The Cultural Origin of Preferences: CEO Cultural Heritage and Corporate Policies

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Abstract

Does culture shape risk and time preferences? While economic models of the origins of preferences point to an important role of culture, i.e., the social transmission of preferences, supporting empirical evidence is largely missing. In this study, we exploit variation in cultural heritage across CEOs of public U.S. companies and demonstrate an important effect of CEOs' culturally transmitted risk preferences on acquisitions and capital expenditures and of time preferences on cash holdings. The effects represent both matching between the firm and the CEO based on cultural traits as well as CEOs' cultural preferences influencing corporate culture and firm policies. Our results provide novel evidence of important cultural transmission of risk and time preferences, their effect on corporate policies, and the interplay of the culturally transmitted preferences of CEOs, board of directors, as well as other top executives.

JEL classification:
Key words: Culture, corporate culture, risk preferences, time preferences, corporate policies, CEOs

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1. Introduction

There is significant variation in risk and time preferences across individuals. For example, some take a lot of risk when making investment decisions, while others avoid risk. Recent research has provided insights into the source of the heterogeneity in risk as well as time preferences, emphasizing the role of biological determinants (e.g., Cesarini et al. (2009), Cronqvist and Siegel (2014)) as well as events and experiences throughout individuals' lives (e.g., Malmendier and Nagel (2011)). What role does culture play for economic decisions under uncertainty? In this paper, we explore this question; in particular we study how culturally transmitted attitudes towards risk among top executives shape policies of large, public U.S. firms.

Culture is the set of preferences and beliefs widely shared by a group of people (Fernandez (2011)). Culture is learnt and transmitted socially, by parents to their children, between peers, and in an oblique way by society as a whole, for example through the (public) school system. Although culture is often slow-moving, the social transmission mechanism is important, as it allows for a faster and more calculated response to environmental changes than would be possible by genetic evolution alone (Robalino and Robson (2013)). However, despite the proposed importance of social transmission of preferences, empirically identifying the effect of cultural heritage on risk and time preferences is challenging. On the one hand, while cross-country studies document significant correlations between national culture and savings and investment decisions of households and firms (e.g., Guiso, Sapienza, and Zingales (2006), Shao, Kwok, and Zhang (2013)), those studies cannot easily separate the effects of cultural differences from institutional and economic differences across countries. On the other hand, studies of households in a single country often face the problem of cultural homogeneity. Studying investment decisions of CEOs in the U.S. allows us to exploit variation in culturally transmitted risk preferences that might be absent in culturally more homogenous countries, while at the same holding constant the institutional and economic environment.

Making investment decisions under uncertainty is a central task for corporate executives and in particular CEOs. While in simple and frictionless models CEO preferences might not matter for corporate policies, several studies have shown that corporate policies are not independent of CEO characteristics (e.g., Bertrand and Schoar (2003), Malmendier and Tate (2005)). On the one hand, firms likely select top executives based on risk preferences; on the other hand, CEOs' risk preferences may also have a causal effect on corporate policies. While in this paper we focus on the cultural transmission of preferences, we also evaluate the empirical relevance of these two underlying mechanisms through which CEOs' risk preferences matter for corporate policies. The corporate setting also allows us to examine the interaction between the CEO's culturally transmitted preferences and those of the board as well as other executives and to shed light on how corporate culture evolves.

Another advantage of studying the culturally transmitted risk preferences of executives of public companies as opposed to of individual households included, for example, in the Survey of Consumer Finances (SCF), is that we can easily obtain the last names of corporate executives. We use these last names to infer the executives' cultural heritage and to measure their culturally transmitted risk and time preferences.[1] Specifically, we identify CEOs of public U.S. firms between 1980 and 2012. We then match the last names of the CEOs as well as of the top executives and board members of the same firms to immigration records from passengers arriving in the port of New York between 1820 and 1957. Based on the citizenship of each arriving passenger with a given last name, we obtain a distribution of countries of origin for each last name. For example, according to these New York passenger lists, 55% of passengers with the last name *Welch* are of British origin, while 25% are Irish. The remaining 20% come from a variety of other countries.

[1] Similar to our approach, Grinblatt and Keloharju (2001) use the last name and native language of CEOs in Finland to distinguish between Swedish and Finnish CEOs, while Kerr and Lincoln (2010), Gompers, Mukharlyamov, and Xuan (2012), Liu (2013), Du, Yu, and Yu (2014) use last names to infer ethnicity in the U.S. setting.

To measure risk preferences associated with a national culture, we employ Hofstede's (1980, 2001) uncertainty avoidance index, which has been shown to be significantly correlated with individuals' risk preferences in surveys of a large number of countries (Rieger, Wang, and Hens (2014)). We also obtain country-level averages of attitudes towards thrift from the World Values Survey. For each last name, we then form weighted averages of uncertainty avoidance and thrift across the associated countries of origin. This approach yields culturally transmitted preferences that are independent of personal characteristics and, in particular, personal experiences that also shape behavior.

To capture risk taking behavior in a corporate setting, we focus on mergers and acquisitions (M&A), but also consider other corporate policies such as regular capital expenditures (CAPX), cash holdings and leverage. The decision to acquire another firm is likely among the most complex decisions a CEO faces and is typically characterized by high uncertainty. Surveys of CEOs also suggest that chief executives are indeed the dominant decision-makers in corporate acquisitions (Graham, Harvey, and Puri (2014)).

Our results can be summarized as follows. CEOs with larger culturally transmitted uncertainty avoidance are significantly less likely to engage in corporate acquisitions, particularly focused acquisitions. A one standard deviation increase in the CEO's uncertainty avoidance is related to a 2.8 percentage point (pp) drop in the likelihood that a firm will make an acquisition in a given year, a 21% decrease relative to the sample mean of 13.3%. The effect of culturally inherited CEO risk preference on corporate acquisition is also much larger than the effect of induced CEO risk preference as measured by the compensation vega. CEOs with larger culturally transmitted uncertainty avoidance also invest less in fixed assets, and borrow less, while firms with CEOs whose cultural background values thrift have higher cash holdings.

We investigate two underlying channels through which the CEO's culturally inherited risk preference could matter for corporate policies. On the one hand, we find strong evidence of matching between firms and CEO. Firms are more likely to select CEOs whose risk preferences

are similar to those of the boards and the top management teams. At the same time, larger divergence in risk preferences between the CEO and the board or the top management team is associated with lower corporate investment. On the other hand, CEOs also shape the composition of the executive team and the board by selecting members whose culturally transmitted preferences are closer to their own, leading to an increasing influence of CEO risk preference on corporate policies over the CEO's tenure. These latter findings are consistent with CEOs' preferences also having a causal effect on corporate culture and policies.

In many ways, our research approach is biased against finding evidence that culturally transmitted preferences matter. First, we rely on differences in cultural heritage of individuals in the U.S. Different from other studies that use first or second generation immigrants to the U.S. (e.g., Fernandez (2007), Fernandez and Fogli (2009)), the families of U.S. executives have likely been in the U.S. for several generations. Hence, the strength of our proxies for executives' preferences largely depends on the strength of cultural transmission across generations. Furthermore, the characteristics of those leaving their home countries to immigrate to the U.S. may deviate from their home country's cultural norms (e.g., Borjas and Bratsberg (1996)), potentially adding noise to our proxies. Finally, different from financial decisions at the household level, the interaction between CEO preferences and corporate decisions, particularly in publicly traded companies, occur in an environment in which various institutional constraints apply. Hence, any support for a cultural effect in our setting would likely represent a lower bound for the true effect of culturally transmitted preferences on individual decision making.

Our paper contributes to the growing literature on the origin of preferences by explicitly accounting for the role of culturally transmitted values in shaping economic preferences, and risk preferences in particular. Despite compelling theoretical arguments for the important role of cultural transmission (see, e.g., Robalino and Robson (2013)), in particular from parents to their children (e.g., Bisin and Verdier (2001)), empirical support with respect to risk or time preferences is largely missing. For example, in early work, Carroll, Rhee, and Rhee (1994, 1999)

study savings behavior of immigrants to Canada and the U.S., but fail to find evidence in support of cultural transmission.[2] Recent studies of risk and time preferences of Swedish twins also find little evidence of cultural transmission within families (Cesarini et al. (2010), Barnea, Cronqvist and Siegel (2010)).[3] The lack of support for cultural transmission of risk and time preferences contrasts with studies by Fernandez and Fogli (2006, 2009), who document the influence of culture on female labor market participation and fertility choices of second generation immigrants to the U.S.[4] Our study shows that CEOs' culturally transmitted preferences do have an economically meaningful impact on corporate investment decisions in a large sample of U.S. publicly traded companies, thus providing novel and important support for the cultural transmission of risk and time preferences.

Our paper is also related to research in economics and sociology on the speed of cultural assimilation of immigrants, particularly in the U.S. (e.g., Lazear (1999), Bisin and Verdier (2000, 2001, 2010)). The idea of a "melting pot" and fast assimilation of immigrants in the U.S. has been rejected at least since Glazer and Moynihan (1963) concluded that the melting pot "did not happen." Persistent income differences across ethnic groups have been documented by several authors (see, e.g., Farley (1990)). In a recent study, Giavazzi, Petkov, and Schiantarelli (2014) examine cultural differences for a large set of social preferences and beliefs and show that the degree of persistence varies across preferences and believes as well as countries of origin. Less than 8% of the CEOs in our sample are first-generation immigrants. Our empirical tests are therefore joint tests of the importance of culturally transmitted preferences and the persistence of

[2] The authors point out that the results could be due to data limitations in the Canadian study and sample selection in the U.S. study, as immigrants to the U.S. from Mexico may belong to a very different socioeconomic stratum than those from, for example, Germany. The sample selection issue is mitigated in our research setting, as we focus on a group of individuals--top corporate executives--who are likely to come from a more homogeneous socioeconomic stratum than immigrant households in the U.S. in the 1980s and 90s.

[3] While there is significant parent-child similarity with respect to savings and risk-taking behavior (e.g., Chiteji and Stafford (1999), Charles and Hurst (2003)), there is little evidence of a cultural channel within families once genetic transmission has been accounted for.

[4] See also Ichino and Maggi (2000) and Guiso, Sapienza, and Zingales (2004) who show the effect of culture on work attitudes and financial development using movers within Italy.

cultural differences in the U.S. Our findings offer the first direct evidence on the persistence of culturally transmitted risk and time preferences in the U.S. and imply that cultural heritage with respect to these preferences is preserved over multiple generations. Our estimates using a proxy for how long a given last name has existed in the U.S. also suggest a relatively low speed of cultural assimilation.

Our research also contributes to the literature on the interaction between CEOs' characteristics and corporate policies. While Bertrand and Schoar (2003) focus on CEO fixed effects, other papers have looked at specific traits or characteristics, such as overconfidence, marital status, or gender (e.g., Malmendier, Tate, and Yan (2011), Faccio, Marchica, and Mura (2012), Roussanov and Savor (2013)). Several studies have shown that proxies of CEOs' risk attitudes are related to the riskiness of corporate policies (e.g., Cronqvist, Makhija, and Yonker (2012), Cain and McKeon (2014), and Graham, Harvey, and Puri (2013)). However, these papers are not concerned with the origin of CEOs' risk preferences. Another strand of studies examines CEO risk preferences potentially shaped by early-life experiences (Bernile, Bhagwat, and Rau (2014)) and work experiences (Custodio and Metzger (2014), Dittmar and Duchin (2014)). In contrast, we focus on culturally transmitted risk preferences and show that their effect on corporate policies is large, for example, in comparison to the effect induced through compensation contracts. Our name-based approach to measure cultural heritage of CEOs should also be useful in many situations in which a proxy for culturally transmitted preferences or simply an exogenous proxy for preferences is needed.

