third, our method of inferring variation in beliefs and values using CEOs' names is less subjective as it does not rely on self-reported data about behaviors or attitudes. To our knowledge, we are the first to provide large-scale global evidence on the role of CEO beliefs and values in compensation arrangements and corporate policies. Since we think that CEO beliefs and values are more likely to influence the composition of pay packages rather than the level of pay individuals prefer, we focus on the form of compensation while most prior studies focus on the level of compensation.

We also 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, 2016; Nunn and

Wanthchekon, 2011; Alesina, et al., 2013).[4] 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 CEO compensation around the world by documenting that ethnicities explain global variation in variable pay over and above what we know about international differences in pay (e.g., Lambert, et al., 1991; 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.

2. Hypothesis Development and Research Design

To examine whether common inherited beliefs and values shape CEO compensation arrangements, we use CEOs' ethnicity as a measure that is likely correlated with their common inherited beliefs and values. We argue that common inherited beliefs and values guide the behavior of economic agents and might determine their preferences regarding the appropriate form of compensation.[5] For example, variation in common inherited beliefs and values across ethnicities may result in differences in the utility derived from compensation arrangements. Thus, we expect CEOs' ethnicity to have significant explanatory power for form of pay.

[4] 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).

[5] For example, common 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 the greater the variable pay is more likely it is to be comprised of more deferred components of compensation.

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.[6] 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 one million surnames drawn from public name registries of 28 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 the 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. In our empirical analysis, we remove observations with divergent name classifications and those observations where the forename and the surname are unclassified or are not found in OnoMAP's dictionaries.

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 (i.e., common linguistic heritage). The diagnostic accuracy of

[6] 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).

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 variable pay. Our main variable of interest (*Variable Pay*) is the proportion 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. However, the variable pay proportion is positively correlated with the level of compensation (Pearson correlation of +0.58; Spearman correlation of +0.69). This is not surprising given that firms need to provide higher compensation when more risk (via variable pay) is imposed on the CEO.

We use 57,630 CEO-year observations drawn from 31 countries over 2001 to 2012 to estimate the following panel regression for *Variable Pay* (CEO subscripts suppressed). Our sample starts in 2001 because coverage in Capital IQ for the countries in our sample is sparse prior to 2000.

$$\begin{aligned} Variable\ Pay_t = {} & \beta_1 Size_{t-1} + \beta_2 Book\ to\ Price_{t-1} + \beta_3 Idiosyncratic\ Volatility_{t-1} \\ & + \beta_4 Stock\ Return_t + \beta_5 Leverage_{t-1} + \beta_6 Tenure_{t-1} \\ & + \beta_7 Past\ Performance_{t-1} + Year\ Fixed\ Effects \\ & + Industry\ Fixed\ Effects + Country\ Fixed\ Effects \\ & + Ethnicity\ Fixed\ Effects + \varepsilon_t \end{aligned} \quad (1)$$

The dependent variable is *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 log 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, *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 (see details on the construction of variables in the notes below Table 2). 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.

We view the ethnicity fixed effects from our global model as an estimate of each ethnicity's preference for variable pay. If these fixed effects are jointly significant it supports a role for ethnicity in determining compensation. In addition, 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 larger changes in 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 variable pay by keeping the firm constant while exploring the effect of change in common inherited beliefs and values.

Next, we examine potential alternative explanations for why the ethnicity of CEOs, as a proxy for their common inherited beliefs and values, may influence compensation. First, different management 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, 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 poor performance. Further details are in Section 3.4.

To enhance our confidence that ethnicities capture common inherited beliefs and values shaping preferences regarding pay, we identify two innate characteristics that *a priori* are expected to shape preferences regarding variable 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 proportion of variable pay). Specifically, we estimate the following cross-sectional model at the ethnicity level:

$$Variable\ Pay\ Ethnicity\ Fixed\ Effects_i = \beta_0 + \beta_1 Strong\ Future\ Time\ Reference_i + \varepsilon_i \quad (2)$$

Variable Pay Ethnicity Fixed Effects are the ethnicity fixed effects for variable pay estimated using equation (1). *Strong Future Time Reference* 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 larger 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., In Sha 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.[7] 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:

$$\begin{aligned} Variable\ Pay\ Ethnicity\ Fixed\ Effects_i & \\ = \beta_0 + \beta_1 Muslim_i + \beta_2 Jewish_i + \beta_3 Protestant_i + \beta_4 Catholic_i & \\ + \beta_5 Orthodox_i + \varepsilon_i & \end{aligned} \tag{3}$$

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. The dependent variable is the ethnicity fixed effects from equation (1) for variable pay.

Finally, we examine the relation between the inherited beliefs and values of CEOs and the sensitivity of being fired for performance. We are interested in examining firing sensitivity as it is a likely to be an important component of overall job attractiveness that interacts with the compensation arrangement, and hence influences CEOs' employment decisions. We estimate performance-firing sensitivities at the firm-level using the observed relation between CEO turnover events and negative industry-adjusted past stock price performance. In order to distinguish between likely instances of involuntary turnover from voluntary turnover, we restrict

[7] 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.

the analysis to firms that experience at least one year of negative past performance during our sample period. We estimate the following first-stage model for each firm:

$$Turnover_{i,t} = \beta_0 + \beta_1 Size_{i,t-1} + \beta_2 Tenure_{i,t-1} + \beta_3 Negative\ Past\ Performance_i + \varepsilon_{i,t} \quad (4)$$

where *Turnover* is an indicator variables that identifies whether there was turnover in that year (indicated by 1) or not (indicated by 0). *Size* and *Tenure* are as defined previously and are used to control for firm-level and CEO-level determinants of the likelihood of turnover. *Negative Past Performance* is an indicator variable that takes on the value of 1 when the industry-adjusted stock return is negative, and 0 otherwise. Further, because we estimate this model by firm we require at least 4 observations for each firm. The demanding data requirements for estimating this regression do not allow us to include additional control variables. The estimated coefficient on *Negative Past Performance* from equation (4) provides a measure of the likelihood of involuntary CEO termination conditional on the firm experiencing negative industry-adjusted past performance (i.e., performance-firing sensitivity). For firms that experience negative past performance but do not have any CEO turnover during our sample period, a coefficient cannot be estimated and we assign a performance-firing sensitivity of zero (i.e., insensitive).

Then, we use these coefficients in the following second stage cross-sectional regression:

$$\begin{aligned} PFS_i = {} & \beta_1 Size_i + \beta_2 Book\ to\ Price_i + \beta_3 Idiosyncratic\ \ Volatility_i + \beta_4 Stock\ Return_i \\ & + \beta_5 Leverage_i + Year\ Fixed\ Effects + Industry\ Fixed\ Effects \\ & + Country\ Fixed\ Effects + Ethnicity\ Fixed\ Effects + \varepsilon_i \end{aligned} \quad (5)$$

PFS is the *Performance-Firing Sensitivity* coefficient from equation (4), and all other variables are as defined previously. We use the most recent available observation for each firm to identify the ethnicity of the CEO associated with that firm, as well as to collect firm characteristics. Similar to the variable pay ethnicity fixed effects, we view the ethnicity fixed effects from equation (5) as an estimate of each ethnicity's preference for performance-firing sensitivity. If

these fixed effects are jointly significant it supports a role for ethnicity in determining preferences for firms with certain levels of performance-firing sensitivity (i.e., job security).

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 total compensation data for the CEO that is either reported by the firm or that can be calculated using disclosure of the components of compensation, and we also require information on the fixed component of compensation (i.e., salary). 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). Our main variable of interest, *Variable Pay*, is the proportion (i.e., percentage) of total compensation that is variable, and is computed as (Total Compensation – Salary) / Total Compensation.

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 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 market 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. We double check the five smallest and five largest return observations against data from Datastream and find no data errors. Similarly, the extreme values for idiosyncratic volatility appear to be reasonable. We also manually search company websites to verify the accuracy of the five largest values for tenure. Since we find no data errors in these variables, we do not trim them.[8] 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.

[8] Nevertheless, in robustness tests we also trim the top and bottom 1% of returns and idiosyncratic volatility and re-estimate our main model in column 4 of Table 4. We find that our results remain unchanged. While the sample size reduces to 55,736 CEO-year observations due to the additional trimming, we find that the ethnicity fixed effects in variable pay remain jointly significant with an F-statistic of 2.35 (p-value = 0.000) and 28.1% of the ethnicity fixed effects are statistically significant.

