Does CEO Cultural Heritage Affect Performance under Competitive Pressure?

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Abstract

We show that the cultural heritage of senior decision-makers affects firm outcomes. To study cultural heritage, we focus on US-born CEOs who are the children or grandchildren of immigrants. Using a hand-collected dataset that tracks the family trees of CEOs, we demonstrate that the cultural characteristics in a CEO's ancestral country influence firm performance under competitive pressure. How CEOs respond to competitive pressures is driven by specific cultural dimensions and is causally related to corporate policy choices. To establish causality, we use variation in industry competition generated by the staggered deregulation of interstate branching for US banks in the 1990s.

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1. Introduction

Do the cultural values we inherit from our ancestors living generations ago affect our decision-making in the present time? While a growing literature in economics and finance shows that culture explains differences in firm behavior across countries (e.g., Ahern, Daminelli and Fracassi, 2015; Eun, Wang and Xiao, 2015; Griffin et al., 2015; Li et al., 2013), the impact of the cultural heritage of senior decision-makers remains largely unexplored. Our paper aims to fill this gap and to provide a novel explanation for what drives observable differences in firm behavior and performance. In this paper, we examine how a CEO's cultural heritage shapes the way firms react to an exogenous shock to industry competition. We hand-collect a novel dataset that tracks the family tree of US CEOs and demonstrate that the cultural values prevailing in the country that a CEO's ancestors originate from affect their decision-making behavior and shape firm policy choices and performance.

The impact of culture is difficult to measure. The concept of culture is so broad that it is often confounded with other institutional or legal parameters. Our identification strategy is designed to circumvent this empirical challenge. We examine CEOs who are the US-born children or grandchildren of immigrants. We refer to these CEOs as *Gen2-3* CEOs. While Gen2-3 CEOs are exposed to the same legal, social and institutional conditions as other US-born CEOs, they possess a cultural heritage that is different from other CEOs. For instance, the cultural preferences and beliefs of Gen2-3 CEOs are likely to bear the mark of the countries that their parents or grandparents have emigrated from. This research design enables us to capture the heterogeneity in a CEO's cultural heritage while holding constant the institutional and economic factors that all US-born CEOs face.

In our study, we hypothesize that a CEO's cultural values have been transmitted inter-generationally to form a distinct cultural heritage if CEOs are the children or grandchildren of immigrants to the US. Theory and empirical evidence back the notion that cultural heritage changes little over time. This is because culture is learned and transmitted by parents to children, between peers and through interactions in the neighborhood and school system. Transmission between parents and children is widely seen as the most important mechanism that determines an

individual's cultural values (Bisin and Verdier, 2000; 2001). This gives rise to a slow evolution of culture as parents teach their children what they learn from their own parents (Guiso, Sapienza and Zingales, 2006). Giavazzi, Petkov and Schiantarelli (2015) show that several cultural traits, such as religious, moral or family values, remain persistent across generations of immigrants.

To identify a CEO's cultural heritage, we hand-collect data on the country of origin of a CEO's ancestors from *Ancestry.com*. With access to almost 13 billion family histories, Ancestry.com is the world's largest genealogy database. We use a combination of CEO name, birth year and birthplace to uniquely identify the family tree of each CEO. Using this approach, we manage to accurately track a CEO's ancestral country as well as whether a CEO is a Gen2-3 CEO. As an example, James Dimon, the current CEO of JP Morgan, is a third-generation descendant of Greek immigrants to the US. This fine-grained dataset enables us to construct precise tests of the role of CEO cultural heritage on firm outcomes.

Identifying a causal effect of CEO cultural heritage on firm performance is challenging because of endogenous firm and CEO matching. Fee, Hadlock and Pierce (2013) argue that CEOs with certain desired characteristics are strategically appointed to take firms in a direction determined by the board. Thus, it is not clear whether CEOs imprint their own preferences on a firm or whether they have been selected to implement the preferences of the board. Given this challenge, a suitable approach to test for the existence of a CEO-specific effect on firm outcomes is to study changes in firm policies that occur after an idiosyncratic shock to the preferences of both the firm and the CEO.

In this paper, we study the causal effect of a CEO's cultural heritage on firm outcomes by exploiting an exogenous shock to industry competition. Culture has been shown to be an important determinant of competitive behavior (Booth and Nolen, 2012; Dreber, von Essen and Ranehill, 2011; Gneezy, Leonard and List, 2009).[1] We use the Interstate Banking and Branching Efficiency Act (IBBEA) of 1994 which legalizes interstate branching across the US and

[1] Conducting field experiments in matrilineal and patriarchal societies, Gneezy, Leonard and List (2009) find that cross-cultural differences affect how women and men react to competition. Similarly, Booth and Nolen (2012) and Dreber, von Essen and Ranehill (2011) report that cultural upbringing plays a large role in shaping competitive behavior.

markedly increases competitive pressures in some US states (see Cornaggia et al. 2015; Rice and Strahan, 2010). Our identification relies on the staggered (and unanticipated) deregulation of interstate branching applicable to banks in individual US states. IBBEA introduces both geographical and temporal variations in industry competition. We use this set-up to isolate CEO-specific effects and establish a causal link between cultural heritage and firm performance. Given our empirical set-up, we restrict our main analysis to banks. However, as shown later on, our results hold more widely and can be replicated using non-financial firms and a competitive shock that applies to non-financial firms.

We start our analysis of whether and how the cultural heritage of the CEO impacts firm performance by using a difference-in-differences (DiD) approach. We find that banks led by Gen2-3 CEOs are associated with superior performance under high industry competition. Our findings are robust to using both accounting and market measures of bank performance and a set of variables that control for CEO, board, bank and local heterogeneity. Our results are also robust to including various types of fixed effects, including firm fixed effects, suggesting that corporate culture and other time-invariant unobservable factors do not explain our findings.

When further examining the generation of immigrants that a CEO belongs to, we observe a monotonic reduction in bank performance under competitive pressures as we move from CEOs who are second-generation descendants to CEOs who are later-generation descendants. Further, we show that not all recent descendants of immigrants outperform under pressure but that this effect varies by the country that a CEO's ancestors originate from. We find that CEOs whose ancestors are from Germany, Italy, Poland and Russia are associated with better bank performance under competitive pressures while CEOs with British or Irish ancestors do not display different performance from the rest of the sample.

Does nature or nurture (culture) explain our results? We show evidence that a CEO's cultural heritage explains competitive performance over and above the effects of genetic

differences between the countries of origin of a CEO's ancestors[2]. To do so, we demonstrate that the performance effect linked to Gen2-3 CEOs can be traced back to specific cultural values that prevail in the CEO's country of origin. We find three cultural dimensions–as identified in Hofstede (1980) and Hofstede, Hofstede and Minkov (2010) – have a significant bearing on CEO performance under competitive pressure: individualism (versus collectivism), uncertainty avoidance and restraint (versus indulgence).[3] Our results reveal that CEOs whose cultural heritage is characterized by lower individualism, higher uncertainty avoidance and higher restraint are more likely to outperform under pressure.

We rule out several other alternative interpretations for our findings. First, one can argue that the decision to open or block interstate competition may not be completely unanticipated (and therefore not exogenous). For instance, some banks may have lobbied politicians to block competition. This suggests the possibility of reverse causality when banks, in anticipation of deregulation, select CEOs who match their preferences. We address this concern by employing the methodology of Bertrand and Mullainathan (2003). We examine the dynamics of bank profitability surrounding the deregulation of interstate branching and find no prior trend in bank profitability. This indicates that reverse causality does not explain our main results. We also construct an out-of-sample test where we use an alternative competitive shock that applies to non-financial firms—the 1989 Canada–United States Free Trade Agreement—and arrive at a similar conclusion that culture matters to performance under pressure.

Second, immigrants do not randomly settle in the US and are historically more dominant in certain geographical regions such as New York or Massachusetts. It could therefore be argued that our measure of CEO country of origin captures the geographical characteristics of the area that banks are chartered in rather than a CEO's cultural heritage. We address this concern by

[2] We do so by calculating the genetic distances between country pairs as a measure of the biological differences between countries (Spolaore and Wacziarg, 2009). In essence, genetic distance measures the time elapsed since two populations' last common ancestors. See also, Delis et al. (2015) for a related approach.

[3] Cultures that score highly on individualism advocate the right of individuals to serve their own interests (and that of their immediate families) while opposing external interference from society, government or other institutions. In cultures that score highly on uncertainty avoidance, ambiguity and uncertainty cause discomfort. Restraint describes a culture that suppresses gratification of needs and regulates it by strict social norms.

controlling for various time-variant and time-invariant local factors to show that our results are not driven by omitted geographical variables.

Third, what if our measure captured CEO skills instead of cultural heritage? It is well known that immigrants invest heavily in the education of their children (Portes and Rumbaut, 2001) and Gen2-3 CEOs could therefore be more skilled than other CEOs. We address this by controlling for observed and unobserved CEO heterogeneity. We control for CEO characteristics, such as experience or compensation incentives, that may be correlated with both the CEO being Gen2-3 and with superior performance under high industry competition. We also find robust results when including CEO fixed effects to control for time-invariant (or slow-moving) CEO heterogeneity such as latent managerial ability or skills.

Finally, our results could be driven by omitted institutional and economic factors outside the US and prevailing at the time when the CEO's ancestors migrate. We find robust results when controlling for GDP per capita in the year 1900, life expectancy and the legal system of the CEO's country of origin.

To further confirm a causal linkage between cultural heritage and real economic outcomes, we explore some of the mechanisms that explain our findings. We show evidence that a CEO's cultural heritage affects performance through three bank policy choices: cost-efficiency, credit losses and acquisition performance. That is, we find CEOs with ancestors from a high-restraint cultural background boost profitability by being more cost-efficient while CEOs from a cultural background that is more uncertainty-avoiding are associated with lower credit losses and better acquisition performance.

Our findings contribute to an emerging body of research that links culture to economic outcomes (e.g., Ahern, Daminelli and Fracassi, 2015; Braguinsky and Mityakov, 2015; DeBacker, Heim and Tran, 2015; Guiso, Sapienza and Zingales, 2006; 2015; Pevzner, Xie and Xin, 2015). Our paper is the first to show that the cultural heritage of the CEO shapes the way a firm reacts to a changing industry environment. By exploiting an exogenous shock to the industry environment, our paper is able to circumvent frequently encountered matching issues between CEOs and firms. Therefore, and to the best of our knowledge, we are the first to draw a

causal link between CEO cultural heritage and firm outcomes. Our paper offers direct evidence that CEO cultural heritage operates to affect real economic outcomes through its indirect impact on corporate policy choices.

More broadly, our paper contributes to work in economics documenting how subsequent generations of immigrants to the US continue to carry a 'cultural marker' which help explain their moral values (Guiso, Sapienza and Zingales, 2006; Giavazzi, Petkov and Schiantarelli, 2015), living arrangements (Giuliano, 2007), or labor force participation (Fernández and Fogli, 2009). We contribute to this literature by showing that cultural heritage impacts competitive performance. This adds novel insights into the crucial link between culture and behavioral traits that influence economic outcomes.

Further, our paper is also related to the growing literature that studies the impact of CEO attributes on corporate outcomes. Bertrand and Schoar (2003) identify significant time-invariant 'managerial styles' in a range of policy choices. Various studies have subsequently attempted to explain heterogeneity in managerial styles with reference to a manager's physiology (Adams, Keloharju and Knüpfer, 2015; Halford and Hsu, 2014; Limbach and Sonnenburg, 2015), life experiences (Benmelech and Frydman, 2015; Bernile, Bhagwat and Rau, 2015; Malmendier and Nagel, 2011), or prior work experience (Custodio and Metzger, 2013; 2014; Dittmar and Duchin, 2015). We contribute to this literature by providing evidence consistent with a time-invariant manager style in the form of culture. Aiding our identification of an effect of CEO characteristics on firms is the fact that, unlike education, career moves or many other manager characteristics previously studied, cultural heritage is not a choice that managers can make. Our findings can therefore be seen as additional evidence of a manager-specific effect on firms.

2. Identification and data

2.1 Identification: Competitive pressures in the US banking sector

In this paper, we use a quasi-natural experiment, the staggered adoption and removal of barriers to interstate branching in the 1990s, to identify the causal effect of a CEO's cultural heritage on firm outcomes. The deregulation of bank branching laws introduces an unexpected increase in

industry competition at the level of individual states that is exogenous to banks and, thus, serves as an identification of any manager-specific effects on firm performance (see Cornaggia et al., 2015).

Before 1994, interstate branching is largely prohibited and there is almost no out-of-state bank branching. The IBBEA of 1994 allows unrestricted interstate banking and interstate branching across the US from 1997. This relaxation leads to an exponential growth of banking activities across state borders. While there are only 64 out-of-state banks in 1994, this number increases to 24,000 by 2005 (Johnson and Rice, 2008).

Our identification strategy relies on a unique feature of the IBBEA: the ability of individual US states to block competition by erecting barriers against deregulation any time between the passage of IBBEA in September 1994 and its effective date in July 1997. Further, US states continue to revise their branching barriers until the mid-2000s providing further variation in competitive pressures. The key advantage of our identification is that different states enact the roadblocks at different points in time, which gives us multiple competitive shocks that vary across states and time. Further, this decision is made at state level and cannot be anticipated by individual banks. This offers an experimental setting to gauge how CEOs react to changes in competitive pressures that are exogenous to the bank that they work for (Rice and Strahan, 2010).

Specifically, IBBEA grants US states the option to: (1) impose a minimum age of three years on target institutions of interstate acquirers; (2) not to permit de novo interstate branching; (3) not to permit the acquisition of individual branches by an out-of-state bank; and (4) blocking out-of-state banks from acquiring an in-state bank that holds more than 30% of the deposits in that state. We define a state to be competitive if chooses *not* to adopt either (3) or (4). This is because the requirements on age and de novo interstate branching can be easily circumvented or their effects are subsumed to those of (3) and (4) (Johnson and Rice, 2008).[4] Appendix 1 lists all

[4] We also construct a robustness test using all roadblock provisions. Our results remain unchanged.

changes by state and year and Figure 1 shows the level of competition in US states in 1996 and 2006.

2.2 CEO cultural origin data

Our sample period spans from 1994 (the first year in which states were allowed to introduce regulatory barriers) to 2006 (one year after the last regulatory change was enacted). We identify CEOs, including their full name, gender, age, tenure, education and professional experience using both S&P's ExecuComp database, which covers S&P 1500 firms starting from 1992, and BoardEx, which covers a large range of public firms starting from 1999. We also manually read Edgar DEF14A forms to recover missing CEO information. We are able to identify 955 CEOs that were in office in 726 US banks between 1994 and 2006. Of these, 939 CEOs are born in the US.

We obtain information on each CEO's country of origin and immigrant generation by tracing back the family tree of the CEO. Our key data source is *Ancestry.com*, the world's largest genealogy database that provides access to nearly 13 billion genealogical records. The US Census Bureau conducts a population count every 10 years in years ending with a zero. These records contain detailed demographic information on all members of the household, including name, gender, race, and date and place of birth. However, in order to protect the privacy of those who are alive and are in the workforce, the census records are only made publicly available for viewing 72 years after the original census day. Thus, the most recent publicly available census records are from the 1940 census.