Finally, our study contributes to a new and growing literature on corporate culture by shedding light on the persistence and evolution of corporate culture. How is a firm's culture with respect to risk taking formed and maintained? Our study suggests that both the board's selection of CEO and the CEO's appointment of directors and top executives based on similarity in risk preferences lead to persistence in the shared attitudes towards risk taking, despite the frequent turnovers in the corporate upper echelon.

The rest of this paper is organized as follows. Section 2 introduces the main data for our empirical analysis and provides a detailed discussion of our measures of culturally transmitted preferences. Section 3 presents our baseline evidence on the effect of CEOs' culturally transmitted risk and time preferences on corporate policies as well as several robustness checks. Sections 4 investigates the underlying channels through which CEO's culturally inherited risk preferences matter for corporate policies and explores the interaction between the culturally transmitted risk preferences of CEOs, board directors, and other top executives. Section 5 concludes.

2. Data

2.1. CEOs' Cultural Heritage

We construct a comprehensive sample of CEOs of publicly traded firms headquartered in the United States (U.S.). We identify CEOs, including their first and last name, using *Standard & Poor's ExecuComp* database, which covers S&P 1500 firms starting in 1992, and *Capital IQ*, which covers a large range of private and public companies globally starting in 1996.[5] Our CEO sample includes 19,494 CEOs that were in office in 12,969 US public firms between 1980 and 2012.

We use the CEO's last name to identify the CEO's cultural heritage. In particular, we collect information from passenger lists of ships arriving from foreign ports in the port of New York between 1820 and 1957. These records, which are available through *Ancestry.com*, indicate each passenger's first and last name, gender, approximate birth year, and the passenger's ethnicity or nationality. Appendix A provides a screen shot for passenger John *Welch* who arrived in New York on May 2, 1851, travelling on the *Oriental* from Liverpool, England. The passenger list

[5] In the final sample, about 39% of the final CEO-firm sample comes from *ExecuComp*; about 46% of the data comes from *Capital IQ* with CEO flag; and the remaining 15% comes from the consolidated career history in *Capital IQ's People Intelligence* database. To verify the consistency and coverage across the two data sources, we verify that since 2000, when *Capital IQ* started the most intensive data collection effort, 90% of the firm-years covered by *ExecuComp* identify the same CEOs as does *Capital IQ*.

which is used for U.S. immigration purposes reports his nationality as British (English). For each last name in our CEO sample, we search through all available records with non-missing nationality data for passengers with the same last name.

For 871 of the 19,494 CEOs, we cannot find passenger records that are associated with their last names and also have non-missing nationality data. Hence, our final CEO sample is reduced to 18,623 CEOs. We group nationality and ethnicity data for each passenger at the country level.[6] For each last name, we then compute the distribution of nationalities using these passenger records. This distribution covers up to 122 countries of origins, including the U.S. On average a CEO last name is associated with 25 different countries. At the same time, for 48% of the CEOs in our sample, the CEO's last name is associated with a dominant country of origin (outside U.S.) that represents the origin of more than 50% of the passengers with the same last name, suggesting that the passenger records cover a long list of origins with low frequency besides the dominant origin. Overall, our passenger records provide a unique proxy of each CEO's cultural heritage, reflecting over 100 years of immigration records of those arriving in New York, one of the central historical entry points to the United States.

To summarize the cultural heritage of the CEOs in our sample, we calculate the average frequency for each country of origin across all 18,623 CEOs in our sample. Table 1 Panel A reports the most common countries of origin, the fraction that report U.S. as their nationality, as well as the fraction of non-missing, but uninformative origins ("Unidentifiable").[7] The frequency of different ethnicities is largely consistent with ancestry information collected in the U.S. Census 2000 for the general population, with English and German being the two most common origins. Appendix B reports the average frequency for all 121 countries of origins as well as those for the U.S. and Unidentifiable.

[6] For example, we group different German origins, such as Hesse, Pomerania, and Preussen under Germany. In a few cases, we further group certain, typically smaller nationalities into larger groups. For example, we group Syrian and Tunisian passengers with those who state their nationality as "Arab", "Arabic", or "Arabian."

[7] For example, some ethnicity data is incomplete or very generic (e.g., "White").

While we employ the cultural heritage proxy based on passenger records for most of our analysis, we consider an alternative proxy, which also utilizes last names. Specifically, we use the *Dictionary of American Families* (Dictionary) which classifies 70,315 last names along 46 possible origins.[8] Differently from our main proxy, the Dictionary only indicates whether a last name is associated with a given origin or not. For example, according to the dictionary the last name *Welch* is of English, German, and Welsh origin. For last names not included in the dictionary, we obtain information about ethnic origin from *List Service Direct Inc*. (LSDI), a commercial data provider that uses a proprietary algorithm to identify a person's ethnicity based on the person's first and last name.

2.2. Culturally Transmitted Preferences

To measure CEOs' culturally transmitted risk preferences, we use Hofstede's (1980, 1991, 2001) uncertainty avoidance index (UAI) which takes on values between 0 and 1. According to Hofstede, the uncertainty avoidance index indicates "to what extent a culture programs its members to feel either uncomfortable or comfortable in unstructured situations. Unstructured situations are novel, unknown, surprising, different from usual." [9] Hofstede constructs the index by statistically analyzing answers to questions asked in detailed interviews of hundreds of IBM employees in 53 countries between 1978 and 1983.[10] Since then the index has been replicated several times and extended to additional countries (see, Hofstede, Hofstede, and Minkov (2010)). Hofstede et al. (2010) characterize low uncertainty avoidance cultures, like

[8] The Dictionary of American Families is based on names of about 90 million U.S. telephone subscribers, included in the 1997 edition of Info USA's ProCD Select Phone product and representing about 33% of the U.S. population in 1997. Out of 1.75 million distinct last names, 70,315 were included in the dictionary as they were sufficiently common (i.e, with at least 100 occurrences) or otherwise historically or etymologically important. Instead of nationality, the classification of origins in DAFN is based on cultural-ethnic-linguistic groups (CELG). CELG of a given last names is determined based on combined information from the first and last names. See Mateos (2007) for a detailed description of the dictionary's algorithm.

[9] See Geert Hofstede's website: http://www.geerthofstede.nl/dimensions-of-national-cultures

[10] Specifically, three questions are asked: "How often do you feel nervous or tense at work?", agreement with the statement "Company rules should not be broken – even when the employee thinks it is in the company's best interest", and "How long do you think you will continue working for IBM?" See Hofstede, Hofstede, and Minkov (2010) for details.

Great Britain (0.31), Ireland (0.31), China (0.27), Sweden (0.26), and Denmark (0.21), as low stress and low anxiety countries with an attitude that "what is different is curious." High uncertainty avoidance cultures, such as Greece (1.00), Portugal (0.93), Poland (0.83), France (0.77), and Italy (0.67), on the other hand, are described as high stress and high anxiety countries with an attitude that "what is different is dangerous." While uncertainty and risk differ with respect to whether the probabilities of future events are known, Rieger, Wang, and Hens (2014) show that it is significantly correlated with individuals' risk preferences elicited in a multi-country survey. Furthermore, almost all real-world decisions, in particular with respect to M&A and other corporate investments, are made under uncertainty. We therefore consider uncertainty avoidance a meaningful measure of relevant risk preferences in our context.

For each CEO, we form the weighted average of the uncertainty avoidance index associated with each country of origin other than the U.S. Since we do not have UAI values for all countries of origin, we rescale the weights of all countries appropriately.[11] As Panel B of Table 1 shows, on average CEOs exhibit culturally transmitted uncertainty avoidance of 0.469 when using our main proxy of cultural heritage based on passenger records and of 0.460 when using our Dictionary based proxy. The two measures of uncertainty avoidance are highly correlated (ρ = 0.85), reflecting the strong overlap between both proxies of cultural origins.

In a similar way, we also construct a proxy for culturally transmitted time preferences, using attitudes towards thrift from the fourth wave (1999-2004) of the world value survey (WVS), complemented by data from the European value survey (EVS) for those European countries not covered by the WVS. Following Guiso, Sapienza, and Zingales (2006), we infer time preference based on answers to the question: "Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important?" We create an indicator variable that equals one if the respondent lists as important ''Thrift, saving money and things.'' We then aggregate this variable at the country level by calculating the average across all

[11] We cannot observe UAI for countries representing 2.5% of the average CEO's cultural heritage.

respondents in a given country and call this "Thrift", a proxy for time preference. Guiso, Sapienza, and Zingales (2006) show that thrift attitudes are indeed correlated with national savings rates. Similar to uncertainty avoidance, we calculate the weighted average for each CEO, again using two different approaches to identify cultural origins. Panel B of Table 1 reveals the average values across all CEOs of 0.321 and 0.318, using passenger records and the Dictionary data respectively.

In addition to measuring cultural heritage and culturally transmitted preferences, we collect CEOs' demographic information such as age ("*CEO Age*"), gender ("*Female*"), education ("*CEO Education*"), and whether the CEO is born outside the U.S. ("*First Generation*"). We also collect information from *ExecuComp* and *Capital IQ* on the average number of different firms for which a manager serves as the CEO ("*# of Employers per CEO*"), whether he or she was promoted to the CEO position after having been with the firm for at least three years ("*Insider CEO*"), as well as his or her total tenure length as the CEO of a given firm. Panel B of Table 1 provides summary statistics for these additional CEO and CEO-firm characteristics. Appendix C provides detailed definitions of all variables.

2.3. Corporate Policies, Firm Characteristics, and Corporate Culture

To capture CEO's risk taking behavior, we focus on M&A decisions, but also consider capital expenditures, cash holdings, and financial leverage. Specifically, we define an indicator variable "*Acquisition*" if a firm engages in M&A during a fiscal year. "*Acquisition Rate*" is the total value of acquisitions in a fiscal year scaled by the firm's book assets. Acquisitions include completed acquisitions of assets or equity interests with disclosed transaction values covered by the SDC database.[12] In addition, we differentiate between focused acquisitions and diversifying acquisitions. "*Focused Acquisition*" indicates acquisitions within the firm's 2-digit SIC industry, while "*Diversifying Acquisition*" indicates acquisitions outside the firm's 2-digit SIC industry.

[12] We exclude leveraged buyouts, exchange offers, repurchases, spinoffs, minority stake purchases, recapitalizations, self-tenders, and privatizations.

Finally, we measure "*CAPX (%)*" as capital expenditures scaled by book assets, "*Cash (%)*" as cash holding scaled by total book assets, and "*Leverage (%)*" as total book debt scaled by the sum of book debt and book equity.

Panel C of Table 1 reports summary statistics for these corporate policies. Firms in our sample make acquisitions in about 13% of the firm-year observations, with an average acquisition rate of 2.5%. Focused acquisitions are more frequent than diversifying ones (10% vs. 7%). Finally, the average cash ratio is 17.6%, and leverage is 34% on average in our sample.

In most of our analysis, we employ a number of firm characteristic as controls: size as measured by the logarithm of net sales ("*Log(Sales)*"); profitability as measured by EBITDA over the beginning of the period assets ("*ROA (%)*"); growth prospect as measured by the logarithm of market equity over book equity("*Log(MB)*"). In some cases, we also control for "*IVOL*", the average monthly firm idiosyncratic stock return volatility in a year. All firm level financial variables are winsorized at the top and bottom 1% of the sample distribution. Panel C of Table 1 reports summary statistics for these control variables as well.