These exclusion criteria result in a final sample of 57,630 CEO-year observations that 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 47.8% of the CEO-year observations, followed by the United Kingdom with 10.4% of the observations. The lowest representation is in Taiwan with less than 1% of the observations relating to an average of 3 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, variable pay proportion 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 (49.8%), Celtic (10.1%), Scottish (5.6%), Irish (5.5%), Hong Kongese (4.1%), and Indian (3.6%). 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 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 (i.e., the indicator variable takes on value of 1).

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. Variable pay is positively correlated with size, tenure, returns, and past performance. Book-to-price is negatively correlated with variable pay (Pearson of -0.13) 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 variable pay. These relations are consistent with those reported in prior research on the determinants of compensation (see Table 2 in Conyon, Core and Guay, 2011).

3. Results

3.1. Ethnicity Fixed Effects in Global Model of Variable Pay

First, we test whether ethnicity, our proxy for inherited beliefs and values, matters for variable pay. We estimate a global model of variable pay using all 57,630 CEO-year observations in our sample. Table 4 reports the results. In column 1, we regress variable pay portion (i.e., *Variable Pay*) on economic determinants of compensation suggested by prior research. 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 and year. Collectively, the model explains 13.4% of the variation in *Variable Pay*. Column 2 then includes year and industry fixed effects which increases the explanatory power of the model to 17.9% while taking nothing away from the economic determinants of compensation. In column 3, we add country fixed effects and the explanatory power of the model increases significantly to 70.1%.

In column 4, we include ethnicity fixed effects which increases the adjusted R^2 of the model to 76.4%. We formally test whether the estimated ethnicity intercepts are jointly significantly different from zero at conventional levels. The reported F-statistic is large (2.62) and has an associated p-value of 0.000, suggesting that ethnicity is systematically related to variable pay. Importantly, 29.8% 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).[9] Thus, the percentage of significant ethnicity coefficients provides a way to corroborate the results of the F-tests.

In column 5, we remove industry and country effects, and instead control for firm fixed effects. We continue to find that the ethnicity effects are jointly significant with a large F-statistic (2.52) and that 23.6% of the ethnicity fixed effects are statistically significant. Overall, the results in Table 4 support the role for ethnicity in compensation contracts around the world. The inclusion of ethnicity fixed effects in the global model of variable pay increases the adjusted R^2 by 6.3% (from column 3 to 4). Thus, a significant portion of the global variation in the variable pay proportion of compensation appears to be captured by ethnicity fixed effects.

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 results of this test favor 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, firm and ethnicity as random effects (see Allison, 2009; and Wooldridge, 2010). The hybrid correlated random effects model combines some of the benefits of the fixed effects and random effects model by taking advantage

[9] 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.

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). We report these results in column 6 of Table 4. 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, estimated as a random effect, has explanatory power for variation in variable pay.

Finally, we conduct a placebo test to assess whether the joint significance of our ethnicity fixed effects for variable pay 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 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 1,000 times this exercise was repeated. The average F-statistic for the 1,000 different simulations is 0.99 which compares with a critical F-statistic of 1.33 at a 5% level of significance, and our original F-statistic of 2.62 (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 form of compensation.[10]

3.2. Persistence in Common Inherited Beliefs and Values

[10] We also conduct additional robustness tests. For example, one potential concern is 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 given to ex-slaves in the US which could result in incorrect ethnicity classifications. We identify African American surnames using slaveholder names and ownership of slaves reported in the 1870 US census. This data is available here: 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.

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. Column 1 of Table 5 shows that the ethnicity fixed effects for variable pay continue to be jointly significant for US born CEOs (F-statistic of 6.60; 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 column 2. In addition to firm-level controls, we also control for personal characteristics of CEOs such as age, gender, postgraduate education and founder status of the CEO.

Overall, Table 5 provides support for our argument that ethnicity captures common 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 what ethnicity captures is persistent across generations – CEOs' common inherited beliefs and values 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 440 US firms that experience a CEO turnover event once during our sample period and where all data is available for firm and CEO characteristics. 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 variable pay percentage. Specifically, absolute change in variable pay percentage is computed as the natural logarithm of the new CEO's variable pay proportion for the year after turnover divided by the old CEO's variable pay proportion 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 controls for absolute changes in the determinants of compensation as well as absolute changes in the personal characteristics of the CEOs. 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 common inherited beliefs and values (i.e., when the incumbent CEO is replaced by a CEO of a different ethnicity), the variable pay proportion 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 column 1. This result supports 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 potential alternative 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, a replacement CEO brought in as a 'change agent' may have increased power in negotiating compensation arrangements, and this bargaining power might be one of the reasons that firms decide to compensate CEOs in line with their preferences. We examine these potential explanations separately to shed light on which explanation is more prevalent in our data.

3.4.1. The Indirect Effect of Ethnicity 'Style' for Corporate Policy

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 column 5 in Table 4 (i.e., with year, firm and ethnicity effects). For example, to estimate *Investment* policy-related ethnicity fixed effects, we estimate the global model with *Investment* as the dependent variable. The results are reported in

Table 7 (Panel A). The ethnicity effects are jointly significant at conventional levels for *Investment, R&D, Leverage, Dividend Payer* and *Dividend Yield*, with 16% to 24% of the ethnicity effects being statistically significant. The statistical significance of the ethnicity effect in *Cash Holdings* is weak. Similarly, there is a strong ethnicity effect in *Variable Pay* (see column 7). Thus, there seems to be an ethnicity effect in both corporate policy and compensation variables.

Next, we examine whether the ethnicity fixed effects for variable pay proportion are correlated with the ethnicity fixed effects for corporate policy. Specifically, in the spirit of Table 7 in Graham et al. (2012) we examine the pairwise correlation between the estimated ethnicity fixed effects for *Variable Pay* and the estimated ethnicity fixed effects for *R&D*, *Investment, Leverage, Cash Holdings*, *Dividend Payer* and *Dividend Yield*. Table 7 (Panel B) reports the correlations. The ethnicity fixed effects for compensation are positively correlated with the ethnicity effects for leverage (coefficient of 0.34), investment (coefficient of 0.20) and dividend yield (coefficient of 0.28), and negatively correlated with the ethnicity effects for cash holdings (coefficient of -0.23). These correlations are quite consistent with the relations reported by Graham et al. (2012) in their Table 7 (see column 2) between manager fixed effects for compensation and manager fixed effects for corporate policy. We also examine the multivariate relation between variable pay ethnicity fixed effects and ethnicity fixed effects for the various corporate policy variables. Panel C of Table 7 reports the results. In column 1, we use the within-country annual ranks for each variable when estimating the ethnicity fixed effects, while in column 2 we use the continuous variables when estimating the ethnicity fixed effects. Differently from the pairwise correlations, when all the ethnicity fixed effects for the corporate policy variables are included, they are mostly insignificant in explaining ethnicity fixed effects for

variable pay. While the signs are consistent with the previously reported correlations for *R&D*, *Cash Holdings* and *Dividend Yield*, we find that only the ethnicity fixed effect for *Cash Holdings* is statistically significant.[11] However, it is possible that the weak relations we find are due to lack of statistical power.

Finally, we examine whether the link between CEOs' beliefs and values and corporate policy decisions could explain why compensation is associated with beliefs and values. We argue that ethnicity preferences for variable pay are distinct from the ethnicity preferences for corporate policy. In Table 8, we include the firm policy variables used by Graham et al. (2012) as additional control variables in our global model of variable pay (columns 4–6 from Table 4). To the extent these corporate policy variables explain much of the variation in variable pay, ethnicity should lose significance. We find that even after controlling for the investment, financing and payout characteristics of firms, the ethnicity effects for variable pay remain jointly significant. Specifically, we add these variables to the specifications in columns 4, 5 and 6 of Table 4 and the ethnicity fixed effects for variable pay remain jointly significant at conventional levels with F-statistics of 2.49, 2.58 and 1.65, respectively. In addition, 26.3%, 23.6% and 17.5% of the ethnicity fixed effects for variable pay are statistically significant.