Hence, we are able to find ancestry information for all 209 CEOs who were born before 1940. We adopt a 'crawling back' strategy to identify the country where a CEO's ancestors are born. We first identify information on the CEO's father, including his name, birth year and place of birth. We will stop our search if the father is born outside the US. In that case, the CEO is classified as a second-generation immigrant from the country in which his/her father is born. If the father is born in the US, we begin a new search using the CEO father's name, year and location of birth. We then use earlier census records, such as those in 1900 or 1920, to identify

information on the CEO's grandfather. If the CEO's grandfather is born outside the US, the CEO is treated as a third-generation immigrant from the country in which his/her grandfather is born. If the grandfather is born in the US, we continue our search using earlier generations of the CEO's ancestors as far back as data availability permits, usually to the mid-19th century.

We rely on the CEO's paternal ancestry because the CEO's mother and grandmother normally change their surnames following marriage. Hence, we cannot apply our 'crawling back' technique to identify the CEO's maternal ancestry. Fortunately for the purpose of our study, cross-cultural intermarriages were rare among European immigrants to the US in the early 20th century (e.g., Kalmijn, 1999; Pagnini and Morgan, 1990). Therefore, we can accurately identify a CEO's ancestry based on his/her paternal ancestry. We drop observations where the CEO's ancestry is mixed, i.e., when each parent comes from a different country.

Overall, for each CEO, we collect three types of ancestry information: the country where his/her ancestor is born, which generation of immigrants s/he belongs to and whether s/he is Gen2-3. To illustrate, James Dimon is a third-generation immigrant from Greece. Figure 2 summarizes our data-collection process.

To find ancestry information for the remaining 730 CEOs who were born after 1940, we rely on a unique combination of the CEO surname and the local county of their birthplace to ensure accuracy. We first identify the CEO birthplace. For each CEO name, we retrieve information regarding the birthplace and birth year from Marquis Who's Who, NNDB.com, LinkedIn, or simply through extensive Google searches of other public data sources. We are able to obtain reliable information on the city, county and state where 533 CEOs were born. We then use the 1940 census records to search for families that share the same surname with the CEO and live in the same county as the CEO's birthplace.

We then trace back the ancestors of those families using the same 'crawling back' strategy described above. If this process gives us two identical answers regarding the CEO's origin, we keep this CEO in our sample. As an example, if there are two families with the *Theobald* surname living in Cincinnati, Ohio and both families migrated to the US from Germany at about the same time, the CEO must have been born to one of these two families. If at

any point during the search we discover that there may be inconsistencies regarding the CEO's origins, we remove this CEO from the sample. This process yields 403 CEOs. Overall, we end up with 612 US-born CEOs in our sample.

A major advantage of our approach is that it gives us precise information on the immigrant generation and origin of the CEO. Several contemporaneous studies (e.g., Du, Yu and Yu, 2014; Pan, Siegel and Wang, 2015) rely on the individual's surnames to infer their country of origin or ethnicity, which is far less accurate. For instance, a person with a surname *Welch* could possibly come from England, Scotland, Ireland or even Germany.

The flipside to ensuring this high level of accuracy in determining a CEO's heritage is that we drop about 40% of CEOs who were born after 1940 due to missing information. We are concerned that our sampling may have given rise to a selection bias.[5] To account for potential self-selection, we base all of our regression models on a standard Heckman two-step procedure (1979). This procedure ensures that our conclusions regarding CEO heritage and other factors that drive bank performance are not driven by unobservable factors that make sample inclusion more likely.[6]

2.3 Bank data

We obtain all banks with accounting data from commercial bank and bank holding company data (FFIEC 031/041 and FR Y-9C). Our sample period is from 1994 to 2006. We then obtain market data from the Center for Research in Securities Price (CRSP) and corporate governance data

[5] For instance, the average bank in our sample is larger and holds less capital than the average Compustat bank. Further, the average CEO in our sample has a longer tenure than the population of bank CEOs.

[6] The first step of the Heckman procedure estimates the probability that banks are included in our sample using data on banks included as well as banks we are unable to include in our sample due to data restrictions. Identification rests on the exclusion restriction which requires the first stage to be estimated using a set of variables that is larger by at least one variable than the set of variables in the second stage. We use the length of the CEO's surname as this additional variable that is included in the first but not the second stage. The rationale for this variable is that CEOs with longer surnames are more likely to be identified in our data-collection procedure because their names are more likely to be unique. At the same time, the length of a CEO's surname is not plausibly related to bank performance. The first-stage results are shown in Appendix 3. The second stage of the Heckman procedure (the tables included in this paper) include *Lambda*, which contains information from the first step to control for unobservable factors which make sample inclusion more likely.

from the BoardEx database and match them with our Call Reports sample. We manually retrieve the missing governance data in the period 1994–1998 from Edgar DEF14A forms. Our sample includes all listed banks whose data are available from FFIEC 031/041, FR Y-9C, CRSP and BoardEx.

Our main dependent variable is return on assets (ROA). Several recent studies (e.g., Amore and Garofalo, 2015; Ellul and Yerramilli, 2013) use ROA as a proxy for bank performance. Our results are also robust to other market and accounting measures of bank performance. Table 1 reports the summary statistics.

[Table 1 around here]

Following the extant literature, we control for several bank and CEO characteristics. First, we control for the size of the bank using the natural logarithm of the book value of total assets. Since the size distribution of US banks is highly skewed, we also include its square term, Ln $(asset)^2$, to account for possible non-linearity between the bank size and performance (see, Amore and Garofalo, 2015; Ellul and Yerramilli, 2013). Further, we control for heterogeneity in banks' balance sheets using the ratios Deposits/Assets, Loans/Assets and Liabilities/Assets. We use stock volatility to control for bank risk and the Herfindahl–Hirschman index (HHI) of deposits by state and year to control for state-level concentration of banking activities.

Finally, we control for CEO characteristics by including the natural logarithm of the CEO age and tenure, as well as their square terms. This is to account for the non-linearity between CEO career horizons and his/her behavior (see, for instance, Custodio and Metzger, 2013). Our result is robust to controlling for several additional measures of CEO unobserved and observed heterogeneity.

3. Empirical results

3.1 Difference-in-Differences (DiD) test: Baseline specification

Our empirical strategy adopts a difference-in-differences (DiD) analysis to analyze how a CEO's cultural heritage affects the bank reaction to an exogenous shock in industry competition. This approach allows us to exploit (1) within-state variation in a CEO's cultural heritage across banks and (2) across- and within-state variation in competitive pressures across time.[7] The latter is exogenously created by the removal and adoption of roadblocks to bank competition through the IBBEA deregulation (Amore and Garofalo, 2015; Cornaggia et al., 2015; Rice and Strahan, 2010).

The following example illustrates our empirical approach. Consider two otherwise identical banks—Bank 1 and Bank 2—headquartered in New York in 1996. Bank 1 has a Gen2-3 CEO while Bank 2 has a Generation4+ CEO. The state of New York unexpectedly opens to interstate branching on 6 January 1997, exposing both banks to a sudden increase in industry competition. Thus, the performance difference between these two banks around the competitive shock can be attributed to the cultural heritage of a CEO. In addition, our identification also utilizes Bank 3 and Bank 4, which are both headquartered in California, one with a Gen2-3 CEO and one with a Generation4+ CEO. Crucially, California does not experience an increase in competition in 1997. Therefore, Banks 3 and 4 serve as a control group to absorb the general economic conditions as well as differences that are specific to banks with certain CEOs' cultural heritages. This model allows us to conduct a DiD analysis to study the effect of CEOs' cultural heritage on a bank reaction to increasing competitive pressures.

Before conducting our multivariate analysis, we make sure that the assignment of banks to competitive and non-competitive states is indeed random (see Atanasov and Black, 2015). Following the literature, we first compare the characteristics of the treatment group (banks in competitive states) and the control group (banks in non-competitive states) during the fiscal year immediately before the announcement month of IBBEA (September 1994). We do not observe

[7] For robustness, we also construct an alternative specification that only exploits within-state variation in Panel C of Appendix 9. The results we report remain unchanged.

any difference in bank performance (ROA) or the allocation of Gen2-3 CEOs between the treatment and control groups. Banks in the treatment and control group are also similar in terms of size, leverage, lending, deposit concentration level (HHI), CEO age and tenure.

[Table 2 around here]

Next, we check whether the parallel assumption, a key assumption in any DiD design, holds in our sample of treatment and control banks. The parallel assumption states that in the absence of treatment (IBBEA deregulation), the coefficient on the DiD estimator is zero. Thus, it requires a similar pre-event trend for both treatment and control groups. Following the literature, we calculate the two-year growth rate of ROA before IBBEA. The finding shows that there is no difference in ROA growth between treatment and control banks, suggesting that the parallel trend assumption is likely to hold. The result is reported in Panel A of Table 2.

A key advantage of our DiD framework is that it addresses endogenous matching between CEOs and banks. However, CEO and firm matching might still be an issue before IBBEA. To exclude this, we examine the determinants of banks having a Gen2-3 CEO in 1994, the fiscal year before IBBEA became effective. As shown in Panel B of Table 2, prior performance has no effect on the likelihood of having a CEO coming from any particular country of origin. Furthermore, very few other bank-specific characteristics enter significantly, implying that there is little evidence of pre-treatment window matching.

3.2 Multivariate results

Next, we perform the DiD tests in a multivariate framework. We estimate the following model:

$$ROA_{itk} = \alpha + \beta_1 \text{Gen2-3 CEO}_{it} * \text{Competitive state}_{tk} + \beta_2 \text{Gen2-3 CEO}_{it} + \beta_3 \text{Competitive state}_{tk} + \text{Controls} + \text{Fixed effects} + \varepsilon_{itk} \quad \textbf{(1)}$$

where *t* indexes time, *i* indexes banks and *k* indexes US states. The dependent variable is bank profitability (ROA). *Competitive state* is a dummy that equals 1 if the state eases one of the two main provisions on interstate branching. Controls include bank- and CEO-specific characteristics. Various types of fixed effects are included. We account for the interactive effects

of regulatory changes on bank performance by including the interaction term between competitive state and all controls in our model.[8] Our coefficient of interest is the interaction term β_1, which tells us how the profitability of banks with Gen2-3 CEOs differs under the two different competitive regimes. Table 3 reports our results.

[Table 3 around here]

We find that when competition exogenously increases from low to high, banks led by CEOs who are the children or grandchildren of immigrants exhibit a significantly higher profitability than banks led by Gen4+ CEOs. The interaction term between Gen2-3 CEO and competitive state is positive and statistically significant at the 1% level. Its magnitude is about 16 percentage points, corresponding to a 6% increase in ROA above the sample mean. Panel B of Table 3 confirms that the net performance effect of Gen2-3 CEOs under competitive pressures is statistically positive. This result indicates that Gen2-3 CEOs behave differently from the CEO population and we later attribute this to the inter-cultural differences in the country of origin of the CEO. [9]

We add state and year fixed effects in column (1). State-year fixed effects are included in column (2) to absorb all variables that do not vary across banks within a given state and year, such as investment opportunities or business cycles. We include firm fixed effects in column (3) to control for time-invariant firm-specific factors. Since our model exploits within-CEO variation, we also add CEO fixed effects in column (4) to control for unobserved CEO heterogeneity such as latent talent. Finally, column (6) replicates the model in column (4) but excluding the inverse Mills ratio.

This addresses various alternative explanations for our findings, including unobserved heterogeneity, CEO skills and experience. Additionally, Section 6.2 presents numerous extra

[8] For brevity, we do not report the interaction terms between competitive state and the controls in the tables.

[9] Does ROA increase for banks led by Gen2-3 CEOs because these banks increase profits or because these banks cut down their asset base (the denominator of ROA) when competition intensifies? In unreported tests, we find this when competition intensifies, Gen2-3 CEOs are able to create a higher level of profits without a reduction in a bank's asset base.

tests demonstrating that our results are robust to using alternative measures of bank performance, industry competition, sample period and monitoring by the board of directors.

For reference purposes, we also regress ROA on Gen2-3 CEOs without controlling for an exogenous change in competition in column (5). In this specification, the coefficient on Gen2-3 is statistically indistinguishable from zero. This indicates that, outside our experimental setting, Gen2-3 CEOs have no detectable performance effect. This is not surprising given the serious selection issues around boards and managers. This further highlights the need for a more rigorous research design to test the existence of idiosyncratic CEO effects.

3.3 Inter-generational transmission of culture?

We next distinguish between different generations of immigrant CEOs. Successive generations of immigrants tend to slowly change their cultural values to adapt to the norms of a new society. This could be the response to changes in economic incentives and opportunities, technology and institutions (see, for example, Giavazzi, Petkov and Schiantarelli, 2015). Table 4 reports the results.

[Table 4 around here]

As expected, we observe a monotonic decline in the magnitude of bank performance under pressure when moving from second-generation to fourth-generation CEOs.[10] While both second- and third-generation CEOs are associated with a significant and positive performance under pressure, the coefficient estimate for second-generation CEOs (0.17) is larger than that of third-generation CEOs (0.13). This positive effect disappears when we examine the fourth-generation CEOs. Overall, bank performance under pressure varies with the CEO's generation.

[10] While our identification strategy focuses on the US-born descendants of immigrants to the US, it would be interesting to understand the performance effects linked to first-generation (i.e. foreign-born) CEOs. However, we are unable to analyze this because our sample only contains two foreign-born CEOs.

3.4 Does bank performance vary by the country of origin of the CEO?

After establishing that Gen2-3 CEOs behave differently from the CEO population and that this effect varies across immigrant generations, we next examine if the performance effect of Gen2-3 CEOs can be traced back to the country of origin of a CEO's ancestors. Table 5 suggests it does.

[Table 5 around here]

Columns (1)-(6) of Panel A of Table 5 shows that banks led by CEOs whose ancestors are from Germany, Italy, Poland and Russia are associated with stronger performance under competitive pressures whereas those led by British or Irish ancestors are not.[11] Our results continue to hold even after we add a battery of controls and fixed effects, implying that the traditional economic variables are simply not powerful enough to explain this variation.

Further, we also find robust results when simultaneously including all ancestry interactions in column (7).[12] Finding that the outperformance of Gen2-3 CEOs varies by where a CEO's ancestors originate from is interesting, because it shows that not all Gen2-3 CEOs outperform under pressure. Therefore, our baseline results are not driven by a characteristic that is common among all Gen2-3 CEOs, such as that more recent descendants of immigrants are strong performers in general.[13] Instead, our results suggest that the cultural characteristics prevailing in the country that a CEO's ancestors originate from form one explanation.

We next test whether the above results could be driven by the geographical location of the bank. In other words, does a CEO of Polish descent outperform because s/he works for a bank located in an area dominated by Polish immigrants? If CEOs with Polish ancestors receive preferential treatment in a more Polish community, this could lead to an interpretation that is different from our cultural heritage story.

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[11] We restrict the analyses to the six most represented countries of origin in our sample.

[12] Column (7) also indicates that there is no ancestry country linked to underperformance under pressure. We only find some to over-perform and others to have no performance effect. This implies that the overall positive effect we find for Gen2-3 CEOs is driven by a subset of cultures that have a performance-boosting effect.

[13] For instance, children and grandchildren of immigrants could thrive under challenging circumstances irrespective of their country of origin. Witnessing their foreign parents overcoming the hardship to settle into a new land, they could be more adaptable to the changing environment, compete more aggressively and work harder (e.g., Portes and Rumbaut, 2001).

To test this conjecture, we add a triple interaction term, *Competitive state*Polish CEO*Polish state*, where *Polish state* is a dummy variable that equals 1 if the bank is located in a state having an above-median ratio of Polish immigrants. The estimated coefficient tells us how important geography is to our interpretation of a CEO's cultural heritage. As indicated in Panel B of Table 5, the triple interaction term is insignificant while our key variable *Competitive state*Polish CEO* remains statistically significant. We find the same pattern for other countries of origin: while the triple interaction term is not significant, the key results remain largely unchanged to controlling for the dominant immigrant community in US states.