3. CEOs' Risk and Time Preferences and Corporate Policies

3.1. Culturally Transmitted Risk Preferences

Table 2 presents our baseline test of the relationship between a CEO's culturally transmitted risk preferences and corporate risk taking behavior. All results are obtained from linear panel regressions:

$$y_{it} = a + bUAI_i + c'X_{it} + d'Z_{i,t-1} + \delta_t + \varepsilon_{ijt},$$

where y_{it} denotes firm *i*'s outcome in fiscal year *t*. UAI_i is the passenger-records-based uncertainty avoidance of the firm's CEO. X_{jt} represents the additional CEO characteristics gender, age, and education, while $Z_{i,t-1}$ denotes firm-level controls for size (*Log(Sales)*), growth opportunities (*Log(MB)*), and profitability (*ROA*) at the end of the previous fiscal year. All specifications

include year fixed effects (δ_t), and standard errors are clustered by firms, accounting for possibly non-zero residual correlation across observations for the same firm.

In Panel A of Table 2, we report the effect of the CEO's uncertainty avoidance related to his or her cultural heritage on acquisitions. Column (1) indicates that firms with a more uncertainty avoiding CEO are less likely to make an acquisition in a given year. Specifically, a one standard deviation increase in the CEO's uncertainty avoidance is related to a 2.8 percentage point (pp) drop in the likelihood that a firm will make an acquisition. Given an average acquisition probability of 13.3% in our sample, the effect corresponds to a 21% decrease relative to the mean. Another implication of this result is that the probability of making an acquisition is about 6 pp higher for a firm with a CEO of British origin (UAI of 0.31) relative to an otherwise similar firm with a CEO of Italian origin (UAI of 0.67). In Column (2), we account for possible matching between a CEO's preferences and unobserved time-invariant firm characteristics. While we observe a substantial increase in R-squared, from 3.8% in Column (1) to 30.1% in Column (2), the effect of the CEO's culturally transmitted risk preferences is essentially unchanged.

In Columns (3) and (4), we perform the same analysis for the acquisition rate, again without and with firm fixed effects. A higher UAI of the CEO is associated with lower acquisition rate of his or her company. A one standard deviation increase in UAI is associated with a decrease in the acquisition rate by 15 to 17% relative to the average rate. In Columns (5) and (6), we distinguish between focused and diversifying acquisitions. Focused acquisitions, i.e. horizontal mergers, are risky, while diversifying acquisitions could potentially reduce firm-specific risk, especially from the manager's perspective (Amihud and Lev (1981)). Consistent with this distinction, we find that the effect of a CEO's uncertainty avoidance on the probability of a focused acquisition is twice as large as its effect on the probability of diversifying ones.

In Panel B of Table 2, we examine the effect of uncertainty avoidance on CAPX, cash holdings, and financial leverage. Without controlling for firm fixed effects, we find a statistically significant and economically important relationship between CEOs' uncertainty avoidance and

these corporate policies. In particular, a one standard deviation increase in UAI is associated with a 6% drop in CAPX, a 3% increase in cash holdings, and a 2% drop in leverage. Once we introduce firm fixed effects, however, the effect of UAI on these policies becomes statistically insignificant. Hence, with respect to CAPX, cash holdings, and leverage, CEOs' culturally transmitted risk preferences seem to matter more with respect to the selection of CEOs, while in the case of acquisitions CEOs' culturally transmitted risk preferences are more likely to have a causal effect on these corporate decisions. We revisit the important question of CEO selection in Section 4 below.

3.2. Culturally Transmitted versus Induced Risk Preferences

The corporate governance literature has acknowledged the importance of managerial compensation in inducing risk taking behavior by CEOs. Firms with CEO compensation contracts that encourage risk-taking are shown to adopt riskier corporate policies (e.g., Coles, Daniel, and Naveen (2006)). Thus, to better understand the economic impact of the CEO's culturally transmitted risk preference on corporate policies, we compare it with the impact of compensation induced risk taking.

To measure risk taking incentives due to compensation contracts, we follow Coles, Daniel, and Naveen (2006) and use vega, which is the dollar change (in $000s) in CEO's wealth associated with a 1% change in the firm's stock return volatility.[13] This measure is only available for firms and CEOs covered by ExecuComp.

We first examine the relation between the CEO's culturally transmitted risk preferences and compensation induced risk taking, controlling for other CEO and firm characteristics that may influence the design of the compensation contract. If these two sources of CEO risk taking are substitutes, then we expect a positive relation between the

[13] The data is available on Lalitha Naveen's website: http://astro.temple.edu/~lnaveen.

two, i.e., CEOs with higher uncertainty avoidance are likely to have contracts with higher vega. If they are compliments, then we expect a negative relation. Column (1) of Table 3 shows that vega and UAI are positively related, but the relation is statistically insignificantly. Thus, there is no strong evidence for either complementarity or substitution between the two sources of risk taking. The results also suggest that the compensation vega tends to be higher for older CEOs, male CEOs, and in firms with more growth opportunities.

In Column (2), we use both UAI and vega to explain the probability of a firm engaging in acquisitions in a given year. A one standard deviation increase in UAI leads to a 3 pp decrease in the probability of acquisition, while a one standard deviation decrease in vega leads to only a 1 pp decrease. In Columns (3) and (4), we compare and contrast the effects of these two sources of CEO risk preference on the likelihood of focused and diversifying acquisitions, respectively. UAI and vega have a comparable impact on the probability of diversifying acquisitions. But vega does not affect the probability of focused acquisitions at all, while UAI has a strong impact.

Overall, the results suggest that the CEO's inherited risk preference has a larger effect on acquisition likelihood than does the compensation induced risk preference.

3.3. Culturally Transmitted Attitudes towards Thrift

Empirical evidence suggests that acquirers might overspend in corporate acquisitions, resulting in negative announcement and negative long run abnormal returns for the acquirer (see, e.g., Rau and Vermaelen (1998), Moeller, Schlingemann, and Stulz (2005), Malmendier, Moretti, and Peters (2012)). Since our measure of culturally transmitted risk preferences (*UAI*) exhibits a positive and significant correlation of 0.40 with culturally transmitted attitudes towards thrift

(*Thrift*), we examine next whether our conclusions from Table 2 are altered, when we explicitly control for CEOs' attitudes towards thrift.

Table 4 Panel A reveals that the effect of *UAI* on the probability of acquisition and acquisition rate is unaffected by the inclusion of *Thrift* in our empirical model. At the same time, we do not observe a significant association between CEOs' attitudes toward thrift and corporate acquisitions. Panel B shows that for CAPX and financial leverage, the results with respect to UAI remain largely unchanged relatively to those reported in Table 2 Panel B. But in the case of cash holdings, we find that *Thrift* eliminates the explanatory power of *UAI*. While, of course, corporate cash holdings are different from household savings that Carroll, Rhee, and Rhee (1994, 1999) study in the context of immigrants to the U.S. and Canada, our results here suggest that culturally transmitted attitudes towards thrift do have a significant effect on corporate saving behavior.

3.4. Robustness

3.4.1. Assessing Noise and Precision of *UAI*

Different from studies that use first or second generation immigrants to study the effect of culture on economic outcomes (see, e.g., Fernandez and Fogli (2006, 2009), we construct our proxies for culturally transmitted preferences using CEOs' last names and the distribution of passengers with the same last name arriving in New York between 1820 and 1957 to identify the countries of origins associated with a given name. Although our approach allows us to approximate the culturally inherited preferences for a large sample of U.S. CEOs, it is a noisy approximation. In this subsection, we identify several potential sources of noise in our UAI measure, and assess their impacts on the baseline results reported in Table 2.

As indicated in Panel B of Table 1, for each last name, there is a fraction of immigrants that reported unidentifiable nationalities ("*Fraction Unidentifiable*"), and this fraction varies from one last name to another. Our *UAI* measure could be noisier for last names with higher values of *Fraction Unidentifiable*, since we are unable to infer the origin for a lager fraction of passengers. Column (1) of Table 5, Panel A, shows that this is indeed the case. The positive and (weakly)

significant interaction effect between *UAI* and *Fraction Unidentifiable* suggests that the larger the fraction of unidentifiable origins associated with a given last name, the weaker the effect of CEO UAI on firm acquisition rate. For last names for which *Fraction Unidentifiable* is around the average value of 1.6%, the association between *UAI* and the acquisition rate is about 11% lower relative to last names with no unidentifiable origins. The effect of unidentifiable origins data therefore appears to have only a small effect on our empirical results.

On average, a given last name is associated with 25 different origins. Although Appendix B suggests that many of these origins receive very small weights in the calculation of UAI, the diversity of origins associated with a last name may reflect the degree of imprecision in our measure. We test the effect of origin diversity on our results in three ways. First, we use "*# of Origins*", which counts the number of countries associated with a given last name (excluding the USA). Second, we interact *UAI* with "*Dominant Origin*", an indicator variable that equals one if a CEO's last name is associated with a country of origin, other than the USA, that represents the origin of more than 50% of the passengers with the same last name. Finally, we construct "*Dispersion in UAI*" as the standard deviation across all *UAI* values associated with a given last name. Columns (2) and (3) of Table 5, Panel A, show that the effect of UAI is indeed weaker in cases where UAI is constructed based on a larger number of possible countries of origin, but whether a last name has a dominant origin does not have a significant impact. Column (4) suggests that dispersion in *UAI* indeed lowers its effect.

The last source of noise that we consider is related to the fact that some of the countries of origins listed in Appendix B are not covered by the Hofstede surveys and thus have missing UAI values. *UAI* could be noisier for last names with a larger fraction of origins with missing UAI values (*"Fraction of Origins Missing UAI*"). However, Column (5) of Table 5, Panel A, suggests that this is not a big concern, as the impact of UAI on firm acquisition does not seem to vary with *Fraction of Origins Missing UAI*.

In summary, we acknowledge that *UAI*, our proxy for culturally transmitted risk preferences, is imperfect in that it is measured with noise and does not always exactly identify a CEO's cultural origin. Our robustness check suggest though that on average noise and imprecision of UAI have only a limited effect on our results. Nevertheless, our baseline results in Tables 2 to 4 should be viewed as providing a lower bound for the effect of culturally transmitted preferences on corporate policies.

3.4.2. Persistence of Culturally Transmitted Preferences

Less than 8% of the CEOs in our sample are first-generation immigrants[14] and most CEOs' families have likely been in the U.S. for multiple generations. Thus, our empirical tests are joint tests of the importance of culturally transmitted preferences and the persistence of cultural differences in the U.S.

To assess the effect of persistence of culturally transmitted preferences, we first compare CEOs that were born outside the U.S. and immigrated to the U.S. later ("*First Generation*") and those that were born in the U.S. Column (1) of Table 4, Panel B, shows that the effect of *UAI* more than doubles for first-generation CEOs, from 2.223 to 4.947, consistent with assimilation reducing the effect of culturally transmitted preferences for higher generations of immigrants. However, culturally transmitted risk preferences of higher-generation CEOs still significantly affect corporate policies, suggesting substantial persistence of *UAI*.

Since 92% of the CEOs were born in the U.S., we construct a more continuous measure of presence in the U.S. to further assess the degree of persistence in culturally transmitted risk preferences. In particular, we use the fraction of passengers with a given last name who were already U.S. citizens between 1820 and 1957 ("*Fraction U.S. Citizens*") as a proxy for the time a last name has existed in the U.S.

[14] We identify CEOs' birthplace using data from Capital IQ, Marquis Who's Who, and the data in Bernile, Bhagwat, and Rau (2014).

Column (2) of Table 5, Panel B, shows a positive and (weakly) significant interaction effect between UAI and *Fraction U.S. Citizens*, suggesting that the longer a last name has been in the U.S., the weaker the effect of *UAI*. This evidence is consistent with gradual assimilation. Note that for last names with *Fraction U.S. Citizens* greater than 78%, the effect of CEOs' culturally transmitted risk preferences on the acquisition rate disappears. But the average value of *Fraction U.S. Citizens* is about 19% in our CEO sample, and 78% is close to 4 standard deviations from the mean. Thus, for the vast majority of CEOs, our proxy still captures relevant aspects of culturally transmitted risk preferences.