[11] Our results are consistent with Graham et al. (2012) who also find insignificant coefficients for 4 out of the 6 coefficients in column 2 of Table 7 when using a similar mover dummy variable approach to estimate manager fixed effects separately from firm fixed effects (only *Investment* and *Dividend paying indicator* are significant at the 10% level). The stronger results in column 1 of Table 7 in Graham et al. (2012) rely on a different identification strategy which leverages the small number of mover observations to infer information about non-mover managers who work at firms that have employed at least one mover. Our sample is CEOs only, rather than all managers as in Graham et al. (2012), so we are unable to implement this identification strategy as we cannot observe a mover CEO as well as a non-mover CEO at the same firm at the same time. It is also worth noting, that while Graham et al. (2012) use log total compensation as the dependent variable, we are examining the variable pay proportion. While total compensation and variable pay proportion is indeed positively correlated (Pearson correlation of +0.58), our objective is to examine the form of pay rather than the level of pay.

Overall, we find that while the ethnicity preferences for corporate policy are indeed related to ethnicity preferences for variable pay in a manner consistent with the findings in Graham et al. (2012), the ethnicity preferences for variable pay that we estimate are not subsumed by ethnicity preferences for corporate policy. We interpret these results as suggesting that individual preferences of CEOs are more directly observable in their compensation packages, while corporate policy outcomes are likely to reflect the collective preferences of the broader management team and Board of Directors, not just those of the CEO. This could explain why the ethnicity effects for CEO variable pay are related to, but also distinct from, the ethnicity effects for corporate policy.

3.4.2. 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 larger changes in variable pay (see column 2 of Table 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 where our variable of interest is the interaction term (*Change in Ethnicity* × *Past Decline*) with a predicted positive sign. In circumstances where we think firms might want to implement a corporate change (e.g., when faced with a recent decline in performance 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. Future Time Reference and Variable 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 understand why ethnicity fixed effects are significant. We do this by investigating whether the ethnicity fixed effects capture innate characteristics of ethnicities that

are expected to influence variable 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 in variable pay extracted from the global model in Table 4 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%. In column 2 we redo the analysis after first replacing statistically insignificant ethnicity fixed effects with zeroes, and in column 3 we redo the analysis based on variable pay ethnicity effects that are re-estimated after excluding US observations which comprise a significant portion of our sample (47.8%). In column 4, we use these re-estimated variable pay ethnicity effects without the US observations and replace the statistically insignificant coefficients with zeroes. We continue to find a positive and significant coefficient on *Strong Future Time Reference*. Therefore, we take these results as evidence that ethnicities

capture individuals' future orientation as one characteristic that is expected to influence pay preferences.

3.6. Religious Culture of Economic Incentives and Variable Pay Preferences

Next, we look at the effect of religious culture on variable pay preferences. Evidence from World Values 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 larger pay differences as incentives for individual effort. Furthermore, Muslims have strong beliefs in the role of God's Will (i.e., In Sha 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 the global model in Table 4 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%. For robustness, we redo the analysis after first replacing statistically insignificant ethnicity fixed effects with zeroes (column 2), we re-estimate the variable pay ethnicity fixed effects after excluding US observations (column 3) and, we use these re-estimated variable pay ethnicity effects excluding US observations and replace the statistically insignificant coefficients with zeroes (column 4). We continue to find a positive and significant coefficient on *Muslim* in columns 1, 2 and 4 at conventional levels, while the coefficient on *Muslim* in column 3 is significant only at the 15%. The coefficient on *Jewish* in columns 3 and 4 is not significant after excluding US observations. We view these results as additional evidence that ethnicities capture religious culture of economic incentives as another characteristic that is expected to influence pay preferences.

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. Performance-Firing Sensitivity

Our final analysis examines the relation between inherited beliefs and values and performance-firing sensitivity. We expect that a CEO takes into consideration both the compensation package and performance-firing sensitivity at the time he or she decides where to work. In other words, we argue that performance-firing sensitivity is an aspect of job attractiveness for the CEO. Performance-firing sensitivity is measured as the firm-specific time-

series coefficient on *Negative Past Performance* from estimating equation (5). We restrict the analysis to firms that experience at least one year of negative past performance during our sample period to be able to identify the likely instances of involuntary turnover. We then use these estimated coefficients as our dependent variable in a second-stage regression using the cross-section of 5,428 global firms with at least one year of negative past performance. For firms that do not have any CEO turnover during our sample period, a firm-specific performance-firing sensitivity cannot be estimated. We interpret these firms as being insensitive to poor performance and therefore we assign these observations a zero. Table 12 reports the results.

Similar to the results for variable pay proportion reported in Table 4, we find an ethnicity fixed effect in performance-firing sensitivities. In column 1, the reported F-statistic for the test of joint significance of the ethnicity fixed effects is large (2.09) with an associated p-value of 0.000. Further, 24.2% of the ethnicity fixed effects are statistically significant at conventional levels. In column 2, we restrict our analysis to 1,441 global firms that experience one or more turnover events during our sample period (i.e., we remove firms without estimated coefficients that we had replaced with zeros). Even in the cross-section of turnover firms, we find the ethnicity fixed effects to be jointly significant. In column 3, we rerun the model in column 1 using 2,777 non-US firms with at least one year of negative past performance, and continue to find statistically significant ethnicity effects.

Further, we find that the ethnicity effects for performance-firing sensitivities are positively correlated with the ethnicity effects for variable pay (Pearson correlation of +0.34; Spearman correlation of +0.32) suggesting that these measures capture similar inherited beliefs and values. However, we note that due to the demanding data requirements of the performance-firing sensitivity analysis, we only observe 31 ethnicities in the cross-section of 5,428 firms

where we can estimate performance-firing sensitivity. Thus, the reported correlations with variable pay ethnicity effects are relatively weak in statistical significance (the p-values associated with the Pearson and Spearman correlations are 0.073 and 0.088, respectively). We cautiously interpret this as evidence that ethnicities that prefer higher variable pay also tend to select firms with higher performance-firing sensitivities (i.e., lower job security) as would be consistent with lower risk aversion.

3.8. Limitations

An important limitation of this study is the existence of endogenous CEO-firm matching/selection. This is a common concern in the CEO literature which is also present in our global setting. Further, 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. In addition to controlling for industry fixed effects in all our models, we have also examined industry self-selection by measuring the level of ethnicity-industry concentration in our sample. While we do not find a high degree of concentration of any one ethnicity in any one industry, this test still cannot rule out the endogenous matching and selection concerns. Another limitation of our study is that CEOs' preferences may not be representative of their ethnicity. Due to lack of data availability for a broad sample of non-CEO employees around the world, our inferences are limited to the ethnicity pay preferences of CEOs.

4. Conclusion

In this paper, we examine the role of inherited beliefs and values in CEO compensation contracts using an international setting. We argue that CEOs 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 which are shaped by their common inherited beliefs and values (i.e., the beliefs and values of their ancestors).

We use ethnicity of CEOs as a proxy for their common inherited beliefs and values, and find that ethnicity fixed effects are significantly associated with the variable pay proportion of 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 the variable pay proportion. 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 effects capture innate characteristics, such as future time reference and religious culture of economic incentives, which are expected to shape variable pay preferences.

We examine two different alternative explanations for the observed ethnicity effect in compensation and document the following findings. First, while we find an ethnicity effect in corporate policy decisions, we do not find that our estimated ethnicity 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 inherited beliefs and values on corporate policy decisions. Second, 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.

Finally, we find that the common inherited beliefs and values of CEOs are also related to their preferences for job security. Interestingly, the performance-firing sensitivities of ethnicities seem to be consistent with their attitudes towards riskier compensation arrangements.

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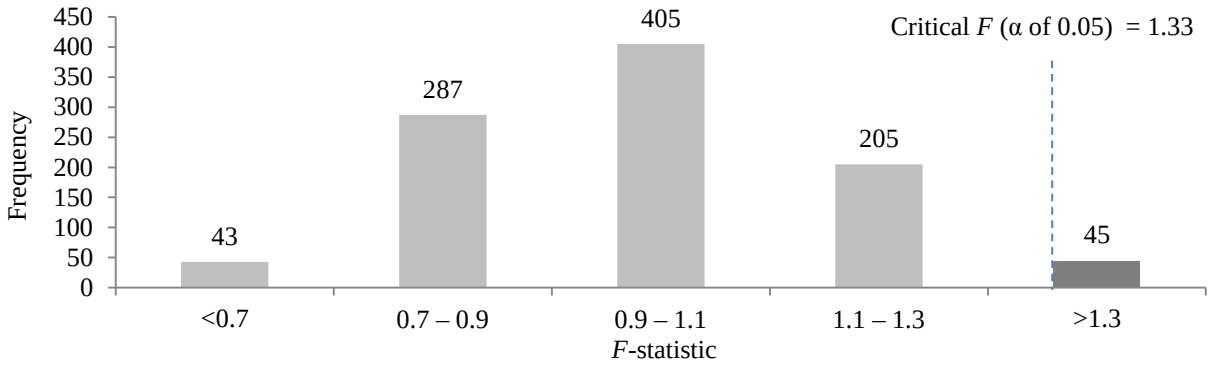
Figure 1: Placebo Test for Randomly Assigned Ethnicities

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

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

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. There are 57,630 CEO-year observations available. The figure also shows the critical F-statistic at the 5% significance level, given the degrees of freedom in the restricted and unrestricted models.