Overall, this confirms that our results are not driven by geographical factors and suggests a cultural heritage story. More generally, this finding also augments our understanding of whether family or community is the dominant channel through which cultural heritage is transmitted (see Bisin and Verdier, 2000; 2001). While the family channel purports that culture is mostly learned and transmitted within the family, the community channel suggests that culture is transmitted via social interactions outside the family, such as those in the local neighborhood. Since Panel B shows little evidence of the role of the immigrant community, we interpret this as indicating that family is the main mechanism through which culture is transmitted.

3.5 The impact of specific cultural dimensions on CEO behavior

In the previous sections, we show that the cultural heritage of a CEO affects performance and we attribute this to the inter-cultural differences in the country of origin of the CEO. If the cultural heritage of CEOs were indeed to drive our results, we should be able to trace back this performance effect to specific cultural values that prevail in the country of the CEOs' ancestors. To test this hypothesis, we focus on the six cultural dimensions identified by Hofstede (1980) and Hofstede, Hofstede and Minkov (2010)[14]: Power Distance, Individualism, Masculinity, Uncertainty Avoidance, Long-term Orientation, and Restraint.

[14] Hofstede's studies form some of the most prominent work on cultural work-based values. Furthermore, Hofstede's cultural dimensions provide a suitable proxy for the CEO cultural values, because Hofstede collects data to construct his cultural indexes during the 1967–1973 period when the average CEO in our sample grows up and

Power Distance. CEOs of a cultural heritage that places more emphasis on power hierarchy are more likely to follow prompt and decisive strategies. While this could result in timely and efficient responses to higher industry competition (Li, Lu, and Phillips, 2015), it may as well lead to suboptimal decision-making as CEOs from cultures that are high in Power Distance may not consult widely before making decisions.

Individualism. Individualistic cultures are more achievement-oriented and driven to succeed and, hence, CEOs from these cultures might thrive under stronger competition. By contrast, as people from individualistic cultures are also prone to looking at themselves as more skilled and having a higher level of outcome control than those from more collectivistic cultures (e.g., Yamaguchi et al., 2005), they may overestimate their own ability to cope with challenging market environments (such as higher industry competition).

Masculinity. CEOs with a more masculine cultural heritage, characterized by emphasis on material success, wealth, and heroism, tend to compete aggressively and thrive under pressure. For instance, Covin and Covin (1990) show that firms that compete aggressively tend to outperform in a hostile environment. By contrast, these CEOs may exhibit overconfidence and follow overly aggressive, perhaps even reckless, strategies that result in value losses (cf. Malmendier and Tate, 2005).

Uncertainty Avoidance. Uncertainty avoidance is the extent to which a person is not comfortable with unpredictability and ambiguity (Hofstede, 1980). CEOs of a cultural heritage that avoids uncertainty are less comfortable with ambiguity and hence more likely to make considerable efforts to acquire as much information about their competitors as possible. This could lead them to make better-informed decisions under competitive pressures relative to CEOs of a cultural heritage that is less uncertainty-avoiding. By contrast, uncertainty-avoiding CEOs may be less willing to take risks (Rieger, Wang and Hens, 2015) and may therefore be reluctant to act on the type of performance-boosting business opportunities that follow deregulation.

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has his/her cultural values shaped. We also construct several tests to validate these measures, including one using the General Social Survey (GSS), and display the results in Section 6.1.

Long-term Orientation. CEOs with a long-term oriented cultural heritage are more forward-looking and, hence, would plan ahead of the competition and invest in strategies that could be performance-boosting in the long-run. By contrast, long-term oriented CEOs, because of their focus on steadiness and stability (Hofstede, Hofstede and Minkov, 2010), may not be able to come up with immediate responses to competition and underperform as a result.

Restraint. A restrained culture suppresses gratification of needs and is regulated by strict social norms (Hofstede, Hofstede and Minkov, 2010).[15] On the one hand, restrained CEOs may be motivated to exert personal sacrifice to achieve organizational goals. Hence, CEOs of a cultural heritage that places emphasis on restraint are more likely to be disciplined about setting and implementing firm strategies. On the other hand, being too restrained may prevent the CEO from coming up with innovative strategies to cope with increasing competitive pressures.

Overall, there are arguments for both positive and negative performance effects linked to the cultural values we discuss above. It is therefore an empirical question to see whether and how these cultural values explain competitive performance.

Multivariate results

We assign a Hofstede index score to each individual country for each cultural dimension. As an illustration, CEOs whose ancestors come from Germany or the UK receive a score of 67 and 89 for individualism, respectively. We then run the following DiD model:

$$ROA_{itk} = \alpha + \beta_1 \text{Cultural indexes}_{it} * \text{Competitive state}_{tk} + \beta_2 \text{Cultural indexes}_{it} + \beta_3 \text{ Competitive state}_{tk} + \text{Controls} + \text{Fixed effects} + \varepsilon_{itk} \quad \textbf{(2)}$$

where *i* indexes bank, *t* indexes time and *k* indexes US states. We include similar controls to those in Tables 3 to 5 and use State-year fixed effects in all specifications. Our coefficient of interest is the interaction term β_1, which tells us how the profitability of banks with CEOs with different cultural backgrounds differs under two competition regimes.

[15] 'Restraint' is derived from World Value Survey (WVS) data and, due to its increasing application in empirical research, was added in Hofstede, Hofstede and Minkov (2010) as a sixth cultural dimension under the name of 'indulgence vs restraint'. Being a relatively new cultural dimension, there has been little work examining the effects of restrained cultures on economic outcomes.

In all regression specifications, we control for the genetic differences in the country of origin of the CEO.[16] This is to address an important concern that our results are driven by biological rather than cultural differences in CEO ancestry. Since genetics could link to individual behavior and economic outcomes (see Kuhnen and Chiao, 2009; Spolaore and Wacziarg, 2009), our findings may be due to genetic rather than cultural transmission. We include the genetic distance and its interaction term with competitive state as two additional controls in our models. Table 6 reports our results.

As shown in Table 6, when competition increases, banks led by CEOs whose ancestors come from a culture that is less individualistic, more uncertainty-avoiding and more restrained exhibit a significantly higher profitability. The economic significance of our cultural values is also noteworthy: a one standard deviation increase in individualism decreases bank performance under pressure by 7% of its mean. By contrast, a one standard deviation increase in uncertainty avoidance and restraint increases bank performance under pressure by 5% and 7% of its mean, respectively. In contrast, the cultural values of Power distance, Masculinity, and Long-term orientation do not explain competitive performance.

[Table 6 around here]

Importantly, this result helps explain why CEOs with certain ancestors perform better under competitive pressures. For instance, Polish culture is relatively collectivistic, uncertainty-avoiding and restrained and Polish CEOs indeed outperform under pressure (as indicated in Table 5). In contrast, British culture places more emphasis on individualism, low uncertainty avoidance and less restraint—values not linked to outperformance under pressure. Consistent with this, CEOs with British ancestors are not associated with a detectable performance difference under pressure.

Figure 3 demonstrates that the differences in three cultural measures indeed explain the performance gap across CEOs with different ancestors. The figure plots the relationship between

[16] We obtain genetic distance data from the global set of country pairs (*Genetic distance (World)*) from Spolaore and Wacziarg (2009). Genetic distance measures the biological differences between two country pairs. We define the country that scores lowest in each cultural dimension as the 'base country' and set its genetic distance to 0. We then calculate the genetic distance to this 'base country' for the remaining countries.

the three cultural indices and the estimated coefficient on performance under competitive pressures. As shown, countries in the high uncertainty-avoidance, low individualism and high restraint group outperform those in the other group.

3.6 Alternative explanations

Our results so far systematically point to a CEO's cultural heritage as a driving force for bank performance under competitive pressures. This section discusses and rules out a number of alternative explanations for this finding.

Potential endogeneity: Reverse causality

Our identification allows us to draw a causal link from culture to economic outcomes. However, the decision to open or block interstate competition may not be completely exogenous, e.g., banks may lobby the state's governor to block competition. This suggests the possibility of reverse causality when banks, in anticipation of deregulation, select CEOs who match their preferences.

We argue that reverse causality issues are unlikely to affect our conclusions. Previous evidence clearly shows that the decision to open a state to interstate branching is not related to political and economic factors at US state level (Rice and Strahan, 2010). Instead, state-level factors only explain the decision to expose states to *intrastate* branching deregulation (Kroszner and Strahan, 1999).

Additionally, we offer two tests that demonstrate that regulatory barriers to interstate branching are indeed an exogenous shock. First, we follow Bertrand and Mullainathan (2003) to examine the dynamics of bank performance surrounding deregulation. Specifically, we decompose the *Competitive state* dummy into five dummies associated with five periods: up to and including two years before deregulation ($Before^{2+}$), one year before deregulation ($Before^{1}$), the year of deregulation (*Present*), one year post-deregulation ($After^{1}$), and two years and after post-deregulation ($After^{2+}$). Significant interaction terms between $Before^{2+}$, $Before^{1}$ and *Gen2-3 CEOs* would indicate a relationship between a CEO's cultural heritage and bank performance

before the deregulation becomes effective and therefore would be indicative of reverse causality. As indicated in Panel A of Appendix 4, the interaction terms are not significant before the deregulation while they are significant on and after deregulation. This rules out the possibility of reverse causality and adds confidence to the validity of our results.

Second, there could be omitted factors, say macroeconomic conditions, coinciding with the timing of the shock that also affect bank performance. We address this by conducting a placebo test where we randomly, i.e., incorrectly, assign states to two competition categories. If omitted factors indeed drive our results, we should continue to find significant results even under this random assignment. As shown in Panel B of Appendix 4, the interaction term is statistically indistinguishable from zero, ruling out the possibility of omitted variables.

Section 5 addresses any remaining concerns related to IBBEA as an exogenous shock by constructing an out-of-sample test. We use non-financial firms and a shock that applies to non-financial firms (the 1989 Canada–United States Free Trade Agreement) and arrive at a similar conclusion that a CEO's cultural heritage matters to firm performance under pressure.

Potential endogeneity: Omitted variable bias

Immigrants do not randomly settle in the US. They are likely to prefer populous areas over remote areas, and because banks located in populous areas have access to a larger labor market, our results may capture the bank's ability to recruit suitable CEOs rather than a CEO's cultural heritage. This opens the possibility of a link between certain US regions and our measure of the country of origin of the CEO.

This interpretation is unlikely since Section 3.4 shows geography is unlikely to explain our results. To illustrate this point further, we include various time-variant and geographical controls in additional tests. First, all models include state, city or county fixed effects which absorb time-invariant factors at different geographical levels—for example, consistent economic outperformance. Second, we control for time-variant geographical factors by adding county-level

data on population, the civilian labor force[17] and income per capita. We also control for the degree of religiosity of the county (Callen and Fang, 2015) as this might be confused with our cultural measures and/or bank performance.[18] As shown in Panels A and B of Appendix 5, our results are robust to these additional controls. In unreported tests, we also divide the sample into rural vs urban and high vs low civilian labor forces and find that our results are unaffected by the local conditions of the area.

CEO skills

One may argue that our measure captures the CEO's skills instead of cultural heritage. For instance, if Gen2-3 CEOs are systematically more experienced than the other CEOs, then the documented results may be due to skills. This interpretation is unlikely, because columns (5) and (6) of Table 3 show that our results are robust to including CEO fixed effects, which control for unobserved CEO heterogeneity. Nevertheless, to illustrate this point further, we control for various time-invariant and time-varying CEO characteristics, such as prior top executive experience, an Ivy League education or compensation incentives[19] which may correlate with both the CEO being Gen2-3 and with superior performance under high industry competition. As indicated in Appendix 6, our results remain robust.

Economic development and institutional quality in the cultural country of origin

The key advantage of looking at Gen2-3 CEOs is that we hold constant the economic and institutional factors that Gen2-3 CEOs face while exploiting variations in the cultural values they inherited from their foreign ancestors. However, one could argue that the omitted institutional and economic factors at the time a CEO immigrated to the US could drive our results. For

[17] This is the fraction of the population aged 16 and above and who are available to participate in the labor force.

[18] We obtain religion data from the Association of Religion Data Archives (ARDA). The degree of local religiosity is the number of religious adherents to the total population in the county as reported by ARDA. The data are available for 1990, 2000 and 2010. Following Callen and Fang (2015), we interpolate the data for the remaining years.

[19] We are grateful to Jeffery Coles, Naveen Daniel and Lalitha Naveen for sharing their data on CEO equity-based incentives online. Please refer to Coles, Daniel, and Naveen (2006) and Core and Guay (2002) for detailed calculation of the variables.

instance, immigrants to the US from the UK could belong to different socioeconomic strata than those from, for instance, Russia (Carroll, Rhee and Rhee, 1994). To rule out this possibility, we collect country-level data for the year 1900 on GDP per capita, life expectancy and the legal system of the CEO's country of origin. As shown in Appendix 7, our results remain robust.

4. CEO cultural heritage and firm policies

How does a CEO's cultural heritage drive bank performance under pressure? This section shows that the performance effects we estimate above are indirectly driven by the impact that a CEO's cultural heritage has on specific bank policies. We focus on three bank policies into which CEOs have major input and which parsimoniously capture the key industry challenges faced by banks during an episode of deregulation: cost-efficiency, credit risk and acquisition performance.

First, some banks may enjoy a higher level of profitability because they manage to cut costs when competition intensifies. To proxy for cost-efficiency, we measure a bank's total expenses scaled by its total income. A lower ratio indicates a more economical use of expenses to produce a given level of income. Second, the ability of banks to manage the credit risk underlying their lending portfolio is an important driver of bank performance. Many banks incur large credit losses following the deregulation of interstate branching because they lend recklessly (Dick, 2006). We use the ratio of nonperforming loans scaled by total loans as a proxy for credit risk.

Third, we examine how a CEO's cultural heritage affects acquisition performance under competitive pressures.[20] This is an important channel because acquisitions are among the most complex decisions a CEO can make and the wealth effects for shareholders can be large.

[20] We focus on M&A deals that are publicly announced between 1994 and 2006 by US banks. We obtain data on bank acquisitions from Thomson Financial's merger database (SDC). All deals must be at least $250 million and be subsequently completed. We drop all observations where there is missing data or when other major news is released on the same day. This yields a sample of 264 deals. We then estimate a market model using a value-weighted CRSP index as a market index from 46 to 146 days before the announcement of an M&A decision. We construct cumulative abnormal returns (CARs) as the sum of the prediction errors of the market model. The average CARs over a 5-day [-2, +2] event window is -2.32% (significant at the 1% level). This is consistent with the M&A literature where acquirers only earn modest to negative CARs.

Furthermore, it is widely documented that many banks react to increased competition by acquiring competitors. Because these deals are made in a hurry, they are often value-destroying for shareholders (e.g., Schoenberg and Reeves, 1999). Therefore, we hypothesize that collectivistic, uncertainty-avoiding and restrained CEOs could conserve value by carefully analyzing and negotiating potential acquisition deals and as a result, make value-enhancing acquisitions.

To test these hypotheses, we adopt the same DiD approach with otherwise identical controls as in equation (1). Our coefficient of interest is the interaction term between CEO ancestry and competition. Table 7 reports our results. Panel A is for cost-efficiency, Panel B for credit risk, and Panel C for acquisition performance.

