The Origins and Real Effects of the Gender Gap: Evidence from CEOs' Formative Years*

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Abstract

CEOs allocate more investment capital to male than female division managers. Using data from individual Census records, we find that this gender gap is driven by CEOs who grew up in male-dominated families—those where the father was the only income earner and had more education than the mother. The gender gap also increases for CEOs who attended all-male high schools and grew up in neighborhoods with greater gender inequality. The effect of gender on capital budgeting introduces frictions and erodes investment efficiency. Overall, the gender gap originates in CEO preferences developed during formative years and produces significant real effects.

Key words: CEO, gender, family descent, formative years

JEL Codes: G30, G31, G40, J16, J71, H31

* We thank Stijn Van Nieuwerburgh (the editor) and two anonymous referees for their valuable suggestions. For helpful comments, we thank Tom Bates, Patricia Boyallian, Oleg Chuprinin, Jonathan Cohn, Claudia Custodio, Henrik Cronqvist, Daniel Ferreira, Maria Guadalupe, Simi Kedia, Sehoon Kim, Samuli Knüpfer, Yiqing Lu, Paola Sapienza, Geoffrey Tate, Edward Van Wesep, Patrick Verwijmeren, and conference participants at the 2018 Drexel University Corporate Governance Conference, the 2018 Finance Cavalcade of the Society for Financial Studies, the 2018 Northeastern University Finance Conference, the 2018 Front Range Finance Seminar at the University of Colorado, the 2018 CEPR Spring Symposium in Financial Economics, the 2018 Corporate Finance Workshop at Lancaster University, the 2018 Annual Meeting of the European Finance Association (EFA), the 2018 Annual Meeting of the Northern Finance Association (NFA), the 2018 Endless Summer Finance Conference, the 2018 Principles of Responsible Investing Academic Network Conference, the 2018 Wellington Finance Summit, the 2018 Corporate Finance Conference at Washington University in St. Louis, the 2018 Conference on Board Diversity Quotas at Stockholm University, the 2018 EuroFidai Paris December Finance Meeting, the 2019 Annual Meeting of the American Finance Association (AFA), the 2019 Conference on Finance, Labor and Inequality in Capri, the 2019 International Centre for Pension Management discussion forum, and seminar participants at Australian National University, Baruch College, Boston College, HEC Paris, Chinese University of Hong Kong, Hong Kong University of Science and Technology, Interdisciplinary Center Herzliya (IDC Herzliya), Maastricht University, State University of New York at Buffalo, Stockholm School of Economics, Tel Aviv University, University of Arkansas, University of California at Irvine, University of Delaware, University of New South Wales, University of Notre Dame, University of Sydney, University of Texas at Dallas, University of Technology at Sydney, University of Toronto, University of Queensland, and University of Washington. We gratefully acknowledge financial support from the Institute for Gender and the Economy at the University of Toronto, the Mitsui Life Financial Research Center at the University of Michigan, and the Social Sciences and Humanities Research Council of Canada. Send correspondence to Denis Sosyura, W. P. Carey School of Business, 300 E. Lemon St., P.O. Box 873906, Tempe, AZ 85287; telephone: (480) 965-4221. E-mail: dsosyura@asu.edu.

Optimal allocation of resources across agents is critical for economic outcomes, both at the level of an individual firm and the entire economy. An ongoing debate in the literature revolves around the claim that male managers obtain more resources, such as capital or pay, than their female counterparts, a pattern labeled the gender gap. If such a gap exists, it remains unclear whether it reflects a potential bias of the decision makers or results from economic factors correlated with gender, such as preferences, productivity, or risk aversion. Similarly, the real effects on economic outcomes are not fully understood.

These two open questions—the origins and real effects of the gender gap—are the focus of this paper. Many proposed policy responses aimed at narrowing the alleged gender gap assume that it reflects a bias of the decision maker, such as the CEO, which introduces market frictions. Yet, this premise is difficult to test because it requires eliciting CEO preferences and connecting resource allocations to real outcomes.

This paper makes a step toward addressing both challenges. We study capital allocations to male and female division managers at U.S. conglomerates. In this setting, the CEO holds the decision authority (Xuan 2009; Graham, Harvey, and Puri 2015), and division managers are peers with observable capital investments and subsequent outcomes. Since conglomerates account for over 60% of investment in the S&P 1500, this decision has important economic consequences.

To elicit CEO preferences, we rely on the evidence in social economics that an individual's views on gender issues are shaped by familial, environmental, and educational factors experienced until early adulthood, a period called formative years (see Epstein and Ward 2011 for a review). In particular, individuals form an outlook on gender roles by observing their parents and the norms on gender equity in the community and at school (Mischel 1966; Bandura 1986; Leve and Fagot 1997; Martin et al. 2002).