With random assignment of CEOs to one of 58 ethnicities, the estimated ethnicity coefficients are jointly significant in 45 out of 1,000 simulations.

Table 1: Sample Composition

This table reports the construction and composition of the main sample comprising 57,630 CEO-year observations across 31 countries over the period from 2001 to 2012:

Sample construction and exclusion criteria applied	CEO-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	-12,933
Remove divergent name classifications for forename and surname	-20,878
CEO-year observations in main sample used in analyses	57,630

Country	Data Begins	Data Ends	Average Firms	Country-Years	CEO-Years	Freq.%
Australia	2001	2012	435	11	4,783	8.3
Austria	2004	2012	6	8	45	0.1
Belgium	2004	2011	13	8	101	0.2
Canada	2001	2012	456	11	5,019	8.7
China	2003	2011	77	9	693	1.2
Denmark	2004	2011	9	8	68	0.1
Finland	2003	2011	35	9	311	0.5
France	2001	2011	80	11	880	1.5
Germany	2002	2011	90	10	903	1.6
Hong Kong	2001	2012	276	11	3,040	5.3
Iceland	2005	2009	6	5	31	0.1
India	2002	2012	326	10	3,258	5.7
Ireland	2001	2012	23	11	248	0.4
Israel	2001	2011	9	11	94	0.2
Italy	2001	2011	72	11	788	1.4
Japan	2010	2012	17	2	34	0.1
Malaysia	2002	2011	12	10	120	0.2
Netherlands	2001	2011	48	11	525	0.9
New Zealand	2001	2012	17	11	183	0.3
Norway	2002	2011	41	10	408	0.7
Pakistan	2003	2008	25	6	151	0.3
Poland	2004	2011	22	8	174	0.3
Portugal	2008	2011	8	4	30	0.1
Singapore	2002	2012	12	10	120	0.2
South Africa	2001	2012	85	11	931	1.6
Spain	2003	2011	5	9	48	0.1
Sweden	2001	2011	55	11	600	1.0
Switzerland	2001	2012	44	11	482	0.8
Taiwan	2003	2011	3	6	18	0.0
United Kingdom	2001	2012	545	11	5,990	10.4
USA	2001	2012	2,505	11	27,554	47.8
Total				286	57,630	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 all variables each year for each country were excluded, except tenure, returns, and idiosyncratic volatility. 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 Table 1). 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. Maximum of 57,630 CEO-year observations.

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

Variable	*N*	Mean	Std. Dev.	P1	P5	P10	P25	P50	P75	P90	P95	P99
Variable Pay	57,630	0.42	0.29	0.00	0.00	0.02	0.16	0.41	0.65	0.82	0.88	0.97
Size	57,630	5.11	2.37	-1.97	1.01	2.35	3.73	5.19	6.66	8.03	8.84	10.07
Book to Price	57,630	0.80	0.37	0.13	0.24	0.33	0.53	0.80	1.00	1.22	1.41	1.93
Idiosyncratic Volatility	57,630	0.03	0.02	0.01	0.01	0.01	0.02	0.03	0.04	0.06	0.08	0.12
Annual Stock Return	57,630	0.17	0.80	-0.86	-0.68	-0.54	-0.25	0.06	0.38	0.87	1.38	3.12
Leverage	57,630	0.42	0.27	0.02	0.05	0.08	0.19	0.39	0.63	0.83	0.89	0.95
Tenure	57,630	6.05	6.44	1.00	1.00	1.00	1.00	4.00	8.00	14.00	19.00	31.00
Past Performance	57,630	0.13	0.80	-0.96	-0.62	-0.46	-0.22	0.00	0.28	0.73	1.23	3.13
Strong Future Time Reference	57,630	0.89	0.31	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00

Annual CEO compensation data is collected from ExecuComp and S&P Capital IQ for US firms, and from S&P Capital IQ for international firms. Each firm is assigned to a country based on the geographic location of corporate headquarters. *Variable Pay* is variable pay as a percentage of total compensation, where variable pay is total compensation less the fixed component of compensation (i.e., salary). Specifically, *Variable Pay* is calculated as (Total Compensation – Salary) / Total Compensation. We use total annual compensation reported by the firm or compute it 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 compensation items to constant 2005 figures. Compensation data in local currencies is converted using the twelve-month average US$ exchange rate.

Firm fundamentals are collected from 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. US stocks returns are from CRSP, Canadian stocks returns are calculated using price data from Compustat North America, and international stocks returns are computed using price data from Compustat Global. We use Compustat adjustment factors to adjust prices for stock splits and dividends. *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 firm-level stock return for the prior year during the CEO's tenure, adjusted for the industry median stock return.

Strong Future Time Reference is an indicator variable that measures the degree to which the language associated with the 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 classification software from OnoMAP (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

Country	*N*	*Variable Pay*	*Size*	*Book-to-price*	*Idio. Vol.*	*Annual Stock Return*	*Leverage*	*Tenure*
Australia	4,783	0.33	2.45	0.72	0.05	0.18	0.27	3.60
Austria	45	0.43	6.96	0.91	0.02	0.09	0.52	4.44
Belgium	101	0.39	6.39	0.97	0.02	0.13	0.50	3.84
Canada	5,019	0.42	4.23	0.83	0.04	0.18	0.38	4.78
China	693	0.32	5.85	1.06	0.04	0.25	0.43	3.02
Denmark	68	0.33	6.60	0.70	0.02	0.10	0.44	5.84
Finland	311	0.19	6.10	0.75	0.02	0.12	0.39	4.60
France	880	0.35	6.73	0.81	0.02	0.14	0.51	4.39
Germany	903	0.39	5.64	0.80	0.03	0.12	0.44	2.64
Hong Kong	3,040	0.29	4.60	1.06	0.04	0.30	0.39	3.38
Iceland	31	0.16	5.97	0.72	0.02	0.09	0.52	3.32
India	3,258	0.35	4.86	0.90	0.03	0.38	0.52	4.33
Ireland	248	0.47	6.63	0.74	0.03	0.11	0.46	5.72
Israel	94	0.34	5.45	0.96	0.03	0.21	0.62	3.77
Italy	788	0.35	6.22	0.86	0.02	0.02	0.55	2.48
Japan	34	0.29	8.07	0.88	0.02	0.12	0.49	6.62
Malaysia	120	0.33	4.99	1.03	0.03	0.18	0.47	4.67
Netherlands	525	0.42	6.61	0.81	0.03	0.12	0.49	3.71
New Zealand	183	0.26	4.66	0.72	0.03	0.11	0.34	5.86
Norway	408	0.30	5.37	0.75	0.03	0.17	0.48	3.79
Pakistan	151	0.41	4.33	0.81	0.03	0.48	0.51	1.91
Poland	174	0.29	6.19	0.88	0.02	0.24	0.53	2.70
Portugal	30	0.38	8.01	0.80	0.02	-0.01	0.59	2.77
Singapore	120	0.42	5.67	0.83	0.04	0.32	0.42	4.97
South Africa	931	0.45	5.70	0.78	0.03	0.33	0.41	4.19
Spain	48	0.31	7.67	0.85	0.02	0.01	0.69	2.27
Sweden	600	0.37	5.62	0.72	0.03	0.19	0.38	3.51
Switzerland	482	0.52	6.79	0.76	0.02	0.06	0.42	5.26
Taiwan	18	0.20	6.42	0.81	0.02	0.61	0.37	10.50
United Kingdom	5,990	0.30	4.84	0.78	0.03	0.10	0.40	4.53
USA	27,554	0.49	5.61	0.76	0.03	0.14	0.45	8.18