Overall, the results in Panel B of Table 5 suggest that there is assimilation in the culturally transmitted risk preference across generations of immigrants in the U.S., but the degree of persistence still appears substantial.

3.4.3. Dictionary-Based Preference Measures

Finally, in Panel C of Table 5 we redo our analysis in Table 4, employing our Dictionary-based proxies for risk and time preferences, *UAI (Dictionary)* and *Thrift (Dictionary)*. As before, we find that culturally transmitted risk preferences are significantly associated with corporate acquisitions and CAPX. Differently, from Table 4, we now find *UAI* remains significant in the presence of *Thrift* even in the case of corporate cash holdings. Our main findings regarding the importance of culturally transmitted preference are therefore unaffected by the choice of our particular cultural heritage proxy.

4. Why Do CEOs' Cultural Origins Matter?

There are at least two potential channels through which the association between CEOs' cultural traits and corporate policies can emerge. The first channel is a matching process between firms and CEOs. Firms select CEOs that fit well with the firms' existing characteristics, including its culture, which in turn determines the firms' investment and financial policies. The second channel is through active CEO influence on shaping corporate culture and corporate policies.

In Table 2, the relation between a CEO's cultural traits and corporate policies, especially CAPX, cash holdings, and leverage, weakens in specifications with firm fixed effects relative to those without. Therefore, the matching between CEO traits and some persistent firm-specific factor(s) is at play. But the fact that firm fixed effects do not reduce the effect of CEO's risk preference on acquisition decisions much, suggests that CEOs' preferences could matter beyond the matching channel.

In this section, we further evaluate the empirical relevance of these two non-mutually exclusive channels in explaining the documented relation between CEOs' culturally transmitted risk preference and corporate investment decisions.

4.1. Firm-CEO Matching on Cultural Dimensions

Given the significant relation between CEOs' risk preferences and corporate policies documented in Section 3, we examine whether such traits are considered when new CEOs are selected. In particular, do existing decision makers select CEOs with similar preferences as theirs?

In Panel A of Table 6, we present uni-variate evidence suggesting such a matching channel exists. We correlate the culturally transmitted risk preference of the incoming CEO to the corresponding preferences of three important groups of stakeholders in place: the board of directors, the non-CEO top executives, and the rank-and-file employees of the company.

We collect information on the surnames of the directors (from *RiskMetrics* and *CIQ director file*) and the top four most highly paid non-CEO executives (from *Execucomp* and *CIQ executives file*) who served in the year before the CEO turnovers. We then identify the cultural origins for them using the same algorithm as for CEOs, and take the average *UAI* of the directors and the executives as the *UAI* for the board and the management team, respectively. Since *RiskMetrics* and *CIQ* director/executives files start only in 1996, we limit the sample period to 1996-2012 in this section.

Given the lack of information on a complete list of rank-and-file employees, we use the census data to construct a measure of local cultural-origin composition in the firm's headquarter

state, and use the state cultural preferences to proxy for the cultural preferences of the rank-and-file employees in local firms. The implicit assumption is that most of the rank-and-file employees in a firm are recruited locally. To compute the state preferences on risk and time, we compute the weighted average values of *UAI* and *Thrift* in the state based on the 1990 US Census, which provides detailed cultural origin information of residents in each state. The weight is the fraction of residents in the state that belongs to an origin.

The correlation table shows that in the turnover year, the new CEO's uncertainty avoidance is highly and significantly correlated with the average uncertainty avoidance of the directors (0.44) and management team (0.37) that served in the year before the CEO turnover. The CEO's uncertainty avoidance is also positively and significantly correlated with the rank-and-file employee's uncertainty avoidance, although the magnitude of the correlation is much lower than those with decision-makers in the corporate upper echelon.[15]

In Panel B in Table 6, we examine the matching between CEO preferences and important corporate stakeholders' preferences in a multi-variate regression framework, controlling for the new CEO's demographics such as age, gender, and education, as well as the firm characteristics that may matter for the desirable CEO risk preference, such as firm size, profitability, growth potential, and firm risk measured as average monthly firm idiosyncratic stock return volatility in the year before turnover. The regression framework also allows us to compare the effect across the different stakeholders.

Column (1) of Panel B shows that the board's uncertainty avoidance (*UAI*) is the strongest determinant of the new CEO's *UAI* while other CEO characteristics and firm characteristics largely do not matter. A one-standard-deviation increase in the directors' uncertainty avoidance is associated with a 23% (=0.663*0.165/0.469) increase in the new CEO's uncertainty avoidance from the sample mean. In Column (2), we further control for firm fixed effects, which could capture the time-invariate dimension of corporate culture related to the

[15] This could partly be due to the imprecise measurement of rank-and-file employees' preferences.

firm's fundamental business vision and value. The significant increase in R-squared from Column (1) to Column (2) suggests strong matching in terms of uncertainty avoidance between the firms' innate culture and their CEOs. Interestingly, the directors' *UAI* remains a significant determinant of the new CEO's *UAI,* and even the magnitude of the effect does not change much after controlling for firm fixed effects, suggesting that the board of directors play an active role in selecting the new CEO who shares their preferences.

One potential explanation for the above results is that directors simply choose CEOs with the same ethnicity. This explanation does not invalidate the importance of cultural traits. However, the correlation could also arise from similarities in other attributes within an ethnicity group beyond the culturally transmitted risk preference we study in this paper. In Column (3), we construct an indicator variable *EthnicityMatch* that equals one if a CEO's origin is the same as the most common origin among the directors on board, and interact it with the board's *UAI* to predict the new CEO's *UAI*. The positive and significant direct effect of the board's *UAI* in predicting CEO's *UAI* confirms selection of CEO based on risk preferences, even if the new CEO comes from a different ethnicity. Not surprisingly, the matching in risk preferences becomes even stronger when the new CEO's ethnicity is the same as the most common origin for the directors, as evident in the positive and significant interaction effect of the board's *UAI* and *EthnicityMatch.*

Another concern is that the cultural matching between directors and the new CEO is mechanically driven by the promotion of a top executive who was already on the board to the chief officer position. More generally, the strong correlation between contemporaneous *UAI* for the board and the executive team presented in Panel A suggests that internal candidates are likely to share similar risk preferences as the directors. To address this concern, we examine whether the board tends to also select outsider CEOs with similar risk preferences. We collect information from *ExecuComp* and *Boardex* on the succession origin of the new CEOs in S&P1500 companies. About 66% of those new CEOs had been with the firm for at least three years when they became CEOs, whom we classify as "Insider CEOs." In Column (4), we examine the effect of CEO

succession origin on the cultural matching with the directors by interacting the board's *UAI* with the insider CEO indicator to predict the new CEO's *UAI*. The positive and significant direct effect of the board's *UAI* on the new CEO's *UAI* suggests that the matching of preferences applies to outsider CEOs as well, and the magnitude of the effect is economically meaningful. Of course, internally promoted CEOs exhibit an even stronger matching with the directors in terms of their risk preferences, as suggested by the positive and significant coefficient on the interaction term.

Next, we examine the relationship between the new CEO's *UAI* and the *UAI* of the top executives in place. Although the top executives are not directly in charge of the CEO selection, unless they sit on the board, their preferences are still likely to be important as they reflect the culture in the executive suits. Columns (1) to (4) of Panel C use similar specifications as those in Panel B, just replacing the board's *UAI* with the executive team's *UAI*. We find a similar matching pattern: there is a positive and significant correlation between the management team's *UAI* and the new CEO's *UAI*, which is robust to including the firm fixed effects. The executive-CEO matching in terms of *UAI* does not only come from the ethnicity matching or internal promotion of a top executive to the CEO position. Finally, in Column (5) we include the board's *UAI*, the executive team's *UAI*, and the rank-and-file employees' *UAI* all in one regression. We find that the board's *UAI* has the largest impact on the new CEO's *UAI*, followed by the executive team's *UAI*. The rank-and-file employees' *UAI* have the lowest association with new CEO's *UAI*.

Taken together, Table 6 presents strong evidence for the existence of matching between the CEOs and the board rooms and executive suits on culturally transmitted risk preferences. The firm-CEO matching goes beyond the selection on CEO ability and skills (Gabaix and Landier (2008), Pan (2014)).

4.2. Within-Firm Divergence of Risk Preferences

Despite the strong tendency of boards and top management teams to select new CEOs who on average share their culturally transmitted risk preferences, the match is, of course, not

perfect and the degree of divergence in risk preferences varies across firms. The divergence could also arise because CEO turnovers are often accompanied by a higher than usual rate of director and top executive turnovers (Fee and Hadlock 2004; Hayes, Oyer, and Schaefer 2006).[16]

In this subsection, we examine the impact of the divergence in risk preferences between the CEO and the board, the top executives, and the rank-and file employees. What happens to corporate policies if the CEO's risk preferences differ from those of the directors, the top management, and the rank-and-file employees? Do the differences in risk preference amplify or moderate the influence of the CEO's preferences on corporate policies?

To measure the degree of divergence in culturally transmitted risk preferences between the CEO and other important stakeholders in a firm, for each firm and year, we compute the absolute deviations of the CEO's *UAI* from the average *UAI* of the directors, the average *UAI* of the top management, and the *UAI* of the rank-and-file employees. Panel C of Table 1 shows that the absolute differences in *UAI* between the CEO and the board and between the CEO and the top management are similar, and both are smaller than the differences between the CEO and the rank-and-file employees. This is not surprising because Table 6 shows that the preference matching between the CEO and the rank-and-file employees when the CEO is selected is much weaker than the matching between directors and top executives.

We then use the CEO's *UAI*, its absolute difference from the *UAI* of each of the other three parties, and their interactions to predict corporate investment policies, controlling for the usual set of CEO characteristics, firm characteristics and year fixed effects.

Columns (1)-(3) of Table 7 examine the difference in preference between the CEO and the board. Two interesting results emerge. First, the direct effect of *Difference in UAI* suggests that firms with larger divergence in the risk preference between the CEO and the board tend to have lower investment rates in terms of both asset acquisitions and capital expenditures. A one-

[16] In our sample, the unconditional auto-correlation of the board's risk preference is 0.83, but it is only 0.54 in the years of CEO turnover. The correlation between the new CEO's risk preference and the pre-turnover board's risk preference is 0.44, but is only 0.11 with the board right after turnover.

standard-deviation increase in divergence is associated with a 1.6 percentage-point lower total investment rate (acquisition and capital expenditures). One interpretation of this result is that larger divergence in risk preference between the CEO and the board leads to more disagreement in investment policies, thus less action in the firm. Second, the interaction effects of the CEO's *UAI* and *Difference in UAI* suggest that the effects of the CEO's risk preference on corporate investment are moderated by the divergence in risk preference with the board.

Columns (4)-(6) examine the difference in UAI between the CEO and the top management team, and columns (7)-(9) examine the difference in UAI between the CEO and the rank-and-file employees. In all these specifications, we find patterns similar to those in columns (1)-(3), although the difference in *UAI* between the CEO and the employees matters less compared to the difference in *UAI* among key decision makers.

In summary, the results in Table 7 suggest that the firm-CEO matching on risk preferences has a real impact. The degree of matching affects corporate investment policies in economically important ways, which highlights the importance of corporate culture in determining corporate policies. Larger divergence between the CEO's risk preference and the corporate culture (as reflected by the preferences of other key stakeholders) is associated with less investment, and the CEO's preference also affect corporate policies less in this kind of situation.

4.3. CEOs' Influence on Corporate Culture

Once a CEO takes over the helm, he is likely to exert considerable influence on the selection of new directors and the promotion of new executives (Hermalin and Weisbach (1998)). Do CEOs also tend to choose directors and executives who share their risk preferences? If this is true, then it could be an important channel through which CEOs influence the evolution of corporate culture in their firms, which in turn affects firm policies.