To study CEOs' formative years, we obtain individual census records for the households where they grew up, offering the first descriptive evidence on the family descent of U.S. executives. CEOs come from well-to-do families where the father is the primary earner, has more education, and earns more than the mother. These intra-family socioeconomic differences between CEOs' parents typically exceed those in the general population. The median CEO father has 4.1 more years of education than the median adult male and earns an income at the 75th national percentile. Over two-thirds of CEOs' fathers hold white-collar jobs, and 35% are managers or entrepreneurs. CEOs' mothers are less likely to work outside their homes (21%) than women nationwide (42%). When they do, their median income is at the 57th national percentile.

Our first result is that female division managers obtain 46–67 basis points less in annual capital expenditures (measured as a fraction of assets) than male managers with the same observable characteristics. For the average division, this gap in capital allocations amounts to an economically important difference of 9–13 percent of the annual investment or $13.2–$19.3 million per year.

By exploiting within-firm variation in CEOs, we find that the gender gap in capital allocations is driven by the CEO's early-life exposure to gender inequity in the family, community, and school. Among these factors, the CEO's family has the strongest effect. The gender gap in capital allocations is driven by CEOs who grew up in male-dominated families where the father was the only income earner and had more education than the mother and where the CEO had no female children. Further, educational factors have important mediating effects. A significant fraction of CEOs attended all-male high schools (16.4%) and all-male colleges (9.9%), and the gender gap in capital budgets is greater for such CEOs compared with those from co-educational institutions. Finally, environmental factors—measures of gender equity in the CEO's home county—have meaningful effects, but they are subsumed by the familial and educational factors.

Taken together, the effect of familial, educational, and environmental factors from CEOs' formative years explains the majority of the economic gap in capital allocations. As an external validation of the factors extracted from CEOs' formative years, we show that they are strongly correlated with CEO policies on gender issues, such as promoting women and allocating contracts to female-run suppliers, measured by a research firm KLD Research & Analytics. Since our analysis exploits within-firm variation, these gender policies are specific to CEOs and cannot be explained by time-persistent firm attributes.

Our conclusions are robust to accounting for the endogenous matching between CEOs and firms, using specifications with CEO * firm fixed effects. Our results also hold after absorbing time-invariant heterogeneity across managers and divisions, suggesting that the gender gap in capital allocations is unlikely to be explained by unobservable attributes correlated with managers' gender or their divisions.

We identify two economic channels contributing to the gender gap in capital allocations: (i) appointment of female managers to capital-poor divisions (the appointment channel) and (ii) lower capital allocations after the appointment (the capital allocation channel). We find that female managers are assigned to less profitable divisions which historically receive less capital. To disentangle the capital allocation channel from the appointment channel, we exploit CEO turnovers for natural causes (death,

illness, or retirement) and study the change in capital allocations when CEO characteristics change, but the assignment of managers to divisions remains constant. This approach controls for unobservable time-persistent characteristics of divisions (such as complexity and capital intensity) and division managers (such as risk aversion and skill). When a CEO with a more conservative background arrives after his predecessor leaves for natural causes, the gender gap between the same division managers rises, and vice versa.

We consider several non-mutually exclusive explanations for the relation between CEOs' backgrounds and the gender gap in capital budgets: (1) information asymmetry, (2) favoritism, (3) childbirth, and (4) risk taking. We find stronger evidence for the first two channels.

The information asymmetry hypothesis posits that CEOs with male-dominated backgrounds have less experience in dealing with women on the job and face greater information asymmetry when assessing female managers' ability, capital demands, or investment forecasts. Theory predicts that CEOs allocate less capital to managers in the face of information asymmetry (Antle and Eppen 1985; Harris and Raviv 1996). Consistent with this hypothesis, the relation between CEOs' backgrounds and the gender gap in capital allocations is stronger for external CEOs—those who are less familiar with the female managers at their new firm. Conversely, the effect of a CEO's formative experiences on capital allocations weakens as the CEO observes female division managers over longer periods at his firm, consistent with learning.

The favoritism hypothesis states that CEOs with male-dominated backgrounds find it easier—consciously or not—to invest with male division managers. This channel is consistent with theories of homophily, which predict a positive in-group gender tilt in resource allocations (surveyed in McPherson, Smith-Lovin, and Cook 2001 and Jackson 2008). Using data from KLD Research & Analytics, we adopt two independent measures of gender favoritism: (i) legal action against the management on gender and diversity issues and (ii) preferential tilt in the allocation of supply orders to male vs. female contractors. Using both measures, we find that CEO favoritism contributes to the gender gap in capital budgeting.