Panel C: Ethnicity-level Averages of Selected Variables

Ethnicity	*N*	*Variable Pay*	*Tenure*	*Strong Future Time Reference*
AFRICAN	27	0.43	4.33	1
AFRIKANER	54	0.40	3.65	1
ARMENIAN	37	0.33	2.30	1
BALKAN	33	0.32	5.58	1
BANGLADESHI	18	0.44	2.61	1
BANGLADESHI / HINDI*	17	0.36	1.76	1
BLACK CARIBBEAN	24	0.42	3.58	1
BLACK SOUTHERN AFRICAN	17	0.52	2.00	1
BRETON	18	0.49	9.78	1
CATALAN	12	0.29	7.58	1
CELTIC	5,814	0.45	6.71	1
CHINESE	1,328	0.32	3.11	0
CZECH	14	0.46	3.71	1
DANISH	260	0.33	3.53	0
DUTCH	110	0.40	4.57	0
EAST ASIAN & PACIFIC	413	0.32	5.42	1
ENGLISH	28,710	0.43	6.53	1
EUROPEAN*	1,121	0.46	6.67	1
FINNISH	282	0.19	4.49	0
FRENCH	1,106	0.40	5.24	1
GERMAN	1,149	0.43	4.73	0
GREEK	150	0.36	5.33	1
GREEK / CYPRIOT*	131	0.31	5.45	1
HISPANIC	102	0.48	4.09	1
HONG KONGESE	2,372	0.29	3.73	0
HUNGARIAN	12	0.36	5.83	1
INDIAN	2,073	0.35	4.57	1
INDIAN NORTH	686	0.36	4.19	1
IRANIAN	27	0.47	8.81	1
IRISH	3,178	0.47	6.45	1
ITALIAN	1,182	0.38	4.43	1
JAPANESE	93	0.28	4.82	0
JEWISH	344	0.45	10.19	1
JEWISH / ARMENIAN*	235	0.46	8.05	1
LEBANESE	14	0.43	2.50	1

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

Ethnicity	*N*	*Variable Pay*	*Tenure*	*Strong Future Time Reference*
MALAYSIAN	11	0.57	9.18	1
NIGERIAN	40	0.33	12.15	0
NORDIC	151	0.41	5.15	0
NORTHERN IRISH	14	0.37	4.14	1
NORWEGIAN	30	0.35	4.93	0
PAKISTANI	290	0.36	4.80	1
PAKISTANI / KASHMIRI*	59	0.40	3.49	1
POLISH	464	0.36	4.44	1
PORTUGUESE	89	0.39	4.44	1
RUSSIAN	44	0.33	3.91	1
SCOTTISH	3,244	0.44	6.58	1
SERBIAN	10	0.38	2.10	1
SIKH	366	0.37	5.15	1
SOMALIAN	32	0.48	3.41	1
SOUTH ASIAN	330	0.41	5.35	1
SOUTH KOREAN	19	0.36	16.42	1
SPANISH	124	0.45	7.31	1
SRI LANKAN	134	0.35	4.73	1
SWEDISH	517	0.36	3.77	0
TURKISH	34	0.62	5.06	1
UKRANIAN	29	0.41	10.03	1
VIETNAMESE	81	0.33	5.80	1
WELSH	355	0.45	6.95	1

* We use ethnicity classifications as they are provided by OnoMAP's name-based classification software. In certain instances, the software is unable to provide a precise classification (e.g., Jewish / Armenian, or European); these ethnicity groups are indicated with an asterisk. In robustness tests, we have removed these observations and repeated our main analyses. Further, we have also removed those observations that are classified as English because they comprise a significant portion of our sample. Our key results remain unchanged. Recall that in constructing our main sample of 57,630 CEO-year observations, we have also removed those instances where there is a conflict between a person's forename and surname (i.e., divergent name classification), and those instances where the forename and the surname are unclassified or are not found in OnoMAP's dictionaries.

Table 3: Average Yearly Correlations between Variables

This table reports time-series averages of yearly Pearson and Spearman correlations between CEO-year variables across 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)
(1)	*Variable Pay*		0.399	-0.133	-0.247	0.106	0.012	0.095	0.049
(2)	*Size*	0.424		0.002	-0.511	-0.014	0.246	0.105	-0.037
(3)	*Book to Price*	-0.125	-0.014		0.003	0.108	0.579	-0.039	-0.249
(4)	*Idiosyncratic Volatility*	-0.291	-0.533	-0.007		0.038	-0.114	-0.082	0.097
(5)	*Annual Stock Return*	0.184	0.087	0.124	-0.126		0.073	-0.002	-0.019
(6)	*Leverage*	0.020	0.232	0.660	-0.169	0.110		-0.021	-0.186
(7)	*Tenure*	0.169	0.151	-0.086	-0.087	0.021	-0.032		0.000
(8)	*Past Performance*	0.118	0.066	-0.285	-0.091	0.006	-0.184	0.025	

Table 4: Global Model of Variable Pay

This table report coefficient estimates from panel regressions of CEO *Variable Pay* on various characteristics. Specifically, we estimate the following base model using our sample of 57,630 CEO-year observations (CEO subscripts suppressed):

$$Variable\ Pay_t = \beta_1 Size_{t-1} + \beta_2 Book\ to\ Price_{t-1} + \beta_3 Idiosyncratic\ Volatility_{t-1} + \beta_4 Stock\ Return_t + \beta_5 Leverage_{t-1} + \beta_6 Tenure_{t-1} + \beta_7 Past\ Performance_{t-1} + \varepsilon_t$$

In column 1 we only control for economic determinants of compensation suggested in prior literature. In columns 2–4, we also include year and industry fixed effects. In column 3, we control for country fixed effects, in column 4 we add ethnicity fixed effects, and in column 5 we control for firm fixed effects. In column 6, we estimate a hybrid correlated random effects model that includes CEO fixed effects and random effects for year, industry, country, firm and ethnicity (see Wooldridge, 2010). The reported *t*-statistics are based on standard errors clustered by ethnicity and year. 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 columns 4–6, 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)	(6)
Size	0.010***	0.010***	0.009***	0.009***	0.001	0.001
	(4.06)	(4.00)	(4.80)	(4.75)	(0.40)	(0.97)
Book to Price	-0.122***	-0.135***	-0.102***	-0.101***	-0.046***	-0.047***
	(-11.26)	(-14.48)	(-11.22)	(-11.22)	(-4.85)	(-7.26)
Idiosyncratic Volatility	-0.025***	-0.025***	-0.026***	-0.026***	-0.006***	-0.006***
	(-9.24)	(-12.22)	(-17.16)	(-17.23)	(-5.72)	(-5.60)
Annual Stock Return	0.038***	0.041***	0.044***	0.044***	0.033***	0.033***
	(5.80)	(5.54)	(7.15)	(7.15)	(6.41)	(19.52)
Leverage	0.050***	0.050***	0.019	0.019	-0.031***	-0.030**
	(3.79)	(3.31)	(1.50)	(1.49)	(-2.90)	(-2.36)
Tenure	0.003***	0.004***	-0.000	-0.000	-0.001***	-0.001**
	(4.90)	(5.31)	(-0.64)	(-0.64)	(-3.67)	(-2.39)
Past Performance	0.016***	0.015***	0.019***	0.019***	0.016***	0.016***
	(3.89)	(3.92)	(6.14)	(6.39)	(6.21)	(10.85)
Observations (CEO-years)	57,630	57,630	57,630	57,630	57,630	57,630
Adjusted R-squared	13.4%	17.9%	70.1%	76.4%	63.3%	27.4%
Year Effects		Yes	Yes	Yes	Yes	Yes
Industry Effects		Yes	Yes	Yes	No	Yes
Country Effects			Yes	Yes	No	Yes
Ethnicity Effects				Yes	Yes	Yes
Firm Effects					Yes	Yes
CEO Effects						Yes
Joint Sig. F (Ethnicity Effects)				*2.62*	*2.52*	*1.67*
Prob > F (Ethnicity Effects)				*(0.000)*	*(0.000)*	*(0.001)*
Significant Ethnicity Effects (%)				*29.8*	*23.6*	*21.1*

Table 5: Ethnicity Effect on Variable Pay for US-Born CEOs

This table reports coefficient estimates from panel regressions of *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, we estimate the following model using the reduced sample of 684 CEO-year observations with available data (CEO subscripts suppressed):

$$\begin{aligned} Variable\ Pay_t = {} & \beta_1 Size_{t-1} + \beta_2 Book\ to\ Price_{t-1} + \beta_3 Idiosyncratic\ Volatility_{t-1} + \beta_4 Annual\ Stock\ Return_t \\ & + \beta_5 Leverage_{t-1} + \beta_6 Tenure_{t-1} + \beta_7 Past\ Performance_{t-1} + Postgraduate\ Education_{t-1} \\ & + Founder_{t-1} + Gender + Age_{t-1} + Year\ Fixed\ Effects + Industry\ Fixed\ Effects \\ & + Ethnicity\ Fixed\ Effects + \varepsilon_t \end{aligned}$$