Since the degree of co-option between the CEO and the board or the top management team tends to increase over the CEO's time in office (Pan, Wang, and Weisbach 2014), we examine whether over time the board's preference and the top management's preference become

more aligned with the CEO's preference. In Panel A of Table 8, we use the lagged CEO's preference, the CEO's time in office count, and their interaction to predict the board's or executive team's preferences. "*CEO Tenure*" counts the number of years a CEO has been in office, and equals 1 for the turnover year. We use the logarithmic transformation of *CEO Tenure*, as this variable tends to be skewed.

Column (1) of Panel A shows that a CEO's risk preference positively predicts the board's risk preference, and more importantly, such correlation significantly increases as the CEO's tenure lengthens. This result suggests that the new directors who joined the board during the CEO's tenure are more likely to have similar risk preferences as the CEO than the departing ones. The estimated coefficient on the interaction term suggests that the speed of this preference convergence is slow. This is largely due to the persistence of the board composition from year to year. Pan, Wang, and Weisbach (2014) estimate that approximately one director out of a 9-director board (the average board size in our sample) gets turned over every other year during the CEO's tenure. Column (2) shows that the top management team's risk preference also becomes more aligned with that of the CEO over time.

Table 7 shows that the larger the divergence between the CEO's *UAI* and the *UAI* of other key stakeholders in the firm, the less influence of the CEO's preference on investment policies. Panel A of Table 8 shows that the divergence decreases over the CEO's tenure. The two sets of results together imply that the CEO's preference should affect investment more as the CEO's tenure lengthens. We examine this prediction in Panel B of Table 8. The empirical specification here follows our baseline regressions in Table 2, with the addition of *log(CEO Tenure)* and its interaction with the CEO's *UAI* as explanatory variables for the probability of acquisitions (Column 1), the acquisition rate (Column 2), and capital expenditures (Column 3) . The results suggest that as the CEO's tenure lengthens, the CEO's uncertainty avoidance indeed has a larger impact on the likelihood of acquisitions and the capital expenditures rate over time. Interestingly, the positive direct effects of *log(CEO Tenure)* suggest that investment intensity in general goes

up over a CEO's tenure, which is consistent with the CEO investment cycles documented in Pan, Wang, and Weisbach (2014). But the increase is much slower for CEOs with high uncertainty avoidance.

In summary, the results in this section shed light on why the CEO's culturally transmitted preferences matter for corporate policies as well as on the formation, evolution, and persistence of corporate culture. Our results suggest that selection based on culturally transmitted risk preferences plays an important role in this process. Firms tend to select CEOs whose risk preferences match the firms' culture (as reflected by the risk preferences of key stakeholders). CEOs also influence corporate culture over time through the appointments of directors and executives who share their preferences. The selection on cultural preferences gives rise to the persistence in corporate culture, despite the regular turnovers of CEOs and other key personnel in the firm.

5. Concluding Remarks

Risk and time preferences play an important role in our understanding of how individuals make savings and investment decisions. Recent research has examined the origins and thereby the stability and evolution of these preferences. While compelling evidence exists with respect to the biological basis as well as the influences of life events, researchers have struggled providing robust evidence on cultural origins of risk and time preferences. In this paper, we attempt to fill this gap. In particular, we examine culturally transmitted risk and time preferences of CEOs of large, public U.S. firms and demonstrate the relevance of the cultural transmission channel by observing how preferences and attitudes associated with the CEO's national cultural heritage affect corporate investments, cash holdings, and leverage. We identify cultural heritage using immigration records of passengers arriving in New York during 1820-1957 with the same last name as the CEO's.

Beyond providing direct evidence that culturally transmitted risk and time preferences matter for corporate policies, our findings document the persistence of cultural differences in the U.S. While we find stronger effects for the small group of first generation immigrant CEOs, effects persist for the majority of CEOs whose families have been in the U.S. likely for multiple generations, suggesting that assimilation at least with respect to risk preferences may take several generations. Which environmental conditions or family characteristics accelerate or inhibit cultural transmission of preferences would be an interesting question for future research.

Our study also provides initial insights into the selection of CEOs, board members, and other executives along culturally transmitted characteristics. Importantly, our findings suggest that this selection occurs specifically along the preference dimension as opposed to simply cultural familiarity. To which extent inherited cultural differences with respect to risk taking or possibly other dimensions lead to inefficiencies in corporate decisions, and how they interact with other governance mechanisms, are still open questions.

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Table 1: Summary Statistics

Panel A: Distribution of Cultural Origins

This table reports the 10 most common countries of origin in the CEO sample as well as the average fraction of passengers of a given last name that report U.S. as their nationality and the average fraction of non-missing but uninformative origins ("Unidentifiable").

Origin	Probability
England	16.54%
Germany	13.71%
Italy	9.57%
Ireland	6.09%
Jewish	4.45%
France	2.70%
Scotland	2.26%
Poland	2.06%
Russia	1.91%
Netherlands	1.83%
USA	17.77%
Unidentifiable	1.68%

Panel B: CEO Cultural Preferences and Other Characteristics

This table reports summary statistics for variables related to CEOs' culturally transmitted risk and time preferences, as well as other CEO characteristics.

Variables by CEO	Obs.	Mean	Std. Dev.
UAI (Passenger Records)	18,517	0.469	0.161
UAI (Dictionary)	17,538	0.460	0.181
Thrift (Passenger Records)	18,517	0.321	0.054
Thrift (Dictionary)	17,541	0.318	0.079
Female (Indicator)	17,932	0.023	0.149
CEO Education	9,994	1.722	0.620
Missing Edu. (Indicator)	18,517	0.487	0.500
First Generation (Indicator)	10,868	0.079	0.270
Fraction US Citizens	18,517	0.187	0.161
Fraction Unidentifiable	18,517	0.016	0.028
# of Origins	18,517	25	19
Dominant Origin (Indicator)	18,517	0.476	0.499
Dispersion in UAI (Passenger Records)	18,517	0.176	0.083
Fraction of Origin Missing UAI	18,517	0.025	0.064
# of Employers per CEO	18,517	1.076	0.313

Variables by CEO-Firm	Obs.	Mean	Std. Dev.
CEO Age (at turnover)	13,957	50	8
Insider CEO (ExecuComp Only) (Indicator)	5,380	0.664	0.472
CEO Tenure (total length)	93,114	6.597	6.589
Ethinicity Match (with Board) at turnover (Ind.)	9,491	0.188	0.391
Ethinicity Match (with Exec.) at turnover (Ind.)	9,491	0.223	0.417

Panel C: Firm Level Variables

This table reports summary statistics for firm-year level financial variables, as well as variables related to the culturally transmitted risk and time preferences of the board, executives, and employees.

	Obs.	Mean	Std. Dev.
Variables by Firm-Year			
Acquisition	97,421	0.133	0.340
Acquistion Rate (%)	97,421	2.496	10.958
Focused Acquisition	85,700	0.104	0.306
Diversifying Acquisition	85,700	0.074	0.262
CAPX (%)	91,951	6.371	9.949
Cash (%)	109,737	17.641	22.147
Leverage (%)	99,992	34.034	27.907
Log(MB)	93,019	0.704	0.912
ROA (%)	94,569	3.280	29.400
Log(Sales)	106,275	4.984	2.607
IVOL	80,530	0.030	0.022
Vega	33,129	0.106	0.299
UAI (Board)	63,898	0.459	0.108
UAI (Exec.)	81,586	0.451	0.105
Difference in UAI (CEO vs. Board)	61,182	0.145	0.113
Difference in UAI (CEO vs. Executives)	78,178	0.145	0.113
Difference in UAI (CEO vs. Employees)	91,820	0.171	0.111
Variable by Firm			
# of CEO Turnovers per Firm	13,814	1.812	1.137
UAI (Employee)	13,801	0.544	0.039
Thrift (Employee)	13,801	0.332	0.011

Table 2: CEO's Culturally Inherited Risk Preference and Corporate Policies

Panel A: Acquisitions

This table reports the effect of CEOs' *UAI* on corporate acquisitions. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Probability of Acquisition		Acquisition Rate		Prob. of Focused Acquisition	Prob. of Diversifying Acquisition
UAI	-0.170***	-0.159***	-2.703***	-2.324***	-0.120***	-0.059***
	(0.015)	(0.030)	(0.378)	(0.705)	(0.023)	(0.019)
CEO Age	-0.001***	-0.001	-0.060***	-0.024*	-0.000	-0.000
	(0.000)	(0.001)	(0.009)	(0.014)	(0.000)	(0.000)
CEO Education	0.003	0.017**	-0.176	0.063	0.008	0.014**
	(0.005)	(0.009)	(0.130)	(0.224)	(0.008)	(0.006)
Missing Edu.	-0.010	0.040**	-0.369	0.157	0.016	0.028**
	(0.011)	(0.019)	(0.282)	(0.494)	(0.017)	(0.013)
Female	-0.036***	-0.018	-0.632**	-0.369	-0.016	0.005
	(0.013)	(0.021)	(0.311)	(0.605)	(0.018)	(0.015)
Log(MB)	0.024***	0.032***	1.046***	1.478***	0.019***	0.017***
	(0.002)	(0.003)	(0.076)	(0.126)	(0.003)	(0.002)
ROA	0.000	0.000***	0.016***	0.013***	0.000***	0.000
	(0.000)	(0.000)	(0.002)	(0.004)	(0.000)	(0.000)
Log(Sales)	0.023***	-0.004	-0.268***	-1.581***	-0.004	-0.002
	(0.001)	(0.004)	(0.026)	(0.155)	(0.003)	(0.003)
Firm FE		x		x	x	x
Year FE	x	x	x	x	x	x
Obs.	52,859	52,859	52,859	52,859	48,137	48,137
R-sqr.	0.037	0.301	0.021	0.249	0.333	0.292

Panel B: Other Policies

This table reports the effect of CEOs' *UAI* on capital expenditures, cash holdings, and financial leverage. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	CAPX		Cash Holdings		Leverage	
UAI	-2.510***	-0.368	2.991**	0.076	-3.924**	0.384
	(0.510)	(0.264)	(1.271)	(1.014)	(1.758)	(1.734)
CEO Age	-0.024*	-0.005	-0.166***	0.011	0.089**	-0.023
	(0.013)	(0.006)	(0.026)	(0.021)	(0.037)	(0.033)
CEO Education	-0.437**	-0.090	4.690***	0.344	-2.703***	0.066
	(0.174)	(0.098)	(0.468)	(0.363)	(0.539)	(0.523)
Missing Edu.	-0.255	0.026	6.109***	0.661	-5.176***	-1.211
	(0.417)	(0.209)	(0.946)	(0.763)	(1.219)	(1.140)
Female	0.002	0.239	1.126	0.327	-1.087	2.220
	(0.505)	(0.237)	(1.267)	(0.750)	(1.853)	(1.438)
Log(MB)	1.504***	1.937***	5.360***	0.850***	-3.071***	0.897***
	(0.073)	(0.061)	(0.211)	(0.158)	(0.328)	(0.252)
ROA	0.025***	0.012***	-0.035***	-0.002	-0.064***	-0.031***
	(0.002)	(0.002)	(0.005)	(0.004)	(0.006)	(0.005)
Log(Sales)	-0.181***	-0.884***	-2.880***	-2.665***	3.391***	1.593***
	(0.040)	(0.069)	(0.102)	(0.215)	(0.136)	(0.268)
Firm FE		x		x		x
Year FE	x	x	x	x	x	x
Observations	50,419	50,419	52,850	52,850	51,612	51,612
R-squared	0.083	0.652	0.256	0.817	0.108	0.770