[Table 7 around here]

Panel A shows that CEOs with Russian, Polish or Italian ancestors, i.e., those that are coming from a high-restraint cultural background, become more cost-efficient when competition intensifies. In the same vein, Panels B-C show that CEOs from a cultural background that is more uncertainty-avoiding lower the bank's credit losses and make better acquisition deals. The results therefore suggest that these CEOs boost profitability under pressure by pursing strategies that conserve the bank value more effectively.[21] We do not find CEOs with British or Irish ancestors to be associated with effective value conservation. Interestingly, banks led by CEOs with Irish ancestors exhibit higher nonperforming loans.

Collectively, these results explain the positive performance effect associated with CEOs with Russian, German, Polish or Italian ancestor (Table 5) whose cultural heritage places emphasis on collectivism, uncertainty avoidance and restraint (Table 6).

[21] Crucial to this argument is that banks led by Gen2-3 CEOs do not reduce the level of their business activities, i.e., the denominator of our performance metrics. For instance, a reduction in the fraction of bad loans could be due to banks cutting their lending rather than pursing a safer lending strategy. We find this not to be the case in our sample. In particular, we do not find any specific CEO's ancestor to be associated with significant changes in the bank's 1) acquisitiveness; 2) lending; and 3) asset base. All regressions use similar controls as in equation (1) and include State-year fixed effects. For the acquisitiveness equation, we use similar controls and fixed effects as in Yim (2013). The results are available upon request.

5. Alternative identification: Canada–United States Free Trade Agreement (FTA)

Our analysis so far exploits the exogenous variation generated by the deregulation of interstate branching. The aim of this section is to go out of sample and confirm that our results also hold outside the banking sector. We therefore exploit a different exogenous shock in industry competition that occurs in different industries at a different time. We use the Canada–United States FTA as such an alternative identification and find similar results.

FTA eliminates all tariffs and other trade barriers between the US and Canada. This leads to an unexpected increase in US imports from Canada and the increase was larger for goods with a greater tariff reduction. As a result, firms operating in industries facing such trade liberalization experience an exogenous increase in competitive pressures that we exploit to circumvent issues posed by CEO-firm endogenous matching (see Guadalupe and Wulf, 2010; Yang and Zhao, 2014). One challenge is that FTA took effect in 1989, a time period not covered by either ExecuComp or BoardEx. Owing to these data limitations, we select the largest 100 Compustat firms in 1990.[22] We then use a combination of Factiva and Google searches to identify the CEO demographic information and use a similar search algorithm described in Section 2.2 to identify the CEO's ancestry information. After excluding financial and utility firms and firms with missing data, our final sample includes 65 firms with 120 CEOs from 1980 to 2000. As previously, we estimate the following model:

$$ROA_{it} = \alpha + \beta_1 Gen2\text{-}3CEO_{it} * Post89 * Tariff_i + \beta_2 * Post89 * Tariff_i + Controls + Fixed\ effects + \varepsilon_{itk} \quad \textbf{(3)}$$

where *i* indexes firm and *t* indexes time. The dependent variable is the profitability of the firm (ROA). *Gen2-3 CEO* indicates CEOs who are children or grandchildren of immigrants to the US, *Post89* is a dummy that equals one from 1989 onwards and *Tariff* indicates the average tariff rate for firm *i* during the period 1986–1989. Following the extant literature, we include a vector of controls and several fixed effects. Our coefficient of interest is the interaction term β_1, which

[22] We are more likely to recover historical data for larger firms because they generally receive more news coverage. Data availability is also the key reason why we use FTA for the robustness tests rather than for the main analyses.

tells us how the profitability of firms with Gen2-3 CEOs differs when receiving tariff reductions. Table 8 displays the regression results.

[Table 8 around here]

As shown in Table 8, the coefficient on the interaction is positive and statistically significant. This confirms that firms with Gen2-3 CEOs that benefit from FTA-mandated tariff cuts experience a higher level of profitability compared to Generation4+ CEOs that also receive FTA-mandated tariff cuts. Overall, these findings provide evidence consistent with the notion that CEO cultural heritage affects performance under pressure and that our results are not restricted to the banking industry.

6. Robustness tests

6.1 Validation of Hofstede's cultural measures

Our main cultural measures are based on Hofstede (1980) and Hofstede, Hofstede and Minkov (2010). Despite being widely used in the literature, Hofstede's model of cross-cultural difference is sometimes criticized because the underlying data were collected between 1967 and 1973 and within a single multinational company (e.g., McSweeney, 2002).[23]

We validate the three Hofstede's cultural measures that matter to competitive performance using the survey results from the GSS. Specifically, we relate Hofstede's measures of Individualism, Uncertainty avoidance and Restraint to respondents' *actual* attitudes with regards to individualism, uncertainty avoidance and restraint. We collect the data from the Survey Documentation and Analysis (SDA) at the University of Berkeley. The data are based on around 1,500 randomly selected US residents per year. We identify the respondent's ancestor using the question: from what countries or part of the world did your ancestors come?

If Hofstede's measures are accurate, we should obtain strong correlations between the GSS survey answers and Hofstede's scores. To test this, we estimate the following model:

[23] As stated above, the time period in which the data were collected is not a concern in our study, since this time period coincides with the time period that the CEOs in our sample were growing up and their cultural values were being shaped.

$$\text{GSS Survey Question}_{ikt} = \text{Hofstede's cultural measure}_{k} + \text{Individual controls}_{i} + \text{Survey year fixed effects}_{t} + \varepsilon_{ikt} \quad \textbf{(4)}$$

where *i* indexes respondents, *k* indexes countries of origin and *t* indexes time. *GSS Survey Question* captures the GSS score that most closely resembles Hofstede's scores on individualism, uncertainty avoidance and restraint indexes.[24] We include the respondent's age, gender, years of education, income, marital status, health status, race dummies and work status dummy.

All columns of Appendix 8 show evidence that Hofstede's cultural measures indeed capture the cultural values they are purported to capture. Column (1) shows that individuals whose ancestors come from individualistic countries are more likely to believe that the ability of a child to 'think for herself or himself' is important. Column (2) shows that individuals whose ancestors come from uncertainty-avoiding countries believe job security is important. Finally, column (3) shows that respondents whose ancestors come from restrained countries are more likely to think that 'working hard' is an important future success factor. Overall, the results lend extra confidence to the cultural measures we use.

6.2 Internet appendix: Additional robustness

This section displays further robustness tests of our key results. The results are included in the Internet Appendix of this article.

Alternative performance measures and DiD set-up

Panel A of the Internet Appendix A.1 re-estimates our results using alternative measures of bank performance. Our main measure is ROA. For robustness, we use returns on equity (ROE) and

[24] The GSS asks respondents to rate the importance of a child being able to 'think for herself' to prepare herself for life. We use this question to assess the respondent's level of individualism. Next, we gauge the respondent's level of uncertainty avoidance based on how they rate the importance of having 'job security'. Finally, their rating on the importance of a child 'working hard' to achieve future success is used to proxy for their restrained attitude. Appendix 8 displays the regression results.

two market-based measures of performance, Tobin's Q and tail risk. As shown, Gen2-3 CEOs are associated with a higher Tobin's Q and lower level of tail risk under competitive pressure.

We next use an alternative definition of competitive state, which employs all four regulatory barriers instead of just two. As shown in Panel B, our results are robust to this alternative definition of competitive pressures.

Further, we test whether our results are sensitive to the set-up of our DiD framework. Throughout the paper, we follow Amore and Garofalo (2015) and Cornaggia et al. (2015) and construct our treatment group as Gen2/4 CEOs in competitive states with all banks located in less competitive states in the control group. This control group absorbs general macroeconomic conditions and differences that are specific to banks with Gen2/3 CEOs. In an alternative DiD set-up, we restrict identification to within-state variation in CEO heritage and competition. Thus, we examine competitive states and assign banks with Gen2/3 CEOs to the treatment group and those with Gen4+ CEOs to the control group. As shown in Panel C, our results remain robust.

Does the data collection process drive our results?

There could be noise in our data collection process: while we can retrieve the family records of all CEOs who were born before 1940, we rely on the unique combination of CEO surname and birthplace to deduce the ancestry information of CEOs who were born after 1940. To address this concern, we split the sample into two groups: CEOs born before 1940 and those born after 1940. As shown in Internet Appendix A.2, our results are not driven by any particular group of CEOs.

Controlling for board characteristics

Another concern is that our results may simply reflect the quality of board governance. Since immigrants may prefer to settle in populous areas over remote ones and because banks located in populous areas have access to a larger pool of directors, our results may capture the bank's ability to recruit talented directors who can be effective monitors and advisors to the CEO. We address this by controlling for various bank board characteristics. Board data are collected from *BoardEx*, *Riskmetrics* and Edgar DEF14A forms. As shown in Internet Appendix A.3, our results

remain robust. Interestingly, an independent bank board is associated with lower bank performance under competitive pressures. Our interpretation is similar to that of Li, Lu and Phillips (2015): too much monitoring from the board may restrain the CEO from having the authority to be decisive and to react to heightened competition.

Non-competitive rents when banks operate in rural areas?

We argue earlier that because immigrants prefer to settle in larger cities, banks located in urban areas are more likely to appoint Gen2-3 CEOs while those in rural areas are more likely to appoint Generation4+ CEOs. We have addressed this concern by showing that our results are unaffected by the location of the bank.

However, a related interpretation is that, prior to deregulation, banks led by Generation4+ CEOs face fewer competitors because they operate in rural areas. Thus, they are able to capture 'non-competitive' profits. In this case, the large profitability drop we observe for Generation4+ CEOs could be due to the fact that competition erodes this non-competitive extra profit, whereas banks led by Gen2-3 CEOs always enjoy a normal level of profitability. We address this by controlling for the profitability in 1994, i.e., the pre-treatment window, and show in Internet Appendix A.4 that our key results remain robust. In fact, the economic significance of our baseline results is strengthened.

Controlling for the bank's foreign operations

Another alternative interpretation is that our measure of Gen2-3 CEOs maybe relate to a bank's foreign operations. Banks with a view to expand internationally could be more likely to recruit a Gen2-3 CEO. Following Berger et al. (2015), we control for a bank's foreign operations using its foreign loan ratio and foreign deposit ratio. As shown in Internet Appendix A.5, our results remain robust.

7. Conclusions

This paper advances and tests a new hypothesis on the link between the cultural heritage of senior decision-makers and various corporate outcomes. To distinguish culture from other institutional and economic factors, we focus on US-born CEOs who are the children or grandchildren of immigrants. We establish causality by employing a DiD approach using two quasi-natural experiments—the staggered introduction and removal of interstate branching (IBBEA) and the Canada–US FTA—as sources of exogenous variation to industry competition. Our paper, to the best of our knowledge, provides the first causal link from the cultural heritage of the CEO to various firm outcomes.

We find that the cultural heritage of the CEO has a statistically significant and economically meaningful impact on shaping the way a bank reacts to a changing industry environment. Banks led by a CEO who is the child or grandchild of immigrants are associated with superior performance when competition intensifies. This effect can be explained by the extent to which the values of collectivism, uncertainty avoidance and restraint prevail in the country of a CEO's ancestry. We show that a CEO's cultural heritage that emphasizes these values is linked with more cautious policy choices and that this in turn explains outperformance.

Overall, our work is consistent with the hypothesis that the culture prevailing in the country of origin of a CEO's ancestors influences his/her decision-making behavior, firm policy choices and performance. Our results offer novel evidence on the previously underexplored real effects of the cultural heritage of managers on firm performance and have important implications for future research on culture, finance and sociology.

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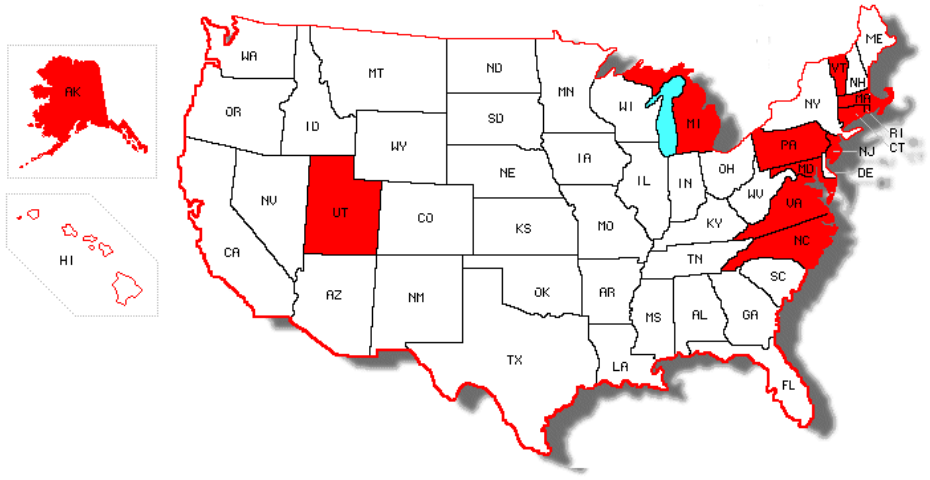
Figure 1: Competitive states in 1996 and 2006

This figure shows the competitive states in 1996 and 2006 (one year after the last regulatory change was enacted). Competitive states are colored in red while non-competitive ones are in white.

Panel A: Competitive states in 1996



Panel B: Competitive states in 2006

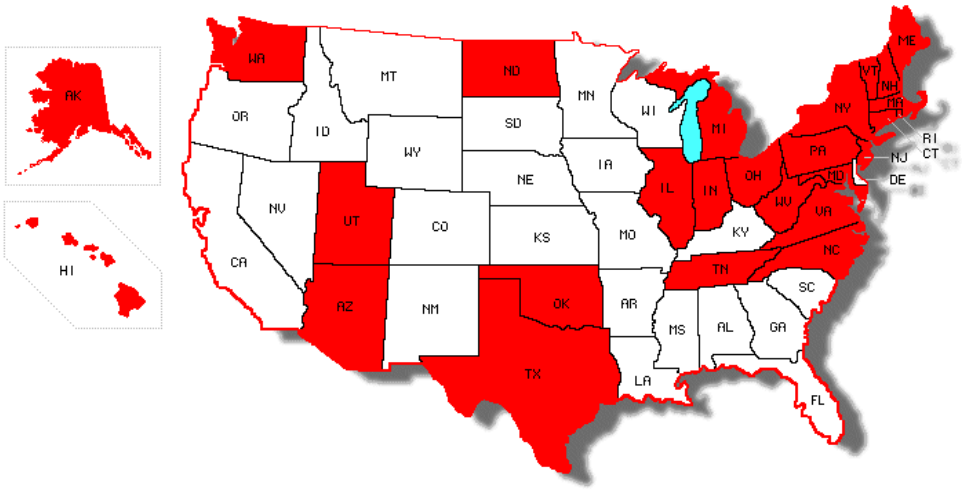


Figure 2: Collection of CEO's ancestry

Panel A: CEO's family tree (Step 1)

NAME:	Thomas Charles Theobald
AGE:	2
ESTIMATED BIRTH YEAR:	1938
GENDER:	Male
RACE:	White
BIRTHPLACE:	Ohio
MARITAL STATUS:	Single
RELATION TO HEAD OF HOUSE:	Son
HOME IN 1940:	Cincinnati, Hamilton, Ohio
STREET:	Bella Vista Avenue
RESIDENCE IN 1935:	Same Place
SHEET NUMBER:	5A
ATTENDED SCHOOL OR COLLEGE:	No
HIGHEST GRADE COMPLETED:	None

HOUSEHOLD MEMBERS	NAME	AGE
	A R Theobald	40
	Irma Theobald	36
	Jerome Theobald	9
	Thomas Charles Theobald	2
	Hettie Ingram	35

Panel B: CEO's father's family tree (Step 2)