In column 1 we use the above specification, while in column 2 we replace *Past Performance* with *General Ability Index* as an alternative measure of ability. The ability 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 is from http://docentes.fe.unl.pt/~mferreira/). *Age* is the CEO's age in years. *Postgraduate Education* is an indicator variable that takes the value of 1 if the CEO holds a masters or doctoral degree, and 0 otherwise. *Founder* is an indicator variable that takes the value of 1 if the CEO is a founder of the firm, and 0 otherwise. Gender is an indicator variable that takes the value of 1 if the CEO is male, and 0 otherwise. 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) *Variable Pay*	(2) *Variable Pay*
Size	-0.000	-0.000
	(-0.99)	(-0.81)
Book to Price	-0.048	-0.022
	(-0.36)	(-0.20)
Idiosyncratic Volatility	-0.041***	-0.032***
	(-9.10)	(-3.83)
Annual Stock Return	0.049**	0.072***
	(2.78)	(7.78)
Leverage	0.027	0.013
	(0.17)	(0.08)
Tenure	-0.002*	-0.000
	(-2.10)	(-0.07)
Past Performance	0.049***	
	(6.09)	
General Ability Index		0.008
		(0.56)
Age	0.000	0.000
	(0.57)	(0.05)
Postgraduate Education	0.055***	0.046**
	(6.47)	(2.96)
Founder	0.028	-0.000
	(0.97)	(-0.01)
Gender	0.060	0.000
	(1.61)	(0.00)
Observations	684	590
Adjusted R-squared	47.6%	47.7%
Joint Sig. F (Ethnicity Effects)	*6.60*	*3.00*
Prob > F (Ethnicity Effects)	*(0.000)*	*(0.007)*
Significant Ethnicity Effects (%)	*50.0*	*50.0*

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

This table reports coefficient estimates from regressions of absolute change in CEO variable pay proportion on absolute change in various firm and CEO characteristics around CEO turnover events. The sample includes 440 US firms that experience CEO turnover once during our sample period, and where all data is available. Changes are computed using 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. We estimate the following model (CEO subscripts suppressed):

$$|\Delta Variable\ Pay\%| = \beta_1|\Delta Size| + \beta_2|\Delta Book\ to\ Price| + \beta_3|\Delta Idiosyncratic\ Volatility| + \beta_4|\Delta Annual\ Stock\ Return| + \beta_5|\Delta Leverage| + \beta_6|\Delta General\ Ability\ Index| + \beta_7|\Delta Age| + \beta_8|\Delta Postgraduate\ Education| + \beta_9|\Delta Tenure| + \beta_{10}|\Delta Total\ Compensation| + \beta_{11} Change\ in\ Ethnicity + Year\ Fixed\ Effects + \varepsilon$$

The dependent variable is the absolute change in *Variable Pay %* (i.e., variable pay proportion) where change is computed as $ln(VariablePay\%_{NEW\ CEO}/VariablePay\%_{OLD\ CEO})$ and *ln* is the natural logarithm operator. We control for absolute change in firm characteristics (including *Size*, *Book to Price*, *Idiosyncratic Volatility*, *Annual Stock Return*, and *Leverage*), absolute change in CEO characteristics (*General Ability Index*, *Age*, *Postgraduate Education*, and *Tenure*) as well as absolute change in *Total Compensation* between the replacement and incumbent CEO. *General Ability Index* 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 is from http://docentes.fe.unl.pt/~mferreira/). In column 1, 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* variable. In column 2 we examine whether turnover events where the incumbent CEO was not retiring are associated with a stronger effect of *Change in Ethnicity*. 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. The primary variable of interest is the interaction term: *Change in Ethnicity* × *CEO Not Retiring*. 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) $\|\Delta Variable\ Pay\%\|$	(2) $\|\Delta Variable\ Pay\%\|$
$\|\Delta Size\|$	-0.027	-0.035
	(-0.18)	(-0.21)
$\|\Delta Book\ to\ price\|$	0.157	0.213
	(0.95)	(1.15)
$\|\Delta Idiosyncratic\ Volatility\|$	0.281***	0.314**
	(3.28)	(2.77)
$\|\Delta Annual\ Stock\ Return\|$	0.126	0.120
	(1.15)	(0.96)
$\|\Delta Leverage\|$	-0.080	-0.084
	(-0.79)	(-0.80)
$\|\Delta General\ Ability\ Index\|$	0.031**	0.039
	(2.33)	(0.88)
$\|\Delta Age\|$	0.001	0.001
	(0.16)	(0.27)
$\|\Delta Postgraduate\ Education\|$	-0.319***	-0.328***
	(-5.42)	(-4.08)
$\|\Delta Tenure\|$	0.002	0.002
	(0.45)	(0.51)
$\|\Delta Total\ Compensation\|$	0.598***	0.602***
	(4.78)	(7.70)
Change in Ethnicity	0.051**	-0.090
	(2.05)	(-1.53)
CEO Not Retiring		-0.249***
		(-6.45)
Change in Ethnicity × CEO Not Retiring		0.262*
		(1.96)
Adjusted R-squared	12.7%	12.4%

Table 7: Ethnicity Effects for Corporate Policy and CEO Compensation

This table reports coefficient estimates from panel regressions of corporate policy variables and CEO variable pay on firm and CEO characteristics, as well as year, firm and ethnicity fixed effects. Since we require data on all policy variables, the sample is reduced to 53,999 CEO-years. We estimate the following model (CEO subscripts suppressed):

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

The dependent variable is indicated at the top of columns 1–7. *R&D* is R&D spending scaled by average total assets, *Investment* is the sum of capital expenditures and R&D spending scaled by average total assets, *Leverage* is liabilities scaled by assets, *Cash Holdings* is cash and cash equivalents scaled by average total assets, *Dividend Payer* is a yearly indicator for whether the firm pays dividend, *Dividend Yield* is common dividends scaled by price, and *Variable Pay* is the percentage of CEO total compensation that is not fixed. To enable cross-country comparability, each year we sort all firms within a country into quartiles on the basis of each variable (except *Dividend Payer*) and use these ranks as the dependent variable to estimate the above model. The reported *t*-statistics are based on standard errors clustered by ethnicity and year. 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 fixed effects from each model, as well as the percentage of ethnicity effects that are statistically significant. See Table 2 (Panel A) for description of all variables.

Panel A: Estimating the Ethnicity Effects for Corporate Policy

	(1) *R&D*	(2) *Investment*	(3) *Leverage*	(4) *Cash Holdings*	(5) *Dividend Payer*	(6) *Dividend Yield*	(7) *Variable Pay*
Size	-0.003**	0.001	0.000	0.005	0.006*	0.009***	0.005
	(-2.11)	(0.31)	(0.09)	(0.78)	(1.71)	(2.80)	(1.01)
Book-to-price	-0.004	-0.125**	-0.448***	-0.038	-0.003	0.047**	-0.196***
	(-0.19)	(-2.53)	(-11.71)	(-1.20)	(-0.13)	(2.54)	(-4.66)
Idiosyncratic Volatility	-0.000	-0.004***	-0.015***	0.014***	-0.023***	-0.023***	-0.022***
	(-0.27)	(-3.48)	(-6.56)	(3.77)	(-3.74)	(-3.71)	(-4.68)
Annual Stock Return	0.004	0.048***	-0.050***	0.123***	0.044***	-0.002	0.148***
	(1.15)	(9.20)	(-4.90)	(12.73)	(5.02)	(-0.32)	(5.50)
Leverage	-0.051***	-0.636***	1.605***	-0.984***	-0.470***	-0.325***	-0.166**
	(-3.06)	(-10.32)	(11.34)	(-17.77)	(-9.68)	(-7.82)	(-2.54)
Tenure	0.000	0.001	0.002**	-0.003***	0.005***	0.004***	-0.004***
	(0.39)	(1.40)	(2.10)	(-2.81)	(5.28)	(5.25)	(-2.89)
Past Performance	-0.003	0.018***	0.003	0.012***	0.012***	0.004	0.066***
	(-0.72)	(3.70)	(0.47)	(3.52)	(2.97)	(0.72)	(4.09)
Observations	53,999	53,999	53,999	53,999	53,999	53,999	53,999
Adjusted R-squared	85.8%	77.4%	75.3%	70.4%	74.9%	72.2%	53.0%
Joint Sig. F (Ethnicity Effects)	*2.43*	*1.84*	*1.29*	*1.12*	*2.09*	*2.29*	*2.44*
Prob > F (Ethnicity Effects)	*0.000*	*0.000*	*0.074*	*0.257*	*0.000*	*0.000*	*0.000*
Significant Ethnicity Effects (%)	*23.6%*	*21.8%*	*21.8%*	*20.0%*	*16.4%*	*18.2%*	*27.3%*