According to the childbirth hypothesis, CEOs with conservative backgrounds expect female managers to interrupt their careers for childbirth. Thus, CEOs restrain long-term investments in female managers' divisions. The evidence on this channel is weaker. Directionally, CEOs with conservative backgrounds allocate less capital to female division managers of childbearing age (under 40) than to their older counterparts, but this relation is economically small and falls short of being statistically significant.

The risk taking hypothesis postulates that CEOs with male-dominated backgrounds allocate less capital to female managers because of concerns about women's tolerance for risk. We find weak directional evidence that CEOs with more conservative backgrounds are less likely to appoint women to riskier divisions and, when they do, tend to allocate less capital to female division managers in riskier divisions. However, these relations are not statistically significant at conventional levels.

If the link between CEOs' gender attitudes and capital allocations reflects an optimal policy, it should be magnified under strong governance. In contrast, if this effect reflects CEOs' subjective preferences, it should be attenuated under governance mechanisms unaffected by such preferences. To distinguish between these views, we focus on two dimensions of governance: (i) internal (the board of directors) and (ii) external (industry competition). We find that the relation between CEOs' gender attitudes and capital allocations is attenuated by up to 35% in the presence of a woman in the chief monitoring role—the chair of the board. The effect of CEOs' gender attitudes is also reduced in more competitive industries.

In our final analysis, we provide suggestive evidence on economic outcomes. In the analysis of labor flows, we find that female division managers are more likely to separate from and less likely to be promoted at firms run by CEOs with greater early-life exposure to gender imbalances. Under such CEOs, capital allocations across divisions become less responsive to growth opportunities (Tobin's Q), and divisions run by female managers experience weaker growth and profitability. These patterns are negatively associated with firm operating performance and stock returns. Yet, we view our performance results as suggestive because these outcomes may also reflect other value-eroding practices beyond capital allocation.

In summary, the gender gap in resource allocation is related to the CEO's gender attitudes, whether conscious or subconscious, and the origins of such attitudes can be traced to one's formative years. This effect has large implications for capital investment.

The central contribution of this paper is to provide the first evidence on the family descent of U.S. CEOs and to demonstrate that the origins of gender effects in financial policies are linked to CEO experiences from formative years. Our findings contribute to research on (i) the origins of managerial preferences, (ii) the effect of gender in capital allocation, and (iii) the operation of internal capital markets.

Recent work underscores the role of early-life experiences in shaping CEOs' financial policies. Malmendier, Tate, and Yan (2011) find that CEOs who grew up during the Great Depression are averse to

taking on debt and lean excessively on internal finance. Benmelech and Frydman (2015) show that CEOs with military experience adopt conservative policies. Cronqvist and Yu (2017) provide evidence that CEOs who experience the birth of a daughter increase spending on corporate social responsibility. Yonker (2017a) finds that CEOs who grew up near their firm's establishments are less likely to fire local employees or cut their pay. Yet, despite the importance of early-life experiences for firm policies, we know little about CEOs' personal backgrounds. Our study provides systematic evidence on CEOs' families, home communities, and early schooling and studies jointly the effects of familial, educational, and environmental factors.

We also extend the literature on gender effects in capital allocation, which has emerged in entrepreneurial finance. Prior work finds that female entrepreneurs obtain less funding than their male counterparts (Coleman and Robb 2016) even if their investment ventures are identical (Brooks, Huang, Kearney, and Murray 2014). Ewens and Townsend (2019) demonstrate that the lower funding of female entrepreneurs is driven by male investors, and Hebert (2019) finds that it is concentrated in male-dominated industries. Yet the mechanisms underlying the funding gap remain disputed. Some authors find that it reflects a bias, such as homophily (Gompers and Wang 2017; 2018) and investors' stereotypes about women's ability to take risks and manage growth (Kanze, Huang, Conley, and Higgins 2018). Others argue that the funding gap is a rational response to women's lower capital demand (Coleman and Robb 2009) and higher risk aversion (Morris, Miyasaki, Watters, and Coombes 2006). Our paper is one of the first to show that the origins of gender effects in capital funding are linked to the decision maker's early-life exposure to gender inequality. We provide novel evidence from internal capital markets, which suggests that the gender gap persists even in repeated allocations to the same agents, but it is mitigated by learning from outcomes.