1900 United States Federal Census

See More

NAME:	Arthur Theobald
AGE:	11/12
BIRTHPLACE:	Ohio
HOME IN 1900:	Cincinnati Ward 11, Hamilton, Ohio
RACE:	White
GENDER:	Male
RELATION TO HEAD OF HOUSE:	Son
MARITAL STATUS:	Single
FATHER'S NAME:	Charles Theobald
FATHER'S BIRTHPLACE:	Ohio
MOTHER'S NAME:	Kate Theobald
MOTHER'S BIRTHPLACE:	Ohio

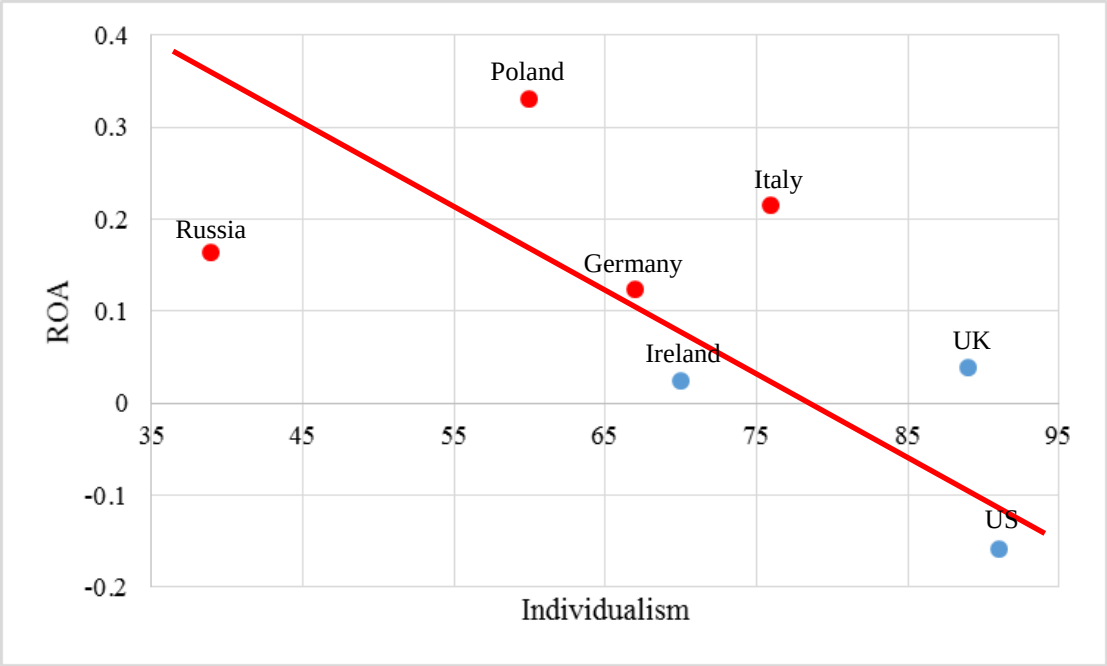
HOUSEHOLD MEMBERS	NAME	AGE
	Charles Theobald	27
	Kate Theobald	26
	Karl Theobald	3
	Arthur Theobald	11/12

Panel C: CEO's grandfather's family tree (Step 3)

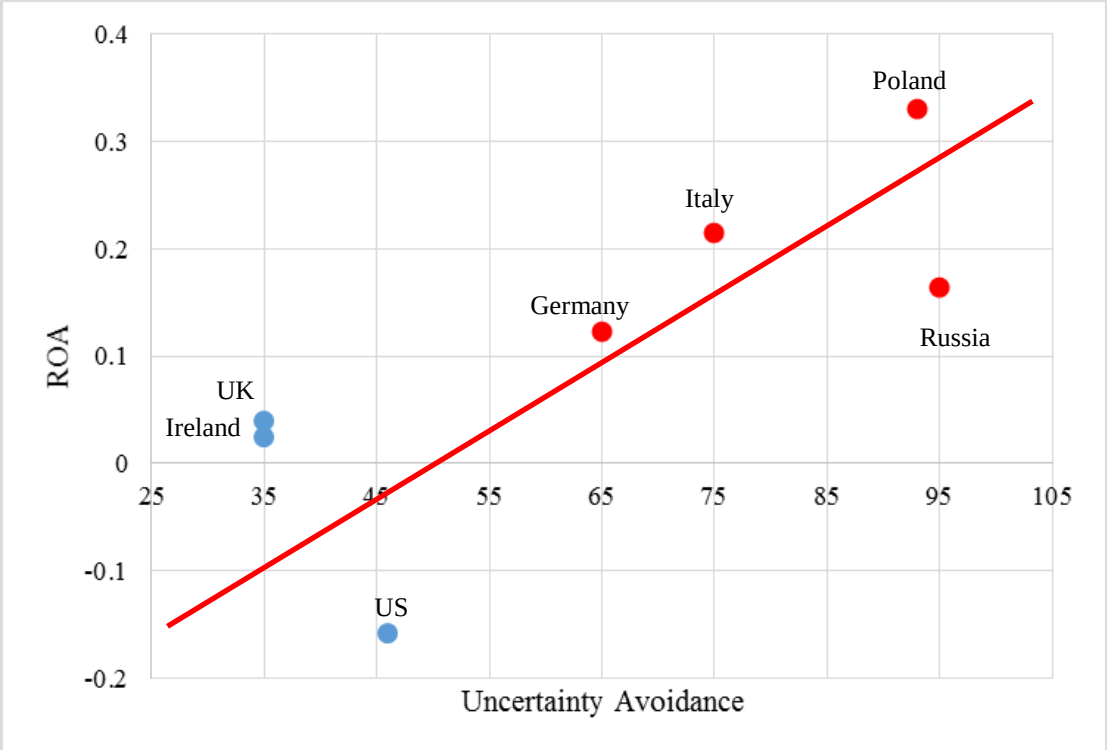
Name:	Charles Theobald
Age:	27
Birth Date:	Feb 1873
Birthplace:	Ohio
Home in 1900:	Cincinnati Ward 11, Hamilton, Ohio
Race:	White
Gender:	Male
Relation to Head of House:	Head
Marital Status:	Married
Spouse's Name:	Kate Theobald
Marriage Year:	1896
Years Married:	4
Father's Birthplace:	Germany
Mother's Birthplace:	Germany

Figure 3: CEO cultural heritage and bank performance

Panel A: CEO individualism and performance under pressure



Panel B: CEO uncertainty avoidance and performance under pressure



Panel C: CEO restraint and performance under pressure

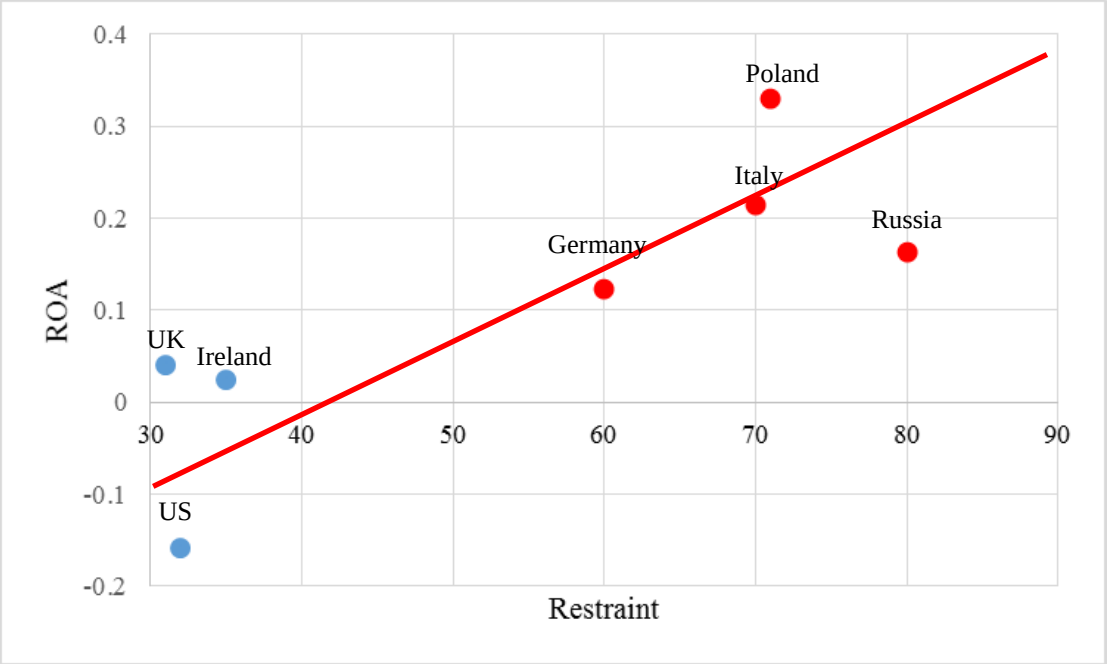


Table 1: Summary statistics

This table reports the summary statistics for various CEOs and bank-specific variables. Panel A classifies CEOs into *Gen2-3*, i.e., CEOs who are children or grandchildren of immigrants to the US; and *Gen4+*, i.e., fourth (or higher) generation of immigrant CEOs. Panel B breaks down the specific country of origin of *Gen2-3 CEOs*. Panel C reports the summary statistics for other CEOs and bank-specific variables. Our sample covers all public US banks for the period of 1994–2006. Definitions of all variables are included in Appendix 2.

Panels A–B: CEO's country of origin and generation of immigrant

	N	Shares of total
Panel A: Gen2-3 vs Generation4+ CEOs		
Gen2-3	293	48%
Gen4+	317	52%
Total	612	100%
Panel B: CEO's country of origin		
Germany	68	23%
Italy	41	14%
Britain	37	12%
Poland	22	7%
Ireland	18	6%
Russia	19	6%
All others	88	31%
Total	293	100%

Panel C: CEO and firm characteristics

Variables	N	Mean	STD	p1	p50	p99
Dependent variables: Bank performance and policies						
ROA (%)	3007	1.112	0.682	-0.065	1.098	2.465
ROE (%)	3007	12.450	6.015	-1.299	12.810	25.520
Tobin's Q	2321	1.004	0.004	1.000	1.003	1.016
Tail risk	2988	0.043	0.018	0.017	0.039	0.101
Expenses/Income	3007	0.758	0.085	0.562	0.758	0.986
Nonperforming loans	2060	0.007	0.008	0.000	0.006	0.033
Competitive measures						
Competitive state	3007	0.570	0.495	0.000	1.000	1.000
#openings	3007	1.840	1.528	0.000	2.000	4.000
CEO-specific measures						
Power Distance	3006	0.043	0.015	0.013	0.040	0.093
Individualism	3006	0.080	0.016	0.037	0.091	0.091
Masculinity	3006	0.060	0.013	0.010	0.062	0.079
Uncertainty Avoidance	3006	0.054	0.017	0.034	0.046	0.095
Individualism	3006	0.041	0.022	0.024	0.026	0.083
Restraint	3002	0.042	0.016	0.031	0.032	0.080
Ln (CEO age)	3007	4.035	0.137	3.689	4.043	4.357
Ln (CEO tenure)	3007	1.920	0.802	0.000	2.015	3.466
Depression baby	3007	0.036	0.185	0.000	0.000	1.000
Ivy League	2765	0.156	0.363	0.000	0.000	1.000
MBA	2765	0.247	0.431	0.000	0.000	1.000
Past directorship	2765	0.210	0.407	0.000	0.000	1.000
Ln (bonus comp)	817	7.173	1.009	5.740	7.048	9.473
CEO vega/delta	773	0.305	0.252	0.000	0.257	0.993
CEO ownership	788	0.020	0.055	0.000	0.003	0.336
Bank-specific measures						
Ln (assets)	3007	14.670	1.808	12.080	14.230	19.870
Leverage	3007	0.909	0.041	0.820	0.914	0.953
Lending	3007	0.643	0.133	0.103	0.664	0.869
Deposit	3007	0.749	0.116	0.298	0.768	0.909
Stock volatility	3007	0.020	0.009	0.008	0.019	0.048
HHI	3007	0.379	0.197	0.109	0.326	1.000

Table 2: Univariate DiD test: Diagnostics and results

Panel A compares the characteristics of treatment (operating in a competitive state) and control banks in 1994, the fiscal year immediately before IBBEA becomes effective. The difference between two groups and its p-value are reported. Panel B reports the determinants of CEO appointment in 1994. The dependent variable in column (1) is *Gen2-3 CEOs*; a dummy equals one if the CEO is a child or grandchild of immigrants and zero otherwise. The dependent variables in columns (2) to (7) are dummies that equal 1 if the CEO has an ancestor from the UK, Ireland, Germany, Italy, Poland or Russia, respectively. Definitions of all variables are included in Appendix 2.

Panel A: Bank characteristics immediately before the IBBEA

	Treatment	**Control**	**Treatment *minus* Control**	
	Mean	Mean	Difference	p-value
ROA (%)	1.044	1.042	0.003	0.971
Gen2-3	0.473	0.375	0.098	0.192
Ln (assets)	14.594	14.466	0.128	0.631
Leverage	0.917	0.916	0.001	0.770
Lending	0.615	0.619	-0.005	0.776
Deposit	0.757	0.813	-0.056	0.001
Stock volatility	0.025	0.024	0.001	0.642
HHI	0.386	0.428	-0.042	0.231
Ln (CEO age)	4.014	4.018	-0.004	0.838
Ln (CEO tenure)	1.810	1.720	0.090	0.458
ROA growth 2-year (%)	0.072	-0.060	0.132	0.231

Panel B: Determinants of CEO appointment in 1994 (Is there pre-treatment window matching?)