Table 3: Culturally Transmitted Risk Preferences and Induced Risk Taking

This table reports the effect of CEOs' *UAI* and compensation vega on the probability of corporate acquisitions. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) Vega	(2) Probability of Acquisition	(3) Prob. of Focused Acq.	(4) Prob. of Diversifying Acq.
UAI	0.021	-0.176***	-0.139***	-0.059**
	(0.035)	(0.039)	(0.030)	(0.026)
Vega		0.034*	0.013	0.039***
		(0.019)	(0.019)	(0.013)
CEO Age	0.002***	-0.001	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
CEO Education	0.011	0.028**	0.014	0.016*
	(0.012)	(0.013)	(0.011)	(0.010)
Missing Edu.	-0.039	0.057**	0.023	0.032*
	(0.024)	(0.025)	(0.022)	(0.019)
Female	0.004	-0.040	-0.038	0.000
	(0.029)	(0.032)	(0.025)	(0.024)
Log(MB)	0.017***	0.032***	0.017***	0.021***
	(0.005)	(0.006)	(0.005)	(0.004)
ROA	-0.001***	0.001***	0.001***	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
Log(Sales)	0.088***	-0.023***	-0.015**	-0.012*
	(0.008)	(0.008)	(0.007)	(0.006)
Firm FE	x	x	x	x
Year FE	x	x	x	x
Observations	25,279	25,279	23,865	23,865
R-squared	0.525	0.298	0.317	0.285

Table 4: CEOs' Time Preference and Corporate Policies

Panel A: Acquisitions

This table reports the effect of CEOs' *UAI* and *Thrift* on corporate acquisitions. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	Probability of Acquisition		Acquisition Rate		Prob. of Focused Acq.	Prob. of Diversifying Acq.
UAI	-0.173***	-0.165***	-2.663***	-2.327***	-0.132***	-0.061***
	(0.016)	(0.034)	(0.407)	(0.797)	(0.027)	(0.021)
Thrift	0.025	0.040	-0.309	0.019	0.073	0.010
	(0.047)	(0.096)	(1.164)	(2.438)	(0.080)	(0.063)
CEO Age	-0.001***	-0.001	-0.060***	-0.024*	-0.000	-0.000
	(0.000)	(0.001)	(0.009)	(0.014)	(0.000)	(0.000)
CEO Education	0.003	0.017**	-0.174	0.063	0.008	0.014**
	(0.005)	(0.009)	(0.131)	(0.225)	(0.008)	(0.006)
Missing Edu.	-0.011	0.040**	-0.366	0.157	0.016	0.028**
	(0.011)	(0.019)	(0.283)	(0.494)	(0.017)	(0.013)
Female	-0.036***	-0.018	-0.630**	-0.369	-0.015	0.005
	(0.013)	(0.021)	(0.311)	(0.605)	(0.018)	(0.015)
Log(MB)	0.024***	0.032***	1.046***	1.478***	0.019***	0.017***
	(0.002)	(0.003)	(0.076)	(0.126)	(0.003)	(0.002)
ROA	0.000	0.000***	0.016***	0.013***	0.000***	0.000
	(0.000)	(0.000)	(0.002)	(0.004)	(0.000)	(0.000)
Log(Sales)	0.023***	-0.004	-0.268***	-1.581***	-0.004	-0.002
	(0.001)	(0.004)	(0.026)	(0.155)	(0.003)	(0.003)
Firm FE		x		x	x	x
Year FE	x	x	x	x	x	x
Observations	52,859	52,859	52,859	52,859	48,137	48,137
R-squared	0.038	0.301	0.021	0.249	0.333	0.292

Panel B: Other Policies

This table reports the effect of CEO's *UAI* and *Thrift* on the capital expenditures, cash holdings, and financial leverage. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	CAPX		Cash Holdings		Leverage	
UAI	-2.354***	0.076	1.451	-1.110	-3.257*	-1.332
	(0.537)	(0.477)	(1.506)	(0.749)	(1.949)	(1.960)
Thrift	-1.205	-2.668	11.873**	7.049***	-5.132	10.152*
	(1.450)	(1.645)	(4.760)	(2.187)	(5.786)	(5.359)
CEO Age	-0.024*	-0.005	-0.166***	0.010	0.089**	-0.024
	(0.013)	(0.010)	(0.026)	(0.012)	(0.037)	(0.033)
CEO Education	-0.431**	-0.087	4.626***	0.340	-2.675***	0.063
	(0.175)	(0.158)	(0.467)	(0.221)	(0.539)	(0.524)
Missing Edu.	-0.247	0.036	6.021***	0.645	-5.138***	-1.229
	(0.418)	(0.329)	(0.945)	(0.447)	(1.218)	(1.139)
Female	0.007	0.237	1.069	0.327	-1.063	2.227
	(0.505)	(0.458)	(1.273)	(0.498)	(1.855)	(1.440)
Log(MB)	1.505***	1.938***	5.353***	0.849***	-3.068***	0.895***
	(0.073)	(0.090)	(0.211)	(0.108)	(0.329)	(0.252)
ROA	0.025***	0.012***	-0.035***	-0.002	-0.064***	-0.031***
	(0.002)	(0.002)	(0.005)	(0.004)	(0.006)	(0.005)
Log(Sales)	-0.181***	-0.885***	-2.878***	-2.662***	3.390***	1.597***
	(0.040)	(0.112)	(0.102)	(0.122)	(0.136)	(0.268)
Firm FE		x		x		x
Year FE	X	x	x	x	x	x
Observations	50,419	50,419	52,850	52,850	51,612	51,612
R-squared	0.083	0.652	0.257	0.817	0.108	0.770

Table 5: Robustness

Panel A: Assessing Noise and Precision of *UAI*

This table reports the impact of noise and precision on the effect of CEO's *UAI* on corporate acquisition rate. In Column (1), we use *Fraction Unidentifiable*, which is fraction of immigrants with a given last name that has unidentifiable origin. In Column (2), we use *# of Origins*, which is the number of identified, non-USA origins. In Column (3), we use an indicator variable *Dominant Origin*, which equals 1 if a CEO's last name is associated with a dominant origin (outside US). In Column (4), we use *Dispersion in UAI*, which is the standard deviation of UAI values associated with different origins of a given last name. In Column (5), we use *Fraction of Origins Missing UAI*, which is the percentage of records without missing UAI values for a given last name. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
	Acquisition Rate				
UAI	-3.016***	-4.100***	-2.258***	-2.348***	-3.071***
	(0.413)	(0.498)	(0.621)	(0.678)	(0.537)
UAI * (Frac. Unidentifiable)	20.091*				
	(12.019)				
Fraction Unidentifiable	-9.851				
	(5.992)				
UAI * (# of Origins)		0.124***			
		(0.024)			
# of Origins		-0.029***			
		(0.011)			
UAI * (Dominant Origin)			-0.697		
			(0.772)		
Dominant Origin			0.037		
			(0.400)		
UAI * (Dispersion in UAI)				7.254*	
				(4.115)	
Dispersion in UAI				1.539	
				(2.196)	
UAI * (Fraction of Origins Missing UAI)					2.535
					(2.023)
Fraction of Origins Missing UAI					-0.812
					(1.080)
Controls	x	x	x	x	X
Year FE	x	x	x	x	X
Observations	52,859	52,859	52,859	52,859	52,859
R-squared	0.031	0.034	0.032	0.032	0.031

Panel B: Persistence of Culturally Transmitted Risk Preference

This table examines the persistence of cultural heritage. In Column (1), we interact CEO's *UAI* with *First Generation*, which is an indicator variable for CEOs who are born outside the U.S. In Column (2), we interact CEO's *UAI* with *Fraction US Citizens*, which is the fraction of passengers with a given last name who were U.S. citizens. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)
	Acquisition Rate	
UAI	-2.223***	-3.162***
	(0.440)	(0.513)
UAI * First Generation	-2.724**	
	(1.370)	
First Generation	1.220	
	(0.767)	
UAI * Fraction US Citizens		4.041*
		(2.388)
Fraction US Citizens		-1.400
		(1.262)
Controls	x	x
Year FE	x	x
Observations	41,834	52,859
R-squared	0.03	0.031

Panel C: Cultural Origins Based on the Dictionary Approach

This table reports the effect of CEO's UAI and *Thrift*, derived by the Dictionary approach on the probability and rate of corporate acquisitions, capital expenditures, and cash holdings. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) Prob(Acquisition)	(2) Acquisition Rate	(3) CAPX	(4) Cash Holdings
UAI	-0.099***	-1.471***	-2.896***	3.516***
	(0.015)	(0.371)	(0.456)	(1.207)
Thrift	-0.069**	-1.341*	-0.267	5.591*
	(0.031)	(0.812)	(0.939)	(3.026)
CEO Age	-0.001***	-0.062***	-0.023*	-0.165***
	(0.000)	(0.009)	(0.013)	(0.026)
CEO Education	0.003	-0.170	-0.430**	4.485***
	(0.005)	(0.137)	(0.181)	(0.472)
Missing Edu.	-0.012	-0.399	-0.264	5.730***
	(0.011)	(0.294)	(0.431)	(0.960)
Female	-0.040***	-0.746**	0.001	0.600
	(0.013)	(0.317)	(0.503)	(1.282)
Log(MB)	0.024***	1.078***	1.540***	5.264***
	(0.003)	(0.078)	(0.075)	(0.214)
ROA	0.000	0.016***	0.026***	-0.033***
	(0.000)	(0.002)	(0.002)	(0.005)
Log(Sales)	0.024***	-0.278***	-0.203***	-2.855***
	(0.001)	(0.027)	(0.040)	(0.103)
Year FE	x	x	x	X
Observations	51,313	51,313	48,927	51,305
R-squared	0.036	0.021	0.086	0.251

Table 6: Selection of CEO Based on Risk Preferences

Panel A: Correlations of Risk Preferences at CEO Turnover

This table reports the correlations of *UAI* between the new CEO and the pre-turnover board, top management team, and employees. All the correlations in this table are significant at 1% level. Definitions of all variables are in Appendix C.

	UAI_CEO	UAI_Board (lagged)	UAI_Exec (lagged)	UAI_Employee (lagged)
UAI_CEO	1.000			
UAI_Board (lagged)	0.444	1.000		
UAI_Exec (lagged)	0.371	0.471	1.000	
UAI_Employee (lagged)	0.134	0.165	0.161	1.000

Panel B: The Board's Selection of CEO based on Risk Preferences

This table reports the results of regressing incoming CEO's *UAI* on the *UAI* of the pre-turnover board at each CEO turnover. "EthnicityMatch" is an indicator variable that equals to 1 if a CEO's dominant origin is the same as the most common origin among the board of directors. "*Insider CEO*" is an indicator variable that equals 1 if a CEO is promoted to the position from within the firm. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	UAI_CEO			
UAI_Board	0.663***	0.640***	0.486***	0.507***
	(0.028)	(0.181)	(0.035)	(0.109)
UAI_Board * EthnicityMatch			0.372***	
			(0.053)	
EthnicityMatch			-0.258***	
			(0.023)	
UAI_Board * Insider CEO				0.268**
				(0.131)
Insider CEO				-0.131**
				(0.057)
CEO Age	0.000	0.001	0.000	0.000
	(0.000)	(0.002)	(0.000)	(0.001)
CEO Education	0.011**	0.021	0.008	0.014
	(0.005)	(0.031)	(0.005)	(0.010)
Missing Edu.	0.030**	0.071	0.027**	0.038*
	(0.012)	(0.069)	(0.011)	(0.019)
Female	-0.032**	-0.021	-0.033**	0.005
	(0.014)	(0.060)	(0.014)	(0.025)
Log(MB)	-0.002	-0.014	-0.002	0.006
	(0.003)	(0.025)	(0.003)	(0.006)
ROA	-0.009	0.017	0.004	-0.027
	(0.017)	(0.136)	(0.016)	(0.036)
Log(Sales)	0.000	-0.003	0.000	0.001
	(0.002)	(0.031)	(0.001)	(0.003)
IVOL	0.022	-0.582	0.006	0.442
	(0.182)	(1.154)	(0.170)	(0.365)
Firm FE		x		
Year FE	x	x	x	x
Observations	2,608	2,608	2,608	1,071
R-squared	0.188	0.829	0.271	0.144