Panel B: Correlations between Ethnicity Variable Pay Effects and Ethnicity Policy Effects

This table reports pairwise correlations between the ethnicity fixed effects for variable pay estimated in Table 7, Panel A (column 7) and the ethnicity fixed effects estimated for each corporate policy variable in Table 7, Panel A (columns 1–6). The procedure used to estimate the ethnicity fixed effect (F.E.) for each variable is described in the caption for Table 7, Panel A. *Variable Pay* is the percentage of CEO total compensation that is not fixed (i.e., salary), *R&D* is R&D spending scaled by average total assets, *Investment* is the sum of capital expenditures and R&D spending scaled by average total assets, *Cash Holdings* is cash and cash equivalents scaled by average total assets, *Leverage* is liabilities scaled by assets, and *Dividend Payer* is a yearly indicator for whether the firm pays dividend, *Dividend Yield* is common dividends scaled by price. The asterisks * indicate statistical significance of the correlation coefficients at the 10% or above level.

	Variable Pay F.E.	*R&D F.E.*	*Investment F.E.*	*Leverage F.E.*	*Cash Holdings F.E.*	*Dividend Payer F.E.*
R&D F.E.	0.0424					
	(0.758)					
Investment F.E.	0.2004	0.3693*				
	(0.142)	*(0.006)*				
Leverage F.E.	0.3433*	-0.0871	0.4061*			
	(0.010)	*(0.527)*	*(0.002)*			
Cash Holdings F.E.	-0.2319*	0.2551*	-0.1609	-0.3429*		
	(0.088)	*(0.060)*	*(0.241)*	*(0.010)*		
Dividend Payer F.E.	-0.0545	-0.1465	0.0617	0.1296	-0.2201	
	(0.693)	*(0.286)*	*(0.655)*	*(0.346)*	*(0.106)*	
Dividend Yield F.E.	0.2834*	-0.0166	0.4097*	0.5138*	-0.2570*	0.8036*
	(0.036)	*(0.905)*	*(0.002)*	*(0.000)*	*(0.058)*	*(0.000)*

Panel C: Explaining Ethnicity Variable Pay Effects with Ethnicity Policy Effects

This table reports results from a regression of the ethnicity fixed effects for variable pay estimated in Table 7, Panel A (column 7) on the ethnicity fixed effects estimated for each corporate policy variable in Table 7, Panel A (columns 1–6). Specifically, the following cross-ethnicity model is estimated for variable pay ethnicity fixed effects:

$$\begin{aligned} Variable\ Pay\ Ethnicity\ Fixed\ Effects_i \\ = \beta_0 + \beta_1 R\&D\ Ethnicity\ F.E._i + \beta_2 Investment\ Ethnicity\ F.E._i + \beta_3 Leverage\ Ethnicity\ F.E._i \\ + \beta_4 Cash\ Holdings\ Ethnicity\ F.E._i + \beta_5 Dividend\ Yield\ Ethnicity\ F.E._i + \varepsilon_i \end{aligned}$$

Variable Pay Ethnicity Fixed Effects are estimated from a global model for variable pay which controls for year, firm, and ethnicity effects (see column 7 of Table 7, Panel A). The procedure used to estimate the ethnicity fixed effect for each variable is described in the caption for Table 7, Panel A. *Variable Pay* is the percentage of CEO total compensation that is not fixed (i.e., salary), *R&D* is R&D spending scaled by average total assets, *Investment* is the sum of capital expenditures and R&D spending scaled by average total assets, *Cash Holdings* is cash and cash equivalents scaled by average total assets, *Leverage* is liabilities scaled by assets, and *Dividend Yield* is common dividends scaled by price. In estimating these models, we do not include *Dividend Payer Ethnicity Fixed Effects* as they are highly correlated with *Dividend Payer Ethnicity Fixed Effects* (See Table 7, Panel B). In column 1, we estimate the various ethnicity fixed effects using within-country annual ranks for each variable and in column 2, we estimate the various ethnicity fixed effects using continuous values for each variables. 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) *Variable Pay Ethnicity F.E.*	(2) *Variable Pay Ethnicity F.E.*
R&D Ethnicity F.E.	0.809	0.324
	(0.53)	(1.14)
Investment Ethnicity F.E.	-0.020	-0.556
	(-0.10)	(-1.05)
Leverage Ethnicity F.E.	0.382	-0.007
	(1.11)	(-0.02)
Cash Holdings Ethnicity F.E.	-0.380	-0.972**
	(-0.79)	(-2.11)
Dividend Yield Ethnicity F.E.	0.133	-0.043
	(0.53)	(-1.15)
Constant	-0.027	0.007
	(-0.35)	(0.57)
Observations	58	58
Adjusted R-squared	6.9%	11.2%

Table 8: Global Model of Variable Pay Controlling for Corporate Policy

This table reports coefficient estimates from panel regressions of CEO variable pay on various characteristics, including corporate policy variables. Since we require data on all policy variables, the sample is reduced to 53,999 CEO-years. Columns 1, 2 and 3 use the same models that are reported in Table 4 (see columns 4, 5 and 6) with additional controls for corporate policy. *Investment* is the sum of capital expenditures and R&D spending scaled by average total assets, *R&D* is R&D spending scaled by average total assets, *Leverage* is liabilities scaled by assets, *Cash Holdings* is cash and cash equivalents scaled by average total assets, *Dividend Payer* is a yearly indicator for whether the firm pays dividend, *Dividend Yield* is common dividends scaled by price The reported *t*-statistics are based on standard errors clustered by ethnicity and year. 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 effects for variable pay, as well as the percentage of ethnicity effects that are statistically significant. See Table 2 (Panel A) for description of variables.

	(1)	(2)	(3)
Size	0.009***	0.001	0.001
	(5.47)	(0.59)	(0.99)
Book-to-price	-0.096***	-0.044***	-0.045***
	(-9.55)	(-4.34)	(-6.67)
Idiosyncratic Volatility	-0.023***	-0.005***	-0.005***
	(-15.59)	(-4.47)	(-4.82)
Annual Stock Return	0.043***	0.032***	0.032***
	(7.17)	(6.04)	(17.80)
Tenure	-0.000	-0.001***	-0.001***
	(-1.06)	(-3.74)	(-2.65)
Past Performance	0.019***	0.016***	0.016***
	(7.36)	(5.62)	(10.53)
Investment	-0.033	0.055*	0.055**
	(-1.29)	(1.79)	(2.05)
R&D	-0.060	-0.180***	-0.187***
	(-1.61)	(-3.01)	(-3.48)
Leverage	0.011	-0.016	-0.014
	(0.84)	(-1.46)	(-0.99)
Cash Holdings	0.026***	0.037***	0.037***
	(2.61)	(2.59)	(3.05)
Dividend Payer	0.054***	0.044***	0.043***
	(12.49)	(7.68)	(8.74)
Dividend Yield	-0.299***	-0.214***	-0.219***
	(-4.20)	(-2.67)	(-4.52)
Observations (CEO-years)	53,999	53,999	53,999
Adjusted R-squared	76.8%	63.7%	28.3%
Year Effects	Yes	Yes	Yes
Industry Effects	Yes	No	Yes
Country Effects	Yes	No	Yes
Ethnicity Effects	Yes	Yes	Yes
Firm Effects		Yes	Yes
CEO Effects			Yes
Joint Sig. F (Ethnicity Effects)	*2.49*	*2.58*	*1.65*
Prob > F (Ethnicity Effects)	*(0.000)*	*(0.000)*	*(0.001)*
Significant Ethnicity Effects (%)	*26.3*	*23.6*	*17.5*

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

This table reports coefficient estimates from regressions of post-turnover firm-level future outcomes (i.e., future employee growth and future productivity growth) 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 future outcome of interest. The sample is reduced to include only the 1,305 US firms that experience CEO turnover once during our sample period, and where all firm-level control variables are 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):