	Gen2-3	British	Irish	German	Italian	Polish	Russian
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ROA_{t-1}	0.024	-0.023	-0.026	-0.027	0.018	-0.024	0.088*
	(0.111)	(-0.336)	(-0.399)	(-0.675)	(1.003)	(-1.035)	(1.812)
$Ln\ (assets)_{t-1}$	0.326	0.447	0.072	-0.394	-0.123	0.320	-0.329
	(0.360)	(1.124)	(0.515)	(-1.116)	(-0.810)	(1.251)	(-0.969)
$Ln\ (assets)^2_{t-1}$	-0.012	-0.015	-0.002	0.012	0.003	-0.010	0.011
	(-0.410)	(-1.185)	(-0.463)	(1.046)	(0.573)	(-1.234)	(0.969)
$Leverage_{t-1}$	6.181	0.908	1.443	-0.225	-0.255	-1.920	0.767
	(0.816)	(0.242)	(0.951)	(-0.082)	(-0.229)	(-1.205)	(0.335)
$Lending_{t-1}$	1.115	0.386	0.303	-0.468*	0.260	-0.283	0.110
	(1.620)	(1.000)	(1.658)	(-1.845)	(1.489)	(-1.141)	(0.413)
$Deposit_{t-1}$	-0.198	0.180	-0.089	0.608	-0.422	-0.076	0.175
	(-0.177)	(0.358)	(-0.301)	(1.464)	(-1.302)	(-0.498)	(0.535)
$Stock\ volatility_{t-1}$	-0.031	-3.266	4.026	-6.141	-1.015	1.298	5.432
	(-0.003)	(-0.929)	(0.904)	(-1.636)	(-0.626)	(0.943)	(0.988)
HHI_{t-1}	-0.108	0.141	-0.139	0.268	-0.503*	0.219	-0.881
	(-0.205)	(0.664)	(-0.820)	(1.174)	(-1.813)	(1.252)	(-1.477)
$Ln\ (CEO\ age)_{t-1}$	13.940	13.143	-3.481	10.667	-13.308	-6.379	5.345
	(0.576)	(0.902)	(-0.740)	(1.421)	(-1.406)	(-1.155)	(0.658)
$Ln\ (CEO\ age)^2_{t-1}$	-1.682	-1.655	0.452	-1.371	1.725	0.813	-0.665
	(-0.548)	(-0.905)	(0.753)	(-1.462)	(1.423)	(1.159)	(-0.646)
$Ln\ (CEO\ tenure)_{t-1}$	0.053	0.018	0.033	0.136	0.081	-0.016	0.024
	(0.195)	(0.201)	(0.316)	(0.998)	(1.375)	(-0.390)	(0.249)
$Ln\ (CEO\ tenure)^2_{t-1}$	-0.004	0.009	-0.014	-0.039	-0.035	0.011	0.006
	(-0.049)	(0.305)	(-0.484)	(-1.103)	(-1.645)	(0.786)	(0.166)
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	135	135	135	135	135	135	135

Table 3: Competitive pressures, CEO 'cultural heritage' status and performance

This table reports the OLS estimation results. The dependent variable is ROA. Gen2-3 is a dummy that equals 1 if the CEO is a child or grandchild of immigrants to the US. Competitive state is a dummy that equals 1 if a given state at any given time removes barriers to single branch acquisition and/or state-wide deposit cap on branch acquisition. Columns (1) to (5) present OLS results controlling for self-selection bias by including the inverse Mills ratio from the first-stage probit regression shown in Appendix 3. Column (6) replicates the model in column (4) after excluding the inverse Mills ratio. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Panel A: Interaction analysis						
Dependent variable: ROA						
	Heckman 2-stage					OLS
	(1)	(2)	(3)	(4)	(5)	(6)
Gen2-3*Competitive state	0.161***	0.161***	0.098**	0.167**	-	0.154***
	(4.412)	(4.372)	(2.237)	(2.271)	-	(2.657)
Gen2-3	-0.121***	-0.109***	-0.063	0.263	-0.006	0.281
	(-4.185)	(-3.731)	(-1.482)	(1.294)	(-0.356)	(1.453)
Competitive state	0.899	0.271	0.084	1.352	0.260	1.133
	(0.711)	(0.193)	(0.054)	(0.564)	(0.923)	(0.456)
Ln (assets)	0.416***	0.367***	-0.062	-0.197	0.377***	-0.108
	(3.758)	(3.246)	(-0.367)	(-0.780)	(5.594)	(-0.488)
Ln (assets)^2	-0.011***	-0.010***	-0.003	0.001	-0.009***	-0.001
	(-3.185)	(-2.603)	(-0.550)	(0.094)	(-4.218)	(-0.158)
Leverage	-10.476***	-10.553***	-5.682***	-5.274***	-11.760***	-4.875***
	(-33.135)	(-33.166)	(-11.225)	(-7.288)	(-51.781)	(-3.592)
Lending	0.200	0.235*	-0.067	0.023	-0.068	-0.123
	(1.617)	(1.800)	(-0.452)	(0.100)	(-0.899)	(-0.604)
Deposit	-0.341**	-0.239	-0.713***	-0.659**	0.053	-0.710**
	(-2.391)	(-1.595)	(-3.544)	(-2.284)	(0.523)	(-2.029)
Stock volatility	-0.164*	0.200	-0.077	-0.035	0.117	-0.087
	(-1.688)	(0.239)	(-0.897)	(-0.267)	(0.137)	(-0.669)
HHI	-5.736***	-2.392	-8.093***	-8.117***	-4.641***	-7.753**
	(-3.870)	(-1.449)	(-5.918)	(-4.277)	(-3.846)	(-2.427)
Ln (CEO age)	0.831	-0.348	9.817**	8.838	-3.661	-2.441
	(0.288)	(-0.119)	(2.483)	(0.949)	(-1.202)	(-0.455)
Ln (CEO age)^2	-0.116	0.026	-1.214**	-1.135	0.461	0.263
	(-0.322)	(0.072)	(-2.453)	(-0.969)	(1.215)	(0.388)
Ln (CEO tenure)	0.128**	0.106*	0.015	0.017	0.246***	0.075
	(2.248)	(1.745)	(0.283)	(0.197)	(6.150)	(1.323)
Ln (CEO tenure)^2	-0.020	-0.015	0.004	0.019	-0.053***	0.018
	(-1.226)	(-0.878)	(0.239)	(0.656)	(-4.827)	(0.792)
Lambda	0.108	0.217***	-0.248**	-0.508*	0.272***	-
	(1.489)	(3.013)	(-2.036)	(-1.733)	(3.588)	-
Year FE	Yes	No	Yes	Yes	Yes	Yes
State FE	Yes	No	No	No	Yes	No
State-year FE	No	Yes	No	No	No	No
Firm FE	No	No	Yes	No	No	No
CEO FE	No	No	No	Yes	No	Yes
Observations	3006	3006	3006	2992	3006	2992
Panel B: H0 = Gen2-3 CEOs*Competitive state + Gen2-3 CEOs = 0						
F-test	2.950*	5.310**	0.730	4.730**	-	5.120**
Prob.> Chi^2	(0.086)	(0.021)	(0.392)	(0.030)	-	(0.024)

Table 4: Competitive pressures, CEO generation of immigrant and performance

This table reports the OLS estimation results. The dependent variable is ROA. Second-gen is the children of the naturalized immigrants. Third-gen is the grandchildren of the naturalized immigrants. Fourth-gen is the great-grandchildren of the naturalized immigrants. Competitive state is a dummy that equals 1 if a given state at any given time removes barriers to single branch acquisition and/or state-wide deposit cap on branch acquisition. All models include State-year fixed effects. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Panel A: Interaction analysis			
Dependent variable: ROA			
	Second-gen	Third-gen	Fourth-gen
	(2)	(3)	(4)
Second-gen*Competitive state	0.169***		
	(3.227)		
Second-gen	-0.093**		
	(-2.432)		
Third-gen*Competitive state		0.134**	
		(2.035)	
Third-gen		-0.050	
		(-0.931)	
Fourth-gen*Competitive state			-0.034
			(-0.525)
Fourth-gen			0.046
			(0.830)
Competitive state	-2.496	-2.286	-2.362
	(-1.641)	(-0.936)	(-1.546)
Lambda	0.090	0.118	0.104*
	(1.577)	(1.464)	(1.826)
Other controls	Yes	Yes	Yes
State-year FE	Yes	Yes	Yes
Observations	2307	2307	2307
Panel B: H0 = Generation of immigrant CEOs*Competitive state + Generation of immigrant CEOs = 0			
F-test	4.950**	3.300*	0.050
Prob.> Chi^2	(0.0262)	(0.069)	(0.083)

Table 5: Competitive pressures, CEO country of origin and performance

This table reports the OLS estimation results. The dependent variable is ROA. British is a dummy that equals 1 if the CEO is Gen2-3 and has a British ancestor. Irish is a dummy that equals 1 if the CEO is Gen2-3 and has an Irish ancestor. German is a dummy that equals 1 if the CEO is Gen2-3 and has a German ancestor. Italian is a dummy that equals 1 if the CEO is Gen2-3 and has an Italian ancestor. Polish is a dummy that equals 1 if the CEO is Gen2-3 and has a Polish ancestor. Russian is a dummy that equals 1 if the CEO is Gen2-3 and has a Russian ancestor. Competitive state is a dummy that equals 1 if a given state at any given time erects barriers to single branch acquisition and/or state-wide deposit cap on branch acquisition. All indicates the specification where we include all ancestry interactions into the regression specification. Home state is a dummy variable that equals 1 if the state has an above-median fraction of immigrants coming from the same country of origin as the CEO. All models include State-year fixed effects. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Panel A: CEO's country of origin and performance under pressure							
Dependent variable: ROA							
CEO ancestor	British	Irish	German	Italian	Polish	Russian	All
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
British*Competitive state	0.038						0.094
	(0.293)						(0.721)
British	-0.091						-0.124
	(-0.768)						(-1.052)
Irish*Competitive state		0.022					0.060
		(0.318)					(0.857)
Irish		0.128***					0.100**
		(2.605)					(1.983)
German*Competitive state			0.135**				0.149***
			(2.512)				(2.755)
German			-0.112***				-0.115***
			(-2.642)				(-2.713)
Italian*Competitive state				0.163*			0.084
				(1.826)			(0.994)
Italian				-0.219***			-0.132*
				(-2.741)			(-1.769)
Polish*Competitive state					0.338***		0.356***
					(3.300)		(3.457)
Polish					-0.141*		-0.154**
					(-1.866)		(-2.023)
Russian*Competitive state						0.222**	0.224**
						(2.260)	(2.269)
Russian						0.016	0.012
						(0.234)	(0.178)
Competitive state	0.771	1.122	0.683	0.905	0.905	0.859	1.320
	(0.587)	(0.855)	(0.522)	(0.648)	(0.694)	(0.654)	(1.010)
Lambda	0.236***	0.241***	0.233***	0.240***	0.208***	0.249***	0.216***
	(3.279)	(3.356)	(3.248)	(3.182)	(2.898)	(3.445)	(3.011)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3006	3006	3006	3006	3006	3006	3006

Panel B: CEO's country of origin, immigrant community and performance under pressure						
Dependent variable: ROA						
CEO Ancestor	British	Irish	German	Italian	Polish	Russian
	(1)	(2)	(3)	(4)	(5)	(6)
Ancestor*Competitive state*Home state	-0.032	0.053	-0.029	-0.037	-0.199	-0.029
	(-0.271)	(0.753)	(-0.416)	(-0.260)	(-1.412)	(-0.200)
Ancestor*Competitive state	**0.059**	**-0.051**	**0.155****	**0.075**	**0.467*****	**0.232****
	(0.388)	**(-0.880)**	**(2.177)**	**(0.483)**	**(3.435)**	**(2.102)**
Ancestor	-0.091	0.118***	-0.112***	-0.129*	-0.141*	0.429
	(-0.768)	(2.633)	(-2.642)	(-1.747)	(-1.858)	(0.984)
Home state	0.605	0.231	0.420	0.205	-0.629	0.016
	(0.512)	(0.575)	(0.962)	(0.510)	(-0.532)	(0.234)
Competitive state	0.765	0.839	0.710	0.667	0.918	0.429
	(0.583)	(0.630)	(0.542)	(0.503)	(0.704)	(0.322)
Lambda	0.235***	0.243***	0.231***	0.225***	0.214***	0.249***
	(3.269)	(3.379)	(3.217)	(3.127)	(2.969)	(3.447)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
State-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3006	3006	3006	3006	3006	3006

Table 6: Competitive pressures, CEO's specific cultural measures and performance

This table reports the OLS estimation results. The dependent variable is ROA. Competitive state is a dummy that equals 1 if a given state at any given time removes barriers to single branch acquisition and/or state-wide deposit cap on branch acquisition. Power Distance, Individualism, Masculinity, Uncertainty Avoidance, Long-term Orientation and Restraint are indexes obtained from Hofstede, Hofstede and Minkov (2010). Genetic distance measures the genetic difference between two populations. Data on genetic distance are taken from Spolaore and Wacziarg (2009). All models include State-year fixed effects. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Dependent variable: ROA						
Cultural indexes	Power distance	Individualism	Masculinity	Uncertainty avoidance	Long-term orientation	Restraint
	(1)	(2)	(3)	(4)	(5)	(6)
Power distance*Competitive state	1.887					
	(1.643)					
Power distance	-0.626					
	(-0.682)					
Individualism*Competitive state		-4.793***				
		(-3.369)				
Individualism		2.451**				
		(2.099)				
Masculinity *Competitive state			-1.579			
			(-1.087)			
Masculinity			0.251			
			(0.217)			
Uncertainty avoidance* Competitive state				2.400**		
				(2.219)		
Uncertainty avoidance				-2.032**		
				(-2.452)		
Long-term orientation* Competitive state					-0.429	
					(-0.383)	
Long-term orientation					-0.832	
					(-0.980)	
Restraint* Competitive state						3.257***
						(2.866)
Restraint						-2.467***
						(-2.727)
Genetic distance*Competitive state	-2.550***	0.172	-4.096***	-3.518***	2.770**	-2.747
	(-3.538)	(0.070)	(-3.427)	(-2.860)	(2.029)	(-1.348)
Genetic distance	1.142**	-0.529	1.908**	1.331	-6.504***	0.835
	(2.028)	(-0.260)	(2.055)	(1.404)	(-3.549)	(0.512)
Competitive state	0.167	0.321	0.536	0.329	0.656	0.457
	(0.117)	(0.225)	(0.376)	(0.231)	(0.464)	(0.319)
Lambda	0.237***	0.223***	0.251***	0.216***	0.218***	0.224***
	(3.281)	(3.094)	(3.457)	(3.007)	(3.013)	(3.097)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
State-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2992	3003	2992	2992	3005	3001

Table 7: Competitive pressures, CEO country of origin and bank policy choices

This table reports the OLS estimation results. The dependent variables are total expense scaled by total income (Panel A), fraction of nonperforming loans (Panel B), 5-day event window of [-2, +2] (%) market returns for merger announcements (Panel C). British is a dummy that equals 1 if the CEO is Gen2-3 and has a British ancestor. Irish is a dummy that equals 1 if the CEO is Gen2-3 and has an Irish ancestor. German is a dummy that equals 1 if the CEO is Gen2-3 and has a German ancestor. Italian is a dummy that equals 1 if the CEO is Gen2-3 and has an Italian ancestor. Polish is a dummy that equals 1 if the CEO is Gen2-3 and has a Polish ancestor. Russian is a dummy that equals 1 if the CEO is Gen2-3 and has a Russian ancestor. Competitive state is a dummy that equals 1 if a given state at any given time removes barriers to single branch acquisition and/or state-wide deposit cap on branch acquisition. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Panel A: Cost-efficiency

Dependent variable: Expense/ Income						
CEO ancestor	British	Irish	German	Italian	Polish	Russian
	(1)	(2)	(3)	(4)	(5)	(6)
Ancestor*Competitive state	-0.007	0.005	-0.006	-0.038***	-0.077***	-0.043***
	(-0.344)	(0.416)	(-0.649)	(-2.776)	(-4.583)	(-2.678)
Ancestor	0.030	0.001	0.005	0.012	0.019	-0.003
	(1.525)	(0.075)	(0.668)	(1.005)	(1.560)	(-0.304)
Competitive state	-0.180	-0.755***	-0.180	-0.151	-0.181	-0.200
	(-0.790)	(-3.222)	(-0.791)	(-0.665)	(-0.798)	(-0.880)
Lambda	-0.019	-0.023**	-0.018	-0.018	-0.012	-0.021*
	(-1.638)	(-1.978)	(-1.613)	(-1.636)	(-1.095)	(-1.842)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
State-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3006	3006	3006	3006	3006	3006

Panel B: Credit risk

Dependent variable: Nonperforming loans						
CEO ancestor	British	Irish	German	Italian	Polish	Russian
	(1)	(2)	(3)	(4)	(5)	(6)
Ancestor*Competitive state	-0.001	0.004***	0.001	-0.008***	-0.005***	0.004
	(-0.373)	(2.682)	(0.835)	(-5.042)	(-2.749)	(1.567)
Ancestor	0.002	-0.003***	-0.002***	0.008***	0.003**	-0.005*
	(0.865)	(-3.167)	(-2.638)	(5.765)	(2.250)	(-1.685)
Competitive state	0.035	0.030	0.035	0.041	0.033	0.059
	(1.079)	(0.935)	(1.104)	(1.304)	(1.034)	(1.461)
Lambda	-0.009***	-0.009***	-0.009***	-0.009***	-0.008**	-0.009***
	(-2.742)	(-2.739)	(-2.699)	(-2.613)	(-2.520)	(-2.692)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
State-year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2059	2059	2059	2059	2059	2059