Finally, we contribute to the literature on the role of division managers in internal capital markets. In a survey of CEOs at S&P 500 firms, Graham, Harvey, and Puri (2015) find that the CEO's opinion of a division manager is the second most important factor in capital budgeting after the NPV rule. Cichello et al. (2009) investigate the determinants of division managers' careers inside conglomerates. Duchin and Sosyura (2013) study the role of division managers' characteristics in internal capital markets and find that managers connected to the CEO obtain more funds. Our paper extends this research by suggesting that CEOs' gender attitudes affect division managers' career trajectories and capital allocations.

2. Gender influences in formative years: Theory, evidence, and measurement

2.1. The role of early-life experiences

Prior work in the social sciences shows that an individual's early-life experiences—from childhood through early parenthood—play a key role in shaping personal traits, including gender attitudes. The personal traits developed early in life remain remarkably consistent decades later. For example, in a survey of research on personal traits, McCrae and Costa (1994) document that within-individual correlations between personal traits measured during (i) early adulthood and (ii) late career (up to thirty years thereafter) range from 0.60 to 0.80 and conclude that "individual differences in personality traits … are essentially fixed by age 30." (p. 173). Similarly, in a survey of 152 empirical studies on personality traits, Roberts and DelVecchio (2000) conclude that an individual's personality traits are most actively shaped early in life, and personality traits acquired from early-life experiences predict an individual's behavior several decades later.

Research in finance shows that early-life experiences have a long-lasting effect on CEOs. Prior work has established significant relations between CEOs' formative experiences and corporate financial policies, such as risk-taking (Graham and Narasimhan 2005), R&D (Benmelech and Frydman 2015), and capital structure (Bernile, Bhagwat, and Rau 2017). The effects of CEOs' formative experiences persist at large and closely monitored firms but need not be value-improving (Malmendier, Tate, and Yan 2011).

The effect of early-life experiences on gender attitudes has received less attention in finance despite its strong theoretical foundation and extensive validation in other fields. The role of early-life experiences in the formation of gender attitudes is formalized in the theory of social learning, introduced by Mischel (1966), developed in Bandura (1977, 1986), and expanded into the social-cognitive theory by Bussey and Bandura (1999). This theory posits that individuals form their gender attitudes at an early age by observing the behavior of men and women in their family, community, and school.

2.2. Family characteristics

Parents play a pivotal role in developing an individual's gender attitudes. The social learning theory posits that "parents are likely the most influential figures … when it comes to modeling gender through both implicit and explicit cues" (Halpern and Perry-Jenkins 2016). Children and adolescents absorb subtle cues from their parents—such as the parents' relative social status, breadwinner rights, and division of labor—and extrapolate these inferences to develop views about the roles of men and women in the labor force.

These predictions have received wide empirical support. For example, individuals brought up in families where the mother does not hold paid employment are more likely to develop stereotyped gender attitudes (e.g., Gold and Andres 1978; Cordua, McGraw, and Drabman 1979; Weinraub et al., 1984; Levy 1989; Huston and Alvarez 1990; Lerner 1994). In recent work on a large and nationally representative U.S. sample, Farre and Vella (2013) show that people born into families with a non-working mother develop conservative gender attitudes, as measured by statements such as "a woman's place is in the home, not in the office" and "it is better for everyone concerned if the man is the achiever outside the home." Similarly, individuals brought up in families where the mother has less formal education than the father develop less egalitarian gender attitudes (Vanfossen 1977; Martin et al., 1980; Herzog and Bachman 1982; Thornton et al., 1983). More generally, gender attitudes developed within the home predict labor market outcomes, such as women's labor force participation (Fernández, Fogli and Olivetti 2004) and compensation (Fortin 2005).

Motivated by prior evidence, we introduce three measures of the relative social status of a CEO's parents as a source of variation in the CEO's gender attitudes. First, *Non-working mother* is an indicator that equals one if the CEO's mother does not work outside the home, and zero otherwise. Second, *Parents' education imbalance* is the difference between the number of education years for the CEO's father and mother, scaled by their average years of education. Third, *Parents' income imbalance* is the difference between the annual incomes of the CEO's father and mother, scaled by their average income. We impute the income of zero for mothers working only at home. Variable definitions appear in Appendix A.

In addition to the well-established influence of parents, research also highlights an important role of siblings in the formation of an individual's gender attitudes (see McHale, Updegraff, and Whiteman (2012) for a review). The social learning theory predicts that males with brothers adopt more conservative and more masculine gender norms than males with sisters. A large body of empirical work, dating back to at least Koch (1956), Brim (1958), and Sutton-Smith and Rosenberg (1970), has supported these predictions. Later work has confirmed these patterns in large samples (Rust et al. 2000) and compiled evidence of greater gender stereotyping among males with brothers than males with sisters (Stoneman, Brody, and MacKinnon 1986). To measure the gender composition of the CEO's siblings, we introduce the variable *Siblings' gender imbalance*, which equals the difference between the number of the CEO's brothers and sisters, scaled by the number of the CEO's siblings. For CEOs with no siblings, this variable is set to zero.