Panel C: Matching in Risk Preferences between New CEO and Employees

This table reports the results of regressing incoming CEO's *UAI* on the lagged *UAI* of the top executive team at CEO turnover years. *UAI_board* is *UAI* of the old board. *UAI_Employee* is the UAI of rank-and-file employees. "*EthnicityMatch*" is an indicator variable that equals 1 if a CEO's origin is the same as the most common origin among the top four non-CEO executives. "*Insider CEO*" is an indicator variable equals 1 if a CEO is promoted to the position from within the firm. The same set of CEO and firm level control variables are included in all regressions, but omitted for brevity. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
			UAI_CEO		
UAI_Exec.	0.600***	0.665***	0.376***	0.334***	0.393***
	(0.030)	(0.183)	(0.040)	(0.097)	(0.034)
UAI_Exec. * EthnicityMatch			0.467***		
			(0.057)		
EthnicityMatch			-0.294***		
			(0.024)		
UAI_Exec * Insider CEO				0.490***	
				(0.112)	
Insider CEO				-0.232***	
				(0.049)	
UAI_Board					0.515***
					(0.030)
UAI_Employee					0.183***
					(0.067)
Controls	x	x	x	x	x
Firm FE		x			
Year FE	x	x	x	x	x
Observations	2,914	2,914	2,914	1,169	2,601
R-squared	0.137	0.820	0.221	0.177	0.238

Table 7: Within-Firm Divergence in Risk Preferences

This table reports the impact of the divergence in CEO's *UAI* and the *UAI* of the board (Columns (1) to (3)), top executive team (Columns (4) to (6)), and the rank-and-file employees (Columns (7) to (9)) on corporate investment policies as well as the effect of CEO's *UAI* on those policies. "*Difference in UAI*" is the absolute difference between the *UAI* of the CEO and the average *UAI* of the board, or the top executive team, or the rank-and-file employees. The usual set of CEO and firm level control variables are included in all the regressions, but omitted for brevity. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	CEO vs. Board			CEO vs. Exec. Team			CEO vs. Rank-and-file Employees		
	Prob(Acq)	Acq. Rate	CAPX	Prob(Acq)	Acq. Rate	CAPX	Prob(Acq)	Acq. Rate	CAPX
Difference in UAI	-0.037	-4.722***	-9.475***	-0.073	-3.763**	-8.189***	-0.344**	-10.211***	-19.868***
	(0.065)	(1.744)	(2.230)	(0.059)	(1.588)	(2.097)	(0.155)	(3.569)	(5.771)
UAI*Diff. in UAI	0.165*	7.408***	14.729***	0.188*	6.706***	13.027***	0.137	5.107**	11.376***
	(0.100)	(2.527)	(3.626)	(0.097)	(2.459)	(3.541)	(0.105)	(2.463)	(3.586)
UAI	-0.131***	-1.150*	-4.473***	-0.122***	-1.197*	-4.185***	-0.091**	-0.214	-6.346***
	(0.029)	(0.641)	(0.917)	(0.028)	(0.667)	(0.908)	(0.038)	(0.907)	(1.295)
Controls	x	x	x	x	x	x	x	x	x
Year FE	x	x	x	x	x		x	x	x
Obs.	34,778	34,778	33,550	40,643	40,643	39,135	43,248	43,248	41,622
R-squared	0.039	0.021	0.063	0.037	0.023	0.064	0.040	0.021	0.061

Table 8: CEO Tenure

Panel A: Effects on Corporate Culture over CEO Tenure

This table uses lagged CEO's *UAI*, the logarithm of CEO's tenure, and well as their interaction, to predict board's UAI (Column (1)) an the *UAI* of the executive team (Column (2)). Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

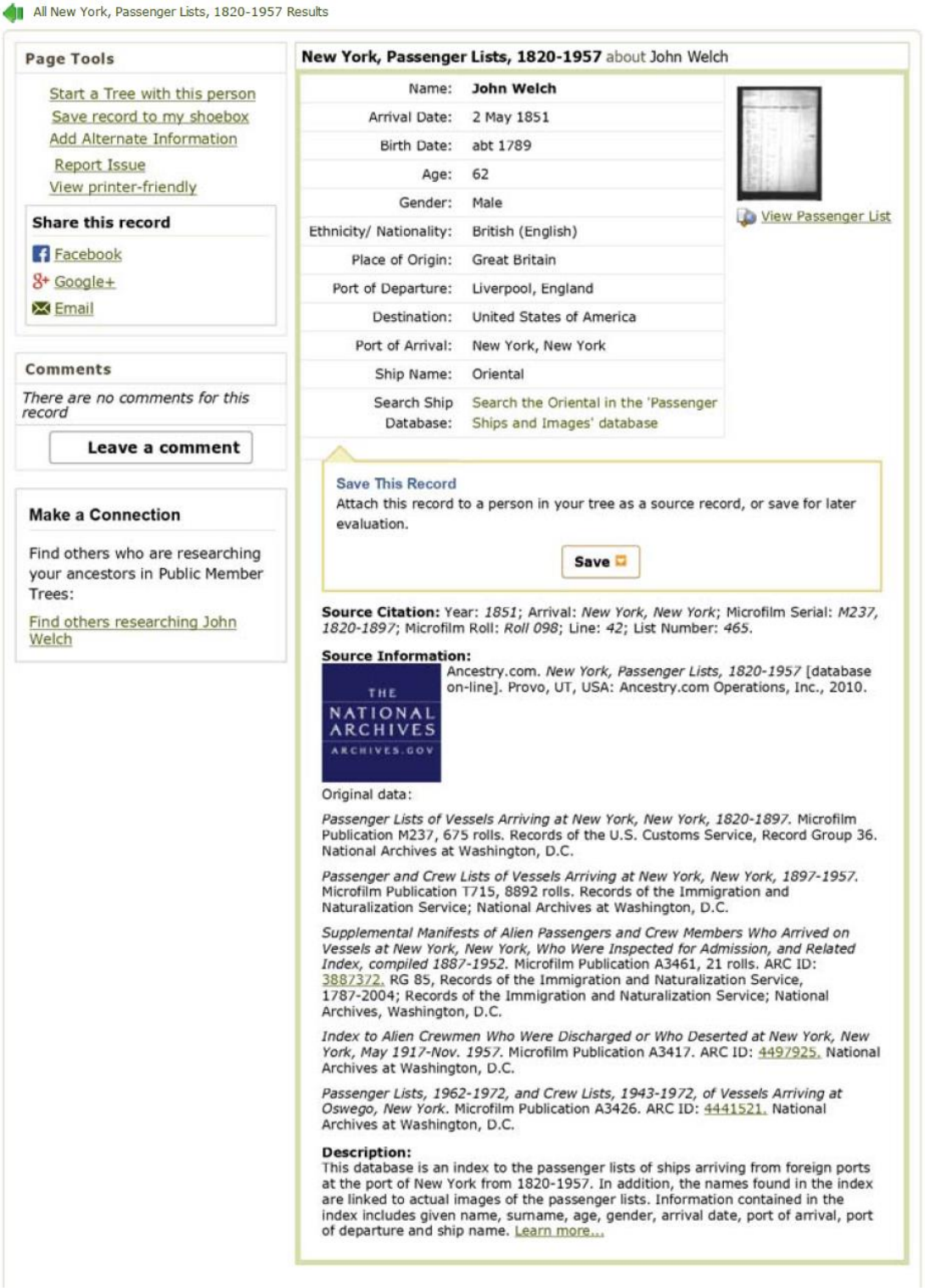
	(1) UAI_Board	(2) UAI_Exec
CEO's UAI (lagged)	0.062***	0.056***
	(0.012)	(0.012)
CEO's UAI (lagged)*Log(CEO Tenure)	0.016**	0.016**
	(0.008)	(0.008)
Log(CEO Tenure)	-0.009**	-0.007*
	(0.004)	(0.004)
Controls	x	x
Year FE	x	x
Observations	25,048	27,730
R-squared	0.038	0.032

Panel B: Effects on Corporate Policies over CEO Tenure

This table examines the effect of CEO's *UAI*, the logarithm of CEO's tenure, and well as their interaction, on investment policies. Definitions of all variables are in Appendix C. Standard errors are clustered at the firm level. ***, **, * denote significance at 1%, 5%, and 10% levels, respectively.

	(1) Prob(Acquisition)	(2) Acquisition Rate	(3) CAPX
UAI	-0.151***	-2.619***	-1.818***
	(0.031)	(0.729)	(0.299)
UAI*Log(CEO Tenure)	-0.031*	-0.097	-0.449***
	(0.017)	(0.436)	(0.142)
Log(CEO Tenure)	0.029***	0.389*	0.458***
	(0.010)	(0.228)	(0.106)
Controls	x	x	x
Year FE	x	x	x
Observations	30,051	30,051	29,047
R-squared	0.045	0.046	0.100

Appendix A: Image of a Passenger Record from Ancestry.com



All New York, Passenger Lists, 1820-1957 Results

Page Tools

Start a Tree with this person
Save record to my shoebox
Add Alternate Information
Report Issue
View printer-friendly

Share this record

Facebook
Google+
Email

Comments

There are no comments for this record

Leave a comment

Make a Connection

Find others who are researching your ancestors in Public Member Trees:

Find others researching John Welch

New York, Passenger Lists, 1820-1957 about John Welch

Name:	**John Welch**
Arrival Date:	2 May 1851
Birth Date:	abt 1789
Age:	62
Gender:	Male
Ethnicity/ Nationality:	British (English)
Place of Origin:	Great Britain
Port of Departure:	Liverpool, England
Destination:	United States of America
Port of Arrival:	New York, New York
Ship Name:	Oriental
Search Ship Database:	Search the Oriental in the 'Passenger Ships and Images' database

View Passenger List

Save This Record
Attach this record to a person in your tree as a source record, or save for later evaluation.

Save

Source Citation: Year: *1851*; Arrival: *New York, New York*; Microfilm Serial: *M237, 1820-1897*; Microfilm Roll: *Roll 098*; Line: *42*; List Number: *465*.

Source Information:

Ancestry.com. *New York, Passenger Lists, 1820-1957* [database on-line]. Provo, UT, USA: Ancestry.com Operations, Inc., 2010.

Original data:

Passenger Lists of Vessels Arriving at New York, New York, 1820-1897. Microfilm Publication M237, 675 rolls. Records of the U.S. Customs Service, Record Group 36. National Archives at Washington, D.C.

Passenger and Crew Lists of Vessels Arriving at New York, New York, 1897-1957. Microfilm Publication T715, 8892 rolls. Records of the Immigration and Naturalization Service; National Archives at Washington, D.C.

Supplemental Manifests of Alien Passengers and Crew Members Who Arrived on Vessels at New York, New York, Who Were Inspected for Admission, and Related Index, compiled 1887-1952. Microfilm Publication A3461, 21 rolls. ARC ID: 3887372. RG 85, Records of the Immigration and Naturalization Service, 1787-2004; Records of the Immigration and Naturalization Service; National Archives, Washington, D.C.

Index to Alien Crewmen Who Were Discharged or Who Deserted at New York, New York, May 1917-Nov. 1957. Microfilm Publication A3417. ARC ID: 4497925. National Archives at Washington, D.C.

Passenger Lists, 1962-1972, and Crew Lists, 1943-1972, of Vessels Arriving at Oswego, New York. Microfilm Publication A3426. ARC ID: 4441521. National Archives at Washington, D.C.