Panel C: Acquisition performance

Dependent variable: CARs [-2, +2] %						
CEO ancestor	British	Irish	German	Italian	Polish	Russian
	(1)	(2)	(3)	(4)	(5)	(6)
Ancestor*Competitive state	3.517	2.128	-0.540	-1.990	3.259**	8.029***
	(1.504)	(0.833)	(-0.353)	(-1.246)	(2.158)	(3.977)
Ancestor	-1.440**	0.006	-0.718	2.754***	-2.829**	-2.668
	(-2.256)	(0.005)	(-0.520)	(3.413)	(-2.319)	(-1.507)
Competitive state	-0.727	-0.779	-0.531	-0.632	-0.694	-0.829
	(-1.304)	(-1.296)	(-0.911)	(-1.123)	(-1.240)	(-1.490)
Ln (assets)	0.882	2.012	2.486	1.202	1.456	1.933
	(0.177)	(0.433)	(0.487)	(0.239)	(0.288)	(0.382)
Ln (assets)^2	0.003	-0.027	-0.043	-0.006	-0.014	-0.027
	(0.021)	(-0.210)	(-0.311)	(-0.042)	(-0.099)	(-0.196)
ROA	0.997**	0.950**	1.012**	0.970**	0.934**	1.065**
	(2.280)	(2.289)	(2.256)	(2.261)	(2.232)	(2.282)
Ln (CEO age)	-336.052**	-401.055**	-376.687**	-384.978**	-374.813**	-434.313***
	(-2.193)	(-2.541)	(-2.373)	(-2.430)	(-2.210)	(-2.816)
Ln (CEO age)^2	41.382**	49.443**	46.474**	47.538**	46.287**	53.720***
	(2.181)	(2.528)	(2.363)	(2.423)	(2.198)	(2.810)
Ln (CEO tenure)	1.968	1.675	1.808	1.710	1.840	1.924
	(1.285)	(1.103)	(1.213)	(1.116)	(1.140)	(1.267)
Ln (CEO tenure)^2	-0.236	-0.149	-0.209	-0.138	-0.176	-0.230
	(-0.534)	(-0.343)	(-0.473)	(-0.315)	(-0.386)	(-0.528)
Cross-border	1.238	1.237	1.160	1.204	1.192	1.298
	(1.382)	(1.361)	(1.298)	(1.319)	(1.299)	(1.477)
Cash finance	0.022***	0.022***	0.023***	0.021***	0.023***	0.023***
	(3.163)	(3.208)	(3.222)	(2.988)	(3.242)	(3.277)
Ln (deal value)	-1.173***	-1.180***	-1.151***	-1.177***	-1.183***	-1.159***
	(-4.498)	(-4.585)	(-4.379)	(-4.506)	(-4.533)	(-4.386)
Deal significance	-0.039	0.981	0.217	0.297	0.578	-0.130
	(-0.009)	(0.255)	(0.052)	(0.073)	(0.143)	(-0.030)
Observations	264	264	264	264	264	264

Table 8: CEO's cultural heritage and the 1989 Canada–United States FTA

This table reports the regression results using the 1989 Canada–United States FTA as an exogenous shock to industry competition. *Post89* is a dummy that equals 1 from 1989 onwards. Import tariff data come from Feenstra (1996). Export tariff data come from Trefler (2004). Tariff rates are aggregated from the commodity level to the level of four-digit SIC codes. We first obtain firm-level segment sales and the four-digit SIC codes associated with each segment from the Compustat Segments database and then compute a weighted-average tariff rates based on the firms' segment sales. We then assign firms with above-median import tariff with a score of 1 and those with a below-median import tariff a score of 0. Similarly, firms with above-median export tariff receive a score of 1 and those with a below-median import tariff receive a score of 0. We then sum these two scores to obtain *Tariff rank*, which can receive a value of 0, 1 or 2. The sample includes those largest firms in the Compustat database from the period 1980–2000. Definitions of other variables are provided in Appendix 2. Standard errors are corrected for heteroskedasticity. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Dependent variable: ROA		
	(1)	(2)
Gen2-3*Post89*Tariff rank	1.303***	1.363**
	(2.797)	(1.967)
Post89*Tariff rank	0.868*	-1.365
	(1.682)	(-1.466)
Gen2-3	0.015	-0.817*
	(0.038)	(-1.721)
Tariff rank	-0.720	0.925*
	(-1.269)	(1.899)
Ln (assets)	-3.091	-1.545
	(-1.188)	(-0.375)
Ln (assets)^2	0.124	0.041
	(0.994)	(0.209)
Asset growth	29.169***	53.218***
	(3.186)	(4.280)
Leverage	-12.470***	-15.645***
	(-7.859)	(-7.228)
Stock volatility	-0.980***	-0.932***
	(-3.582)	(-2.817)
Ln (CEO age)	1.013	0.275
	(0.416)	(0.105)
Ln (CEO age)^2	0.183	0.004
	(0.314)	(0.007)
Ln (CEO tenure)	0.142*	0.138
	(1.805)	(0.990)
Ln (CEO tenure)^2	-0.017***	-0.022**
	(-3.337)	(-2.003)
Year FE	Yes	No
Industry FE	Yes	No
Industry-year FE	No	Yes
Observations	775	775

Appendix 1: Interstate deregulation

This table shows the regulatory changes in the banking industry over the period 1994–2006. Each column represents the roadblocks that a state adopts against the IBBEA provisions. Data source: Rice and Strahan (2010).

State	Effective date	Single branch acquisition restriction	State-wide deposit cap on branch acquisition	Age restriction	De novo interstate branching restriction
Alabama	05/31/1997	Yes	30%	5	Yes
Alaska	01/01/1994	No	50%	3	Yes
Arizona	08/31/2001	No	30%	5	Yes
Arizona	09/01/1996	Yes	30%	5	Yes
Arkansas	06/01/1997	Yes	25%	5	Yes
California	09/28/1995	Yes	30%	5	Yes
Colorado	06/01/1997	Yes	25%	5	Yes
Connecticut	06/27/1995	No	30%	5	No
Delaware	09/29/1995	Yes	30%	5	Yes
Washington DC	06/13/1996	No	30%	No	No
Florida	06/01/1997	Yes	30%	3	Yes
Georgia	05/10/1997	Yes	30%	3	Yes
Georgia	06/01/1997	Yes	30%	5	Yes
Hawaii	01/01/2001	No	30%	No	No
Hawaii	06/01/1997	Yes	30%	5	Yes
Idaho	09/29/1995	Yes	No	5	Yes
Illinois	08/20/2004	No	30%	No	No
Illinois	06/01/1997	Yes	30%	5	Yes
Indiana	07/01/1998	No	30%	5	No
Indiana	06/01/1997	No	30%	No	No
Iowa	04/04/1996	Yes	15%	5	Yes
Kansas	09/29/1995	Yes	15%	5	Yes
Kentucky	03/22/2004	Yes	15%	No	Yes
Kentucky	03/17/2000	Yes	15%	No	Yes
Kentucky	06/01/1997	Yes	15%	5	Yes
Louisiana	06/01/1997	Yes	30%	5	Yes
Maine	01/01/1997	No	30%	No	No
Maryland	09/29/1995	No	30%	No	No
Massachusetts	08/02/1996	No	30%	3	No
Michigan	11/29/1995	No	No	No	No
Minnesota	06/01/1997	Yes	30%	5	Yes
Mississippi	06/01/1997	Yes	25%	5	Yes
Missouri	09/29/1995	Yes	13%	5	Yes
Montana	10/01/2001	Yes	22%	5	Yes
Montana	09/29/1995	N/A	+1% per year from 18% to 22%	4	N/A
Nebraska	05/31/1997	Yes	14%	5	Yes
Nevada	09/29/1995	Limited	30%	5	Limited
New Hampshire	01/01/2002	No	30%	No	No
New Hampshire	08/01/2000	No	30%	5	No
New Hampshire	06/01/1997	Yes	20%	5	Yes
New Jersey	04/17/1996	No	30%	No	Yes
New Mexico	06/01/1996	Yes	40%	5	Yes
New York	06/01/1997	No	30%	5	Yes
North Carolina	07/01/1995	No	30%	No	No
North Dakota	08/01/2003	No	25%	No	No

North Dakota	05/31/1997	Yes	25%	No	Yes
Ohio	05/21/1997	No	30%	No	No
Oklahoma	05/17/2000	No	20%	No	No
Oklahoma	05/31/1997	Yes	15%	5	Yes
Oregon	07/01/1997	Yes	30%	3	Yes
Pennsylvania	07/06/1995	No	30%	No	No
Rhode Island	06/20/1995	No	30%	No	No
South Carolina	07/01/1996	Yes	30%	5	Yes
South Dakota	03/09/1996	Yes	30%	5	Yes
Tennessee	03/17/2003	No	30%	3	No
Tennessee	07/01/2001	No	30%	5	No
Tennessee	05/01/1998	No	30%	5	Yes
Tennessee	06/01/1997	Yes	20%	5	Yes
Texas	09/01/1999	No	20%	No	No
Texas	08/28/1995	N/A	20%	N/A	N/A
Utah	04/30/2001	No	30%	5	No
Utah	06/01/1995	No	30%	5	Yes
Vermont	01/01/2001	No	30%	No	No
Vermont	05/30/1996	No	30%	5	Yes
Virginia	09/29/1995	No	30%	No	No
Washington	05/09/2005	No	30%	5	No
Washington	06/06/1996	Yes	30%	5	Yes
West Virginia	05/31/1997	No	25%	No	No
Wisconsin	05/01/1996	Yes	30%	5	Yes
Wyoming	05/31/1997	Yes	30%	3	Yes

Appendix 2: Definitions of variables

Variable	Definition	Source
CEO's cultural heritage measures		
Gen2-3	Equals 1 if the CEO is a child or grandchild of immigrants	Ancestry.com
Gen4+	Equals 1 if the CEO is a fourth or higher generation of immigrants	Ancestry.com
British	Equals 1 if the CEO is Gen2-3 and has a British ancestor	Ancestry.com
Irish	Equals 1 if the CEO is Gen2-3 and has an Irish ancestor	Ancestry.com
German	Equals 1 if the CEO is Gen2-3 and has a German ancestor	Ancestry.com
Italian	Equals 1 if the CEO is Gen2-3 and has an Italian ancestor	Ancestry.com
Polish	Equals 1 if the CEO is Gen2-3 and has a Polish ancestor	Ancestry.com
Russian	Equals 1 if the CEO is Gen2-3 and has a Russian ancestor	Ancestry.com
Second-gen	Equals 1 if the CEO is a child of immigrants	Ancestry.com
Third-gen	Equals 1 if the CEO is a grandchild of immigrants	Ancestry.com
Fourth-gen	Equals 1 if the CEO is a great-grandchild of immigrants	Ancestry.com
Power Distance	Power Distance Index	
Individualism	Individualism Index	
Masculinity	Masculinity Index	Hofstede,
Uncertainty Avoidance	Uncertainty Avoidance Index	Hofstede and
Long-term Orientation	Long-term Orientation Index	Minkov (2010)
Restraint	100-Indulgence Index	
Bank competition measures		
Competitive state	Dummy equals 1 if a given state at any given time removes barriers to single branch acquisition and/or state-wide deposit cap on branch acquisition	
#openings	Number ranges from 0 (highly regulated) to 4 (deregulated) based on regulation changes in a given state	Rice and Strahan (2010)
Before^{2+}	All years up to and including two years before the deregulation	
Before^{1}	One year prior to deregulation	
Present	The year of deregulation	
After^{1}	One year post-deregulation	
After^{2+}	Two years after the deregulation	
Bank performance measures		
ROA (%)	Earnings before interest and taxes (EBIT) divided by book value of total assets (BHCK2170)	CRSP, FR Y9-C
ROE (%)	EBIT divided by book value of total equity (BHCK3210)	CRSP, FR Y9-C
Tobin's Q	Market value of equity divided by book value of total equity (BHCK3210)	CRSP
Tail risk	The negative of the average return on the bank's stock during the 5% worst returns day for the bank's stock during the year	CRSP
Expense/Income	Total expenses (BHCK4073+ BHCK4093) divided by total income (BHCK 4107+BHCK4079)	FR Y9-C
Nonperforming loans	Ratio of loans past due day 90 days or more (BHCK5525) and nonaccrual loans (BHCK5526) divided by total assets	FR Y9-C
Other CEO characteristics		
Ln (CEO age)	Natural logarithm of the CEO age	BoardEx
Ln (CEO tenure)	Natural logarithm of the number of years the CEO has served in this position	BoardEx
Ivy League	Equals 1 if the CEO has an Ivy League education	BoardEx
MBA	Equals 1 if the CEO has an MBA degree	BoardEx
Past directorship	Equals 1 if the CEO has a prior executive directorship	BoardEx
Depression baby	Equals 1 if the CEO was born between 1920 and 1929	BoardEx

Ln (bonus comp)	Natural logarithm of the CEO bonus compensation	ExecuComp
CEO ownership	The fraction of shares owned by the CEO	ExecuComp
CEO vega	Sensitivity of CEO compensation to share price, expressed in $'1000	ExecuComp
CEO delta	Sensitivity of CEO compensation to stock return volatility, expressed in $'1000	ExecuComp
Other bank characteristics		
Ln (assets)	Natural logarithm of total assets (BHCK2170)	FR Y-9C
Leverage	Book value of liabilities divided by book value of total assets	FR Y-9C
Lending	Ratio of total loans (BHCK2122) divided by total assets	FR Y-9C
Deposits	Ratio of total deposits (BHDM6631+BHFN6631 + BHDM6636 + BHFN6636) divided by total assets	FR Y-9C
Stock volatility	Standard deviation of a firm's stock return in a given year	CRSP
HHI	Index measuring the concentration of deposits at the state level	FR Y-9C
Foreign loans	Total foreign loans divided by total assets	FR Y-9C
Foreign deposits	Total foreign deposits divided by total assets	FR Y-9C
County-level characteristics		
Ln (population)	Natural logarithm of the county population	US Census Bureau
Civilian labor force	Fraction of the population who have jobs or are seeking jobs, are at least 16 years old, are not serving in the military and are not institutionalized	US Census Bureau
Ln (personal income)	Natural logarithm of the individual's income from wages, investment enterprises and other ventures	US Census Bureau
Religiosity	The degree of local religiosity is the number of religious adherents to the total population in the county as reported by ARDA	Association of Religion Data Archive
Characteristics at origin in 1900		
Ln (GDP) at origin	Natural logarithm of GDP at the country of origin of the CEO	UN Statistics Division
Ln (life expectancy) at origin	Natural logarithm of life expectancy at the country of origin of the CEO	UN Statistics Division
Legal system at origin	Equals 1 if the CEO country of origin has a Napoleonic law with German law influence, 2 if Germanic law, 3 if Common law, 4 if Nordic law, 5 if mixed between Napoleonic law and German law	UN Statistics Division
Corporate governance measures		
Board size	The number of directors sitting on the board	BoardEx
Board independence	The fraction of non-executive directors on the board	BoardEx
Deal characteristics		
Cross-border	Dummy equals 1 for deals where the target is located outside the USA	SDC Platinum
Cash finance	Dummy equals 1 if deal is partially (or fully) financed in cash	SDC Platinum
Ln (deal value)	Natural logarithm of deal value	SDC Platinum
Deal significance	The fraction of deal value relative to the acquirer's market capitalization	SDC Platinum

Appendix 3: Probit estimates of the probability that we can find data on CEO's ancestor (First-stage Heckman)