Prior work on familial factors also emphasizes the reciprocal effects in parent-child relations. While parents affect their children's gender views, the birth of a child itself shifts the gender attitudes of its parents. Research shows theoretically and empirically that the parenting of daughters (rather than sons) shifts one's gender attitudes toward more egalitarian views. Cronqvist and Yu (2017) develop a model where an agent internalizes his children's utility and show analytically that the parenting of a daughter leads him to adopt more egalitarian gender views. Warner (1991) and Warner and Steel (1999) present evidence consistent with these predictions. The effect of parenting daughters on gender attitudes is causal (Shafer and Malhotra 2011) and influences the decisions of sophisticated agents, such as Congressmen (Washington 2008), venture capitalists (Gompers and Wang 2018), and CEOs (Dahl, Dezso, and Ross 2012; Cronqvist and Yu 2017). To study the effect of parenting daughters, we define the variable *Children's gender imbalance* as the difference between the CEO's number of sons and daughters, normalized by the number of children.

In summary, our familial factors capture measurable and validated influences from all members in the CEO's immediate family, except for the spouse: parents, siblings, and children. For each CEO, our measures exploit exogenous variation in endowed factors, such as the characteristics of one's parents and the gender composition of siblings or children, which remain free from reverse causality. In contrast, we do not study the influence from the CEO's spouse because the choice of a spouse is bilateral and endogenous.

2.3. Community characteristics

The social learning theory postulates that gender attitudes are shaped by social norms in the community where people spend their formative years (Mischel 1966; Bandura 1977, 1986). Specifically, people develop gender norms by inferring the relative social status of men and women in their community, extrapolating from such cues as labor force participation, traditional occupations, and representation in positions of authority. Empirical work has confirmed the causal effect of community norms on residents' gender attitudes and labor market outcomes (Alesina, Giuliano, and Nunn 2013). In a review of 58 empirical studies, Swim and Sanna (1996) conclude that when men are perceived to have a higher status in a society, the identical performance of male and female agents is more likely to be attributed to skill for men and luck for women, especially in male-dominated professions (Heilman, Block, and Martell 1995). If such a pattern extends to our setting, it could represent one mechanism through which a CEO's gender attitudes affect the allocation of resources to male and female division managers even if their performance is identical.

To measure the effect of community norms, we introduce three proxies for the relative economic status of men and women in the county where the CEO went to high school. First, *Labor force participation gender imbalance* is the difference in the labor force participation rate between men and women. Second, *Income gender imbalance* is the difference between the average annual income of employed men and women, scaled by their average income. Third, *Education gender imbalance* is the difference between the years of education for men and women, scaled by average education. These data are measured for county residents between ages 18 and 45 as of the national census year closest to the year when the CEO reaches age 18.

2.4. Educational characteristics

Our final set of attributes exploits variation in CEOs' early education, focusing on whether the CEOs attended co-educational or single-gender high schools and colleges. This focus is grounded in theories that demonstrate that single-gender schooling augments gender stereotypes and increases in-group biases by endorsing gender segregation. For example, the contact theory of Allport (1954) predicts that the segregation of groups on a salient characteristic, such as gender, reinforces in-group biases. Bigler and Liben (2006, 2007) show analytically that social factors that foster gender-based segregation increase gender stereotyping.

Empirical work confirms that single-gender schooling increases gender stereotypes among males (Delamont 1990; Brutsaert 2006). Recent work finds that the effect of gender segregation on in-group biases is causal (Dahl, Kotsadam, and Rooth 2018). In addition to the causal interpretation, it is also possible that students with gender stereotypes self-select into single-gender schools. Both interpretations are acceptable for our identification strategy, which aims to elicit a CEO's gender attitudes from early-life experiences.

To measure the effect of education characteristics, we introduce two variables. *All-male high school* is an indicator variable that equals one if the CEO attended a single-sex high school and zero otherwise. *University gender imbalance* is the average fraction of male students in the CEO's undergraduate college. Both variables are measured as of the dates of the CEO's attendance.

In summary, we introduce a comprehensive set of 10 theoretically motivated and empirically validated determinants of gender attitudes—from childhood through early parenthood. Our focus on these factors is guided by the ability to construct precise and replicable proxies for these experiences from historical data. In contrast to a focus on a single formative experience in prior work, we provide a joint analysis of familial, communal, and educational factors and compare their relative importance.