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

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 Growth* and in columns 3 and 4, it is *Future Productivity Growth*. *Future Employee Growth* 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 Growth* 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 sales per employee. *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 decline in employee growth and in columns 3 and 4, *Past Decline* refers to past decline in productivity growth. *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* × *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 the 920 observations where the incumbent CEO was not leaving due to retirement 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) *Future Employee Growth*	(2) *Future Employee Growth*	(3) *Future Productivity Growth*	(4) *Future Productivity Growth*
Change in Ethnicity	-0.032**	-0.015	0.047**	-0.001
	(-2.04)	(-0.84)	(2.14)	(-0.04)
Past Decline	-0.129***	-0.098***	0.024	-0.038
	(-10.22)	(-9.07)	(0.56)	(-1.48)
Change in Ethnicity × *Past Decline*	0.082**	0.057**	0.011	0.068*
	(3.09)	(2.53)	(0.19)	(1.72)
Observations	1,305	920	1,305	920
Adjusted R-squared	11.2%	12.6%	10.5%	11.0%
Year Effects	Yes	Yes	Yes	Yes
Controls Included	Yes	Yes	Yes	Yes

Table 10: Variable Pay Ethnicity Preferences and Future Time Reference

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

$$Variable\ Pay\ Ethnicity\ Fixed\ Effects_i = \beta_0 + \beta_1 Strong\ Future\ Time\ Reference_i + \varepsilon_i$$

Variable Pay Ethnicity Fixed Effects are estimated from a global model for variable pay which controls for year, industry, and country effects (see column 4 of Table 4). A name-based ethnicity classification software from OnoMAP is used to link CEO names to the most likely language of their ethnicity. *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*. In column 1, we use all the variable pay ethnicity fixed effects estimated using the global model including insignificant ones. In column 2, we replace the statistically insignificant ethnicity fixed effects with zeroes and rerun the regression. In column 3, we use the variable pay ethnicity fixed effects re-estimated from a global model after excluding all observations for the United States. In column 4, we use the same fixed effects as in column 3 (i.e., estimated after excluding US observations) except that we replace statistically insignificant fixed effects with zeroes. 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)	(2)	(3)	(4)
	All F.E.s	*Insignificant F.E.s coded 0*	*Excl. US*	*Excl. US and insignificant F.E.s coded 0*
Strong Future Time Reference	0.040***	0.032**	0.039***	0.033**
	(3.45)	(2.65)	(2.90)	(2.50)
Constant	0.695***	0.306***	0.448***	0.153***
	(89.30)	(2.97)	(52.29)	(2.46)
Observations (Ethnicities)	58	58	58	58
R-squared	8.1%	5.6%	5.4%	4.0%

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

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

$$Variable\ Pay\ Ethnicity\ Fixed\ Effects_i = \beta_0 + \beta_1 Muslim_i + \beta_2 Jewish_i + \beta_3 Protestant_i + \beta_4 Catholic_i + \beta_5 Orthodox_i + \varepsilon_i$$

Variable Pay Ethnicity Fixed Effects are estimated from a global model for variable pay which controls for year, industry, and country effects (see column 4 of Table 4). A name-based ethnicity classification software from OnoMAP is used to link CEO names to the most likely religious affiliation of their ethnicity. Five religion groups are identified using indicator variables: *Muslim*, *Jewish*, *Protestant*, *Catholic* and *Orthodox*. The remaining religion groups such as Buddhist, Hindu and Sikh are included in the benchmark group. In column 1, we use all the variable pay ethnicity fixed effects estimated using the global model including insignificant ones. In column 2, we replace the statistically insignificant ethnicity fixed effects with zeroes and rerun the regression. In column 3, we use the variable pay ethnicity fixed effects re-estimated from a global model after excluding all observations for the United States. In column 4, we use the same fixed effects as in column 3 (i.e., estimated after excluding US observations) except that we replace statistically insignificant fixed effects with zeroes. 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)	(2)	(3)	(4)
	All F.E.s	*Insignificant F.E.s coded 0*	*Excl. US*	*Excl. US and insignificant F.E.s coded 0*
Muslim	0.090**	0.075**	0.056	0.059*
	(2.55)	(2.06)	(1.63)	(1.97)
Jewish	0.031**	0.019*	-0.001	-0.010
	(2.35)	(1.69)	(-0.02)	(-0.20)
Protestant	0.012	0.015	-0.003	0.023
	(0.80)	(1.20)	(-0.10)	(0.96)
Catholic	0.024	0.019	-0.004	-0.004
	(1.61)	(1.32)	(-0.14)	(-0.17)
Orthodox	0.001	-0.007	0.013	0.004
	(0.03)	(-0.33)	(0.55)	(0.11)
Constant	0.705***	0.348***	0.465***	0.269***
	(57.93)	(3.26)	(34.05)	(3.77)
Observations (Ethnicities)	58	58	58	58
Adjusted R-squared	20.8%	17.6%	4.8%	3.6%

Table 12: Performance-Firing Sensitivity and Ethnicity Effects

This table report coefficient estimates from second-stage regressions of firm-level estimated performance-firing sensitivity on various firm characteristics. In the first stage, we estimate performance-firing sensitivity for each firm using time-series regressions of CEO turnover on firm size, CEO tenure and a measure of negative past performance. The firm-level coefficient on negative past performance provides an estimate of performance-firing sensitivity and is our dependent variable for the second-stage regression. We use an indicator variable to identify instances of CEO turnover, which takes on the value of 1 in a turnover year and 0 otherwise. To measure past performance, we use the annual firm-level stock return for the prior year during the CEO's tenure, adjusted for the industry median stock return. We then identify all firm-years with negative past performance using an indicator variable that takes on the value of 1 when the industry-adjusted stock return is negative, and 0 otherwise. For the first stage, in order to assess whether poor past performance is associated with CEO turnover, we focus only on those firms that experience at least one instance of negative past performance, and we also require a minimum of 4 years of data for each firm. These data restrictions reduce the estimation sample to 42,319 observations for 5,428 firms. We store the firm-level coefficients from the first-stage regressions to use as dependent variables for the second-stage regression. For firms that do not have any CEO turnover during our sample period, a coefficient cannot be estimated and we assign a performance-firing sensitivity of zero. We use the most recent available observation for each firm to identify the ethnicity of the CEO at that firm, as well as to collect firm characteristics. Then, we estimate the following second-stage regression using the cross-section of 5,428 firms (column 1):

$$PFS_i = \beta_1 Size_i + \beta_2 Book\ to\ Price_i + \beta_3 Idiosyncratic\ Volatility_i + \beta_4 Stock\ Return_i + \beta_5 Leverage_i + \varepsilon_i$$

PFS is the performance-firing sensitivity coefficient from the first stage. We use the same firm-level control variables as are in our global model for variable pay (Table 4), and we also include year, industry, country and ethnicity fixed effects. We assess whether the estimated ethnicity fixed effects are jointly significant. The tables 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. In column 2, we restrict our analysis to the 1,441 firms that experience one or more turnovers during our sample period. The reported *t*-statistics are based on standard errors clustered by ethnicity. In column 3, we restrict our analysis to the 2,777 non-US firms for which we can estimate performance-firing sensitivity coefficients. 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) *All Firms*	(2) *Turnover Firms*	(3) *Excl. US*
Size	-0.001	-0.003***	-0.001
	(-1.11)	(-3.03)	(-0.81)
Book-to-price	0.003	0.016	0.018*
	(0.23)	(0.37)	(1.72)
Idiosyncratic Volatility	-0.002	-0.015***	-0.002*
	(-1.56)	(-6.12)	(-1.73)
Annual Stock Return	-0.001	0.000	0.001
	(-0.31)	(0.01)	(0.18)
Leverage	0.001	0.018	-0.018
	(0.12)	(0.71)	(-0.92)
Observations (firms)	5,428	1,441	2,777
Adjusted R-squared	0.8%	2.8%	0.6%
Year Effects	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes
Country Effects	Yes	Yes	Yes
Ethnicity Effects	Yes	Yes	Yes
Joint Sig. F (Ethnicity Effects)	*2.09*	*2.35*	*1.73*
Prob > F (Ethnicity Effects)	*(0.000)*	*(0.001)*	*(0.006)*
Significant Ethnicity Effects (%)	*24.2*	*26.1*	*20.0*