This table reports the likelihood that we can retrieve data on the CEO's ancestor. This analysis is estimated over a full sample of 5636 bank-year observations from 1996 to 2004. The dependent variable equals 1 when we can retrieve data on the CEO's ancestor. Definitions of other variables are provided in Appendix 2. Standard errors are corrected for heteroskedasticity. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Dependent variable: Equals 1 if data on the CEO's ancestor is available		
	(1)	(2)
Ln (assets)	0.102***	0.096**
	(2.612)	(2.184)
Ln (assets)^2	-0.001	-0.001
	(-1.216)	(-0.865)
Competitive states	-0.034	-0.091***
	(-1.408)	(-3.089)
Leverage	-0.019	-0.018
	(-0.133)	(-0.133)
Lending	-0.120**	-0.073
	(-2.569)	(-1.402)
Deposit	0.294***	0.281***
	(4.340)	(3.688)
HHI	0.077*	1.334***
	(1.808)	(50.506)
Stock volatility	0.238	0.203
	(0.379)	(0.263)
Ln (CEO age)	-12.070***	-12.091***
	(-7.396)	(-6.658)
Ln (CEO age)^2	1.517***	1.518***
	(7.509)	(6.759)
Ln (CEO tenure)	0.086***	0.122***
	(3.363)	(4.206)
Ln (CEO tenure)^2	-0.009	-0.017**
	(-1.261)	(-2.079)
CEO's surname length	**0.042*** **	**0.042*** **
	(12.681)	**(11.638)**
Year FE	Yes	No
State FE	Yes	No
State-year FE	No	Yes
Observations	5636	5636

Appendix 4: Dynamics of bank profitability during deregulation episode

This table reports OLS regression estimates. We replace the competitive state dummy with a set of dummies around the year in which the state imposes the barriers that block interstate branching. All models include State-year fixed effects. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Panel A: Dynamics of bank profitability		
Dependent variable: ROA		
	(1)	(2)
$Before^{2+}$*Gen2-3	0.054	0.111
	(0.791)	(1.516)
$Before^{1}$*Gen2-3	0.006	0.097
	(0.059)	(0.936)
Present*Gen2-3	0.145	0.185*
	(1.623)	(1.922)
$After^{1}$*Gen2-3	0.151*	0.139*
	(1.908)	(1.687)
$After^{2+}$*Gen2-3	0.202***	0.212***
	(4.634)	(4.970)
Gen2-3	-0.145***	-0.150***
	(-4.165)	(-4.391)
$Before^{2+}$	0.191	0.047
	(0.783)	(0.155)
$Before^{1}$	0.262	0.067
	(1.066)	(0.218)
Present	0.067	0.087
	(0.249)	(0.066)
$After^{1}$	0.019	0.136
	(0.072)	(0.103)
$After^{2+}$	-0.065	0.355
	(-0.246)	(0.259)
Lambda	0.104	0.200***
	(1.426)	(2.779)
Other controls	Yes	Yes
Year FE	Yes	No
State FE	Yes	No
State-year FE	No	Yes
Observations	3006	3006

Panel B: Placebo checks	
Dependent variable: ROA	
	(1)
Gen2-3*Competitive state	0.042
	(1.157)
Gen2-3	-0.040*
	(-1.651)
Competitive state	17.915*
	(1.709)
Other controls	Yes
State-year FE	Yes
Observations	3006

Appendix 5: Controlling for omitted geographical characteristics

This table reports the OLS estimation results. Panel A adds county- and city-level fixed effects. Panel B includes additional time-variant county-level controls: 1) *Ln (population);* 2) *Civilian labor force*; 3) *Ln (personal income); 4) Religiosity.* Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Panel A: Alternative geographical fixed effects		
Dependent variable: ROA		
Fixed effects	County-level	City-level
	(1)	(2)
Gen2-3*Competitive state	0.102**	0.094**
	(2.487)	(2.283)
Gen2-3	-0.071**	-0.057*
	(-2.216)	(-1.677)
Competitive state	2.157*	-0.987
	(1.665)	(-0.734)
Lambda	-0.162*	-0.252***
	(-1.883)	(-2.626)
Other controls	Yes	Yes
Year FE	Yes	Yes
Observations	3006	3006
Panel B: Additional time-variant county-level controls		
Dependent variable: ROA		
	(1)	(2)
Gen2-3*Competitive state	0.153***	0.167***
	(4.044)	(4.433)
Gen2-3	-0.099***	-0.113***
	(-3.339)	(-3.793)
Ln (population)*Competitive state	0.016	0.023
	(0.933)	(1.331)
Ln (population)	-0.027**	-0.029**
	(-2.072)	(-2.193)
Civilian labor force*Competitive state	0.513	0.631
	(1.061)	(1.295)
Civilian labor force	-0.071	-0.119
	(-0.184)	(-0.308)
Ln (personal income)*Competitive state	-0.115	-0.133*
	(-1.508)	(-1.743)
Ln (personal income)	0.157**	0.174**
	(2.076)	(2.296)
Religiosity*Competitive state	-	-0.526***
	-	(-2.892)
Religiosity	-	0.323**
	-	(2.014)
Competitive state	0.943	1.421
	(0.596)	(0.887)
Lambda	0.226***	0.241***
	(3.153)	(3.341)
Other controls	Yes	Yes
State-year FE	Yes	Yes
Observations	2997	2940

Appendix 6: Controlling for CEO characteristics

This table reports the estimation results where we control for several additional CEO characteristics. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. All models include State-year fixed effects. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Dependent variable: ROA		
	(1)	(2)
Gen2-3*Competitive state	0.120***	0.140**
	(3.125)	(2.021)
Gen2-3	-0.100***	-0.072
	(-3.234)	(-1.382)
Ivy League*Competitive state	-0.102*	
	(-1.898)	
Ivy League	0.137***	
	(3.228)	
MBA*Competitive state	0.205***	
	(4.546)	
MBA	-0.141***	
	(-3.880)	
Past directorship*Competitive state	-0.062	
	(-1.435)	
Past directorship	-0.114***	
	(-3.468)	
Depression baby*Competitive state	-0.027	
	(-0.228)	
Depression baby	-0.114	
	(-1.261)	
Ln (bonus comp)*Competitive state		-0.306***
		(-5.239)
Ln (bonus comp)		0.469***
		(9.902)
CEO ownership*Competitive state		-0.828***
		(-4.820)
CEO ownership		0.297**
		(2.105)
CEO vega/delta*Competitive state		-0.660
		(-0.818)
CEO vega/delta		0.210
		(0.305)
Competitive state	0.545	-9.129**
	(0.374)	(-2.206)
Lambda	0.265***	0.123
	(3.713)	(1.151)
Other controls	Yes	Yes
State-year FE	Yes	Yes
Observations	3006	726

Appendix 7: Economic development and institutional quality in the cultural country of origin

This table reports the estimation results where we control for the economic development and quality of institutions of the CEO's country of origin. We measure them in 1900, where the CEO's ancestors are likely to make the decision to emigrate. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Dependent variable: ROA	
	(1)
Gen2-3*Competitive state	0.123**
	(2.453)
Gen2-3	-0.086**
	(-2.228)
Ln (GDP) at origin*Competitive state	-0.002
	(-0.017)
Ln (GDP) at origin	0.107
	(1.194)
Ln (life expectancy) at origin*Competitive state	-0.381
	(-1.372)
Ln (life expectancy) at origin	-0.127
	(-0.589)
Legal system at origin*Competitive state	0.048*
	(1.902)
Legal system at origin	-0.011
	(-0.571)
Competitive state	0.805
	(0.495)
Lambda	0.151*
	(1.948)
Other controls	Yes
State-year FE	Yes
Observations	3006

Appendix 8: Validation of Hofstede's cultural measures

This table validates Hofstede's cultural measures. The dependent variables are survey questions from the 1990 to 2012 sample of the GSS. **THINKSELF** asks 'If you had to choose, which thing on this list would you pick as the most important for a child to learn to prepare him or her for life? TO THINK FOR HIMSELF OR HERSELF.' **SECJOB** asks 'On the following list there are various aspects of jobs. Please circle one number to show how important you personally consider it is in a job: JOB SECURITY.' **WORKHARD** asks 'If you had to choose, which thing on this list would you pick as the most important for a child to learn to prepare him or her for life? WORKING HARD.' For all three questions, the answer can range from 1 (not important at all) to 5 (very important). Uncertainty avoidance and Individualism are indexes obtained from Hofstede, Hofstede, Minkov (2010). Restraint is (100-Indulgence Index), obtained from Hofstede, Hofstede, Minkov (2010). Age is the respondent's age at the time of the interview. Male is a dummy that equals 1 if the respondent is male. Income is the respondent's family income bracket. Ln (education) is the natural logarithm of the respondent's years of education. Health is a variable that ranks the respondent's health from 1 (poor) to 4 (excellent). Married is a dummy that equals 1 if the respondent is married. Black and White are indicators of a respondent's reported race. Have a job is a dummy that equals 1 if the respondent is employed. Survey year fixed effects are included. Standard errors are corrected for heteroskedasticity. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

	THINKSELF	SECJOB	WORKHARD
	(1)	(2)	(3)
Individualism	2.465***		
	(3.185)		
Uncertainty avoidance		1.337**	
		(1.974)	
Restraint			0.937**
			(-2.029)
Age	3.532***	0.965	-0.625
	(5.752)	(1.405)	(-1.307)
Age^2	-0.478***	-0.127	0.058
	(-5.839)	(-1.371)	(0.901)
Male	0.234***	0.076***	-0.092***
	(10.620)	(2.885)	(-5.284)
Income	0.035***	0.001	0.017***
	(5.462)	(0.747)	(3.308)
$Income^2$	-0.000***	-0.099	-0.000***
	(-5.659)	(-0.766)	(-3.641)
Ln (education)	0.896***	-0.027	0.074
	(3.242)	(-0.910)	(0.434)
Ln $(education)^2$	-0.024	0.028**	0.005
	(-0.412)	(2.126)	(0.142)
Health	0.013	-0.036	-0.014*
	(1.373)	(-1.365)	(-1.720)
Married	-0.077***	-0.043	-0.003
	(-3.287)	(-0.788)	(-0.140)
Black	0.248***	-0.169***	-0.191***
	(3.894)	(-3.749)	(-4.219)
White	0.468***	0.003	-0.160***
	(8.111)	(0.085)	(-4.157)
Have a job	0.021	0.965	0.005
	(0.780)	(1.405)	(0.234)
Survey year FE	Yes	Yes	Yes
Observations	12824	3038	12824

Internet Appendix

Does CEO Cultural Heritage Affect Performance under Competitive Pressure?

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This appendix contains information and tabulated results of additional tests on the relationship between the CEO's cultural heritage and bank performance under competitive pressure.

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Table A.1: Alternative regression specifications: performance, industry competition, empirical model

This table reports alternative regression specifications. Panel A uses alternative performance measures as dependent variables: 1) ROE; 2) Market-to-book ratio (Tobin's Q); 3) Tail risk. Panel B uses an alternative measure of industry competition: #openings, the number of openings (as opposed to barriers) the state adopts towards interstate branching. Panel C uses an alternative empirical strategy that only consider banks operating in competitive states. Banks with Gen2/3 CEOs are assigned to the treatment group and those with Gen4+ are assigned to the control group. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Panel A: Alternative bank performance measures			
Dependent variables:	ROE	Tobin's Q	Tail risk
	(1)	(2)	(3)
Gen2-3*Competitive state	2.232***	0.505***	-0.002**
	(4.791)	(4.535)	(-1.976)
Gen2-3	-1.666***	-0.354***	0.001
	(-4.531)	(-3.782)	(1.131)
Competitive state	-20.844	-17.735***	-0.135***
	(-1.197)	(-4.418)	(-2.841)
Lambda	1.329	0.696**	-0.002
	(1.491)	(2.299)	(-0.897)
Other controls	Yes	Yes	Yes
State-year FE	Yes	Yes	Yes
Observations	3006	3006	3006

Panel B: Alternative competition measure	
Dependent variable: ROA	
	(1)
Gen2-3*#openings	0.041***
	(3.353)
Gen2-3	-0.054**
	(-1.969)
#openings	-0.058
	(-0.147)
Lambda	0.208***
	(2.904)
Other controls	Yes
State-year FE	Yes
Observations	3006

Panel C: Alternative empirical specification	
Dependent variable: ROA	
	(1)
Gen2-3*Competitive state	0.150**
	(2.554)
Gen2-3	-0.085
	(-1.578)
Competitive state	-2.448
	(-1.064)
Lambda	0.529***
	(4.220)
Other controls	Yes
State-year FE	Yes
Observations	2191

Table A.2: Are the results driven by our data collection process?

This table tests whether our results are driven by the data collection process. Column (1) includes firm-year observations where the CEO is born before 1940 while column (2) includes observations where the CEO is born after 1940. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Dependent variable: ROA		
	CEO birth year <=1940	CEO birth year >1940
	(1)	(2)
Gen2-3*Competitive state	0.152**	0.193***
	(2.041)	(4.206)
Gen2-3	-0.110**	-0.122***
	(-2.339)	(-3.251)
Competitive state	0.393	-2.812
	(0.114)	(-1.569)
Lambda	0.370***	0.351***
	(3.211)	(4.299)
Other controls	Yes	Yes
State-year FE	Yes	Yes
Observations	812	2194

Table A.3: Controlling for board characteristics

This table reports the results where we include additional controls for board characteristics: *board size*, the total number of directors on the board; and *board independence*, the fraction of non-executive directors on the board. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Dependent variable: ROA	
	(1)
Gen2-3*Competitive state	0.213***
	(4.774)
Gen2-3	-0.131***
	(-3.515)
Board size*Competitive state	-0.001
	(-0.155)
Board size	-0.010**
	(-2.574)
Board independence*Competitive state	-0.466***
	(-3.283)
Board independence	0.183
	(1.628)
Competitive state	0.555
	(0.331)
Lambda	0.226***
	(2.765)
Other controls	Yes
State-year FE	Yes
Observations	2384

Table A.4: Do our results capture 'non-competitive' rents when banks operate in rural areas?

This table reports the results where we include an additional control *ROA in 1994*, which is the performance of the bank at the beginning of the sample period. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Dependent variable: ROA	
	(1)
Gen2-3*Competitive state	0.164***
	(4.319)
Gen2-3	-0.062**
	(-2.020)
Competitive state	-20.472**
	(-2.097)
ROA in 1994	0.214***
	(13.933)
Lambda	0.047
	(0.610)
Other controls	Yes
State-year FE	Yes
Observations	2368

Table A.5: Do our results reflect the bank's foreign operations?

This table reports the results where we control for the bank's foreign operations. *Foreign loans* is total foreign loans divided by total assets. *Foreign deposits* is total foreign deposits divided by total assets. Standard errors are corrected for heteroskedasticity. The sample covers the period 1994–2006. Definitions of other variables are provided in Appendix 2. *t-Statistics* are reported in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% level, respectively.

Dependent variable: ROA		
	(1)	(2)
Gen2-3*Competitive state	0.147***	0.149***
	(4.312)	(4.361)
Gen2-3	-0.096***	-0.097***
	(-3.566)	(-3.597)
Foreign loans*Competitive state	934.993	
	(1.454)	
Foreign loans	-914.543	
	(-0.981)	
Foreign deposits *Competitive state		54.746
		(0.173)
Foreign deposits		376.371
		(0.940)
Competitive state		-0.957
		(-0.680)
Lambda	0.114*	0.128*
	(1.767)	(1.959)
Other controls	Yes	Yes
State-year FE	Yes	Yes
Observations	2972	2972