3. Sample and summary statistics

3.1. Firms and divisions

We begin our sample construction with the universe of industrial conglomerates included in the S&P 1500 index in 2000–2008.[1] Industrial conglomerates comprise firms that report at least two operating segments on Compustat and operate in industries other than utilities and financials (one-digit SIC codes 4 and 6, respectively).[2] The universe of conglomerates that meet these criteria comprises 806 firms.

We manually go through each firm's organization structure in quarterly and annual reports and proxy statements to identify firms with divisional organization structures where managers oversee specific operating segments. This filter ensures a one-to-one match between managers and divisions. Given this sample criterion, our inferences apply only to firms with such organization structures. We exclude firms with organization structures that lack a clear correspondence between managers and divisions (396 firms). The excluded firms usually use functional or geographic structures where managers are assigned on the basis of functional roles (e.g., vice president of manufacturing) or regional markets (e.g., vice president – Northwest), respectively, and thus oversee an entire functional area or market across all operating segments.

To identify the division manager responsible for each operating segment, we read biographical sketches of the firms' executives in annual reports, proxy statements, and firms' directories, following the algorithm in Duchin and Sosyura (2013). We consider a manager to be in charge of a division if he or she is the highest-level executive responsible for the operating segment. We collect the starting and ending dates of each manager's tenure by supplementing said corporate disclosures with executive biographies from the Forbes Executive Directory, Reuters, Marquis's Who's Who, and Notable Names Database, as well as firms' press releases. We are able to identify all division managers for 91.5% of the firms that meet our sample criteria, and we exclude the remaining 35 firms with missing data on division managers.

In the resulting sample of 375 firms, nine are led by female CEOs. Such a small fraction of female-run firms limits our ability to exploit the variation in CEO gender, and we exclude these nine firms. However, we use female leadership as a source of variation in another context: by focusing on female chairs of the board, the position women are four times as likely to occupy as the post of CEO (8% of observations).

[1] Our sample begins in 2000 because data coverage in BoardEx is sparse before 2000. Our sample ends at the end of 2008 because the hand-collected data on division managers are available for this period from Duchin, Goldberg, and Sosyura (2017).
[2] Operating segments exclude corporate accounts, allocation adjustments, and divisions with zero or negative sales.

Finally, we exclude eight firms run by CEOs for whom no data about formative years can be reliably identified. After imposing this filter, we arrive at our main sample of 358 firms. Appendix Table B.1 shows the sequence of sample selection criteria and the number of observations retained after each filter.

Table 1, Panel A reports summary statistics for our sample firms. The average (median) firm has a book value of assets of $13.5 ($3.6) billion, consists of 3.1 (3.0) divisions, earns an annual revenue of $8.0 ($3.4) billion, and generates an annual return on assets of 4.3% (5.3%). The firms in our sample account for over 70% of book assets and market equity of all industrial conglomerates in the S&P 1500.

Appendix Table B.2 compares our final sample with the rest of the industrial conglomerates in the S&P 1500. The top panel compares the main firm characteristics, including earnings per share, stock return, cash holdings, profitability, capital investment, market-to-book ratio, and firm size. This comparison reveals that our sample is statistically indistinguishable from the rest of the industrial conglomerates in the S&P 1500 across all characteristics examined, except for firm size. In particular, the average firm in our sample is significantly larger. This distinction arises because larger firms are more likely to adopt divisional organization structures, as a greater firm size justifies the assignment of dedicated managers to divisions.

The divisions in our sample are economically important operating units. The average (median) division operates assets with a book value of $3.2 ($0.86) billion, produces $3.2 ($1.1) billion in sales, and obtains $147.2 ($31.2) million in annual investment funds, an equivalent of 5.1% (3.7%) of its book assets.

3.2. CEOs, division managers, and directors

After linking divisions to managers, we collect data on the characteristics of CEOs and division managers. We retrieve appointment dates for CEOs and division managers from Execucomp and press releases, respectively. Next, we hand-match CEOs and managers to BoardEx, where we obtain information on their education, employment history, board memberships, and affiliations with nonprofits. We cross-check and supplement BoardEx data with managerial biographies and the executive databases discussed above. We also collect governance data from BoardEx and RiskMetrics, including information on individual directors.