Description:
This database is an index to the passenger lists of ships arriving from foreign ports at the port of New York from 1820-1957. In addition, the names found in the index are linked to actual images of the passenger lists. Information contained in the index includes given name, surname, age, gender, arrival date, port of arrival, port of departure and ship name. Learn more...

Source: Ancestry.com

Appendix B: Frequency of Origins in the CEO Sample

This table lists all the countries of origins associated with passenger records of the same last name, their average and maximum frequency of occurrence, and the culture values associated with them. *UAI* is the uncertainty avoidance index from the Hofstede Surveys (rescaled to fall between zero and one), and *Thrift* is the average attitude towards thrift for each origin from the World Value Surveys. A maximum probability of 100% associated with an origin means that there exists at least one last name for which all passengers with that last name came from that origin. Origins with missing *UAI* or *Thrift* values are not covered by the relevant surveys.

Origin	Average Probability	Maximum Probability	UAI	Thrift
England	16.54%	100.00%	0.313	0.319
Germany	13.71%	100.00%	0.580	0.397
Italy	9.57%	100.00%	0.670	0.347
Ireland	6.09%	100.00%	0.313	0.217
Jewish	4.45%	100.00%	0.723	0.198
France	2.70%	100.00%	0.768	0.376
Scotland	2.26%	100.00%	0.313	0.319
Poland	2.06%	100.00%	0.830	0.393
Russia	1.91%	100.00%	0.848	0.518
Netherlands	1.83%	100.00%	0.473	0.209
Scandinavia	1.77%	100.00%	0.304	0.176
Hungary	1.36%	100.00%	0.732	0.396
Spain	1.18%	100.00%	0.768	0.322
Austria	1.17%	100.00%	0.625	0.487
Greece	1.14%	100.00%	1.000	0.299
Africa	0.96%	100.00%		
Canada	0.96%	100.00%	0.429	0.285
Sweden	0.86%	100.00%	0.259	0.300
China	0.85%	100.00%	0.268	0.572
Native American	0.75%	100.00%		
Norway	0.68%	100.00%	0.446	0.132
Switzerland	0.63%	100.00%	0.518	0.375
Slovakia	0.54%	100.00%	0.455	0.385
Syria	0.46%	100.00%	0.607	0.235
Czech Republic	0.45%	100.00%	0.661	0.304
Belgium	0.43%	100.00%	0.839	0.439
Ukraine	0.35%	100.00%	0.848	0.508
Denmark	0.33%	100.00%	0.205	0.096
Japan	0.31%	100.00%	0.821	0.481
Croatia	0.30%	100.00%	0.714	0.287
Romania	0.29%	100.00%	0.804	0.307
Hispanic	0.29%	100.00%	0.768	0.286
India	0.28%	100.00%	0.357	0.619
Finland	0.27%	100.00%	0.527	0.208
Portugal	0.26%	100.00%	0.929	0.322

Cuba	0.24%	100.00%		0.286
Armenia	0.22%	100.00%		
Slovenia	0.21%	100.00%	0.786	0.354
Lithuania	0.17%	100.00%	0.580	0.404
Wales	0.16%	40.43%	0.313	0.319
Iran	0.14%	100.00%	0.527	0.296
Turkey	0.14%	100.00%	0.759	0.303
Puerto Rico	0.13%	37.50%		0.236
Bulgaria	0.09%	100.00%	0.759	0.381
Egypt	0.09%	96.15%	0.607	0.080
Serbia	0.08%	87.50%	0.821	0.343
Arab World	0.08%	100.00%	0.607	0.235
Brazil	0.07%	33.33%	0.679	0.388
Latvia	0.06%	93.62%	0.563	0.451
Australia	0.06%	24.00%	0.455	0.186
Philippines	0.05%	33.33%	0.393	0.452
Venezuela	0.04%	23.24%	0.679	0.390
Albania	0.04%	50.00%		0.549
Yugoslavia	0.03%	100.00%	0.786	0.350
Polynesia	0.03%	50.00%		
Argentina	0.03%	17.95%	0.768	0.152
Malta	0.03%	60.00%	0.857	0.541
Colombia	0.03%	25.00%	0.714	0.251
Asia	0.03%	26.25%		
Chile	0.03%	10.53%	0.768	0.345
Lebanon	0.03%	33.33%	0.607	0.235
Estonia	0.02%	35.90%	0.536	0.444
Jordan	0.02%	40.00%	0.607	0.194
Palestine	0.02%	100.00%	0.607	0.235
Europe	0.02%	50.00%		
Montenegro	0.02%	37.35%		0.343
Macedonia	0.01%	23.08%	0.786	0.394
Honduras	0.01%	10.53%	0.768	0.286
Panama	0.01%	14.92%	0.768	
Dominican Republic	0.01%	25.00%		0.286
Bosnia	0.01%	17.14%	0.786	0.372
Ecuador	0.01%	50.00%	0.598	0.286
Malaysia	0.01%	7.94%	0.321	
Indonesia	0.01%	50.00%	0.429	0.520
Peru	0.01%	23.78%	0.777	0.235
Tunisia	0.01%	66.67%	0.607	0.235
Iceland	0.01%	33.33%		0.205
South Africa	0.01%	20.00%	0.438	0.359
Bermuda	0.01%	3.19%		
Morocco	<0.01%	33.33%	0.607	0.358

Pakistan	<0.01%	36.36%	0.625	0.555
Jamaica	<0.01%	6.78%	0.116	0.286
Iraq	<0.01%	10.00%	0.607	0.282
Czechoslovakia	<0.01%	4.65%	0.558	0.344
Korea	<0.01%	11.76%	0.759	0.675
Sudan	<0.01%	25.00%		
Costa Rica	<0.01%	8.28%	0.768	0.286
Burma	<0.01%	30.00%		
Haiti	<0.01%	5.88%		
New Zealand	<0.01%	1.30%	0.438	0.237
Nicaragua	<0.01%	9.28%		
Muslim	<0.01%	1.75%	0.536	0.313
Uruguay	<0.01%	1.14%	0.893	0.263
Senegal	<0.01%	8.33%		
West Indies	<0.01%	0.70%		
Mongolia	<0.01%	5.88%		
Guatemala	<0.01%	2.50%	0.902	0.286
Vietnam	<0.01%	3.33%	0.268	0.481
Liberia	<0.01%	3.13%		
Afghanistan	<0.01%	3.80%		
Bolivia	<0.01%	0.79%	0.768	0.286
Barbados	<0.01%	0.43%		
Ethiopia	<0.01%	2.70%	0.464	
Thailand	<0.01%	1.16%	0.571	
Germany-France	<0.01%	0.40%	0.674	0.387
Mexico	<0.01%	0.22%	0.732	0.376
Paraguay	<0.01%	0.80%	0.768	0.286
Cyprus	<0.01%	0.77%		
Algeria	<0.01%	0.22%	0.607	0.179
El Salvador	<0.01%	0.32%	0.839	0.286
Sri Lanka	<0.01%	0.74%		
Central America	<0.01%	0.16%	0.625	0.286
Somalia	<0.01%	0.16%		
Luxembourg	<0.01%	0.23%	0.625	0.473
Pacific Islander	<0.01%	0.09%		
Guiana	<0.01%	0.06%		
Isle of Man	<0.01%	0.02%	0.313	0.319
Nigeria	<0.01%	0.02%	0.482	0.103
Germany-Poland	<0.01%	0.01%	0.705	0.395
Grenada	<0.01%	<0.01%		
Virgin Islands	<0.01%	<0.01%		
USA[17]	17.77%	100.00%	0.411	0.228
Unidentifiable	1.68%	100.00%		

[17] Not included in the construction of culturally transmitted preferences.

Appendix C: Variable Definitions

UAI	Uncertainty Avoidance Index, from Hofstede. Please see the data section for detailed explanation.
UAI (Board)	The average value of *UAI* of the board of directors.
UAI (Exec.)	The average value of *UAI* of the top four most highly paid non-CEO executive team.
UAI (Employee)	The weighted average value of *UAI* in the firm's headquarters state. The weight is the fraction of residents in a state that belongs to an origin, based on the 1990 US Census data.
Thrift	Attitude towards thriftiness, from World Value Survey. Please see the data section for detailed explanation.
Thrift (Board)	The average value of *Thrift* of the board of directors.
Thrift (Exec.)	The average value of *Thrift* of the top four most highly paid non-CEO executive team.
Thrift (Employee)	The weighted average value of *Thrift* in the firm's headquarters state. The weight is the fraction of residents in a state that belongs to an origin.
Fraction Unidentifiable	The fraction of immigrants with a given last name that has unidentifiable origin
# of Origins	The number of origins associated with a last name
Dominant Origin	An indicator variable that equals 1 if a CEO's last name is associated with a dominant origin that represents the origin of more than 50% of the immigrants with the same last name in our immigrant sample.
Dispersion in UAI	The standard deviation of *UAI* values associated with different origins of a given last name
Fraction of Origins Missing UAI	The fraction of records without a *UAI* value due to the associated (rare) origins for a given last name
First Generation	An indicator variable that equals 1 if a CEO is a first generation immigrant in the US.
Fraction US Citizen	The fraction of immigrants with a particular last name in our immigrant sample that declared themselves to be U.S. citizens when entering the US during 1820-1957.
Ethnicity Match (Board)	An indicator variable that equals 1 if a CEO's origin is the same as the most common origin among the board of directors.
Ethnicity Match (Exec.)	An indicator variable that equals 1 if a CEO's origin is the same as the most common origin among the top four non-CEO executives.
Difference in UAI	The absolute difference between the *UAI* of the CEO and the average *UAI* of the board, or the top executive team, or the rank-and-file employees.
CEO Age	The age of the CEO.
CEO Education	The level of the CEO's education. It is equal to 3 if the CEO holds a doctorate degree (including post-doctoral training), and equal to 2 if the highest degree is a Master's degree, and equal to 1 if the highest degree is undergraduate. If the education information is missing, we set "CEO Education" to be 0, and "Missing Education" is equal to 1.
Missing Education	An indicator variable that equals 1 if a CEO's education information is missing.

Female	An indicator variable that equals 1 if a CEO is a female.
Insider CEO	An indicator variable that equals 1 if a CEO is promoted to the position from within the firm. This variable is defined only for CEOs in the ExecuComp database.
CEO Tenure	The count variable for the CEO's year(s) in office. Tenure=1 indicates the turnover year. This variable is defined only for CEOs in the ExecuComp database.
Acquisition	An indicator variable that equals 1 if the firm engages in mergers or acquisitions of assets during a fiscal year.
Acquisition Rate	Acquisition transaction value scaled by the firm's book assets, expressed in percentage term.
Focused Acquisition	An indicator variable that equals 1 if the firm engages in mergers or acquisitions of assets within the 2-digit SIC industry during a fiscal year.
Diversifying Acquisition	An indicator variable that equals 1 if the firm engages in mergers or acquisitions of assets outside the 2-digit SIC industry during a fiscal year.
CAPX	Capital expenditures scaled by the firm's book assets, expressed in percentage term.
Cash	Cash holding scaled by the firm's book assets, expressed in percentage term.
Leverage	Total debt scaled by the firm's book assets, expressed in percentage term.
Log(MB)	The logarithm of the firm's market value of equity to book value of equity ratio.
ROA	Earnings before interest, tax, and depreciation scaled by the firm's book assets, expressed in percentage term.
Log(Sales)	The logarithm of the firm's net sales.
IVOL	The average monthly firm idiosyncratic stock return volatility in a year. The idiosyncratic volatility is computed using the Fama-French three-factor model following Ang, Hodrick, Xing, and Zhang (2006).
Vega	The dollar change in CEO's wealth associated with a 0.01 change in the standard deviation of the firm's returns (in $000s).