We obtain demographic information (such as age and gender) for CEOs, division managers, and directors from the Lexis Nexis Public Records database (LNPR), which aggregates data on over 500 million U.S. individuals (alive and deceased) from sources such as birth and death records, property tax assessment records, and voting records. Prior work has used LNPR to obtain personal data on executives (Cronqvist,

Makhija, and Yonker 2012; Yermack 2014), fund managers (Pool, Stoffman, and Yonker 2012; Chuprinin and Sosyura 2018), and financial journalists (Ahern and Sosyura 2015). Individuals in the database are assigned a unique ID linked to one's social security number. We manually verify our matches to LNPR using the individual's employment record, which is verified against the employment locator in LNPR.

Our sample comprises 587 CEOs, 1,788 division managers, and 3,222 directors. Table 1, Panel B shows their summary statistics. As discussed, all CEOs in our sample are male, and, on average, they are 56 years old. About 62% of CEOs have graduate degrees, most of which are MBAs. The dominant majority of CEOs serve on the boards of other companies, and the median CEO holds two external board seats.

In comparison with CEOs, division managers are younger and more diverse. The average manager is 51 years old, and his tenure at the firm is 10.8 years. Women comprise 136 division managers or 7.6% of the sample. Compared with CEOs, division managers are more likely to have graduate degrees (79%), but less likely to hold MBA degrees (39%) and serve on external boards (22%).

The average firm in our sample has a board of 10 directors, of whom 12% are female. The median and modal number of female directors is one, and the mean is 1.27. While 78% of firms have at least one female director, only 8.7% have more than two. The chair of the board is female in 8% of the observations.

To compare the executives between our sample and other industrial conglomerates in the S&P 1500, we collect demographic and professional data on CEOs and division managers for the firms excluded by our sample filters.[3] Appendix Table B.2 shows that CEOs in our sample are statistically indistinguishable from CEOs at other industrial conglomerates across all of the examined characteristics, such as age, gender, tenure with the firm, business education, and external board seats. Likewise, we do not find statistically significant differences between division managers in our sample and their peers at other conglomerates, except that the managers in our sample are more likely to hold an MBA (39%) than their peers (34%). This is expected for the larger firms in our sample. Overall, women are no more likely to serve as CEOs, division managers, or top-5 paid executives (untabulated) at other conglomerates, suggesting that our questions about the origins of female representation in management are no less acute in the broader firm universe.[4]

[3] For the excluded firms, we identify division managers by their job titles in BoardEx but don't match each manager to a division. In the comparison of CEOs' gender, we report our gender statistics before excluding the nine female CEOs in our sample.
[4] In untabulated results based on Execucomp data, we find that women comprise 6% of the top-5 paid executives in our sample and 5% of this group at other industrial conglomerates in the S&P1500, a statistically insignificant difference (*t*-statistic = 0.91).

3.3. Family descent and formative years

We collect comprehensive data on the family, education, and home community for the CEOs in our sample. We focus on CEOs because they hold decision rights in the internal allocation of capital. Prior work validates this decision authority both analytically (Rajan, Servaes, and Zingales 2000; Scharfstein and Stein 2000) and empirically (Xuan 2009; Duchin and Sosyura 2013). Graham, Harvey, and Puri (2015) obtain survey evidence that CEOs are unlikely to delegate the capital allocation decision, and Bennedsen, Pérez-González, and Wolfenzon (2017) demonstrate the causal effect of CEOs on firms' investment decisions.

Family characteristics

We obtain information on CEOs' families from multiple data sources, including federal and state census records, state records of birth, marriage and death, digital archives of city directories, and obituaries. We briefly describe these data here and offer comprehensive detail and examples in the Internet Appendix.

We follow a three-step algorithm to identify the CEO's immediate family by sequentially checking three types of state records—birth, marriage, and death. To ensure a reliable match to the census, we use the unique combination of the full names of the CEO's parents and, in some cases, siblings to unambiguously identify their household in the census archive.

We obtain the image file of the family's records in the federal and state censuses from the digital archive maintained by the U.S. National Archives and Records Administration. The federal census form in our sample provides 34 standardized variables on each member of the household, such as education (in years), occupation, employment status, annual income, and place of birth, among others. The census form also provides many characteristics for the entire household, including the address, home ownership status (rent or own), and the estimated home value. Section 1 in the Internet Appendix (IA) explains how we identify the CEOs' households in the census and shows blank and completed census forms.

We emphasize an important data constraint. Access to personally identifiable census data is restricted by the U.S. public law, and the latest state and federal census records with personally identifiable data are available for 1945 and 1940, respectively, and for previous years. To overcome this constraint, we augment our census data with information from two other digital archives: (i) historical city directories (from the family search service Ancestry.com) and (ii) state death records and obituaries (from the archive of state records on Ancestry.com and the newspaper archive Newspapers.com, respectively). These records

allow us to obtain the same information on the employment status, education, and occupations of the CEO's parents for younger CEOs born after 1945. For overlapping observations, we cross-check the information from city directories and obituaries against the data in the census and find that the two sources provide very similar information. Section 2 in the Internet Appendix discusses our cross-verification algorithm, shows examples of records, and replicates our main results using the data obtained only from the U.S. Census.

We collect information on CEOs' children from the personal background data compiled by the executive intelligence firm Boardroom Insiders and the personal background databases Prabook and Notable Names. We cross-check and augment these sources with data obtained from LNPR and obituaries for CEOs' parents, which list the CEO's children as the surviving family members.

High school and college education

We build the first dataset of CEO high schools by using the archives of high school yearbooks compiled by Classmates.com. We confirm the high school matches by the location of the household where the CEO grew up. We also use data from Boardroom Insiders, CEO biographies, and high school publications that identify notable alumni. To verify ambiguous cases, we submit written disclosure requests for high school data to the registrar of the CEO's undergraduate college. For each high school, we obtain its address, gender status (same-gender or co-ed), religious affiliation, and private/public status for the years of the CEO's attendance. Figure 1 shows that the CEOs in our sample hail from high schools in every state in the continental U.S., except for South Dakota. Forty-four high schools graduated multiple CEOs-to-be, with New Trier High School in Winnetka, Illinois graduating five.

For each CEO, we also record the gender composition of the college where he earned his undergraduate degree by computing the average fraction of female students during the period of the CEO's attendance (ages 18-22). We obtain the gender composition data from the National Science Foundation.

Community characteristics

We proxy for the community where the CEO grew up by the county where he attended high school. We collect the following characteristics of adult male and female residents for each CEO's home county: the labor force participation rate, the annual income, and the number of years of education. We obtain these data from the Integrated Public Use Microdata Series (IPUMS) and measure these characteristics during the census year closest to the CEO's 18^{th} birthday.

4. Descriptive evidence: Which families and communities do CEOs come from?

This section provides one of the first systematic descriptions of the family descent of U.S. CEOs, their early education, and home communities.

Table 2, Panel A describes the immediate families of CEOs, focusing on their parents, siblings, and children. Three conclusions emerge from the data. First, CEOs' parents are well-educated. The father and mother of the median CEO have 14 and 12 years of education, respectively, almost four years more than the median males and females in the general population in the same census. Figure 2 shows the stark contrast between the education of CEOs' parents and the general population. For example, about half of CEOs' parents (56% of CEOs' fathers and 43% of CEOs' mothers) attended college, while the fraction of individuals with a college education in the general population in the same census is just over 10%.

Second, CEOs come from well-to-do families with white-collar occupations. About 71% of CEOs' fathers hold white-collar jobs. Figure 3 summarizes professional occupations of CEOs' parents and shows that 35% of CEOs' fathers are managers or business owners. Other frequent professions among CEOs' fathers are sales (9%), engineering (8%), and academia (5%). These occupations put the median CEO father in the top quartile of the national income distribution. Moreover, a sizable fraction (16%) of CEOs grew up in ultra-wealthy families with incomes in the top 1% of the national distribution. Figure 4 corroborates this evidence. According to two measures of wealth—home value and combined incomes of both parents—CEOs come from households that are considerably richer than the national average.

Third, CEOs' fathers typically have a higher economic status than CEOs' mothers, and these within-family differences exceed those in the general population. The father is the primary income earner in the dominant majority of CEOs' families. In contrast, CEOs' mothers are less likely to work outside their homes (21%) than women nationwide (42%). When they do, their median income is only 45% of the income of the CEO's father. Fathers are also more likely to attend college than mothers. The median CEO father has two more years of education than the mother, whereas in the general population this difference is zero.

The bottom rows of Panel A focus on CEOs' siblings and children. The median CEO has three siblings and two children. The distribution of CEOs' children aligns closely with that reported in Cronqvist and Yu (2017). As expected, the fractions of male and female children and siblings in CEOs' families are approximately equal.

Table 2, Panel B focuses on CEOs' education. Compared with the general population, CEOs are more likely to attend private high schools (25%) and all-male high schools (16%). Similar patterns persist at the college level. Nearly one half of CEOs attend private colleges, and 10% attend colleges restricted to men at the time of attendance.

Table 2, Panel C describes the neighborhoods where our sample CEOs grew up. As discussed, neighborhood characteristics are measured approximately when a CEO reaches age 18. The data reveal a large difference in the labor force participation rate between male residents (94%) and female residents of working age (42%) in the CEOs' home communities. For working adults, the average annual income of men ($60,155 in 2016 dollars) is more than twice as large as that of women ($29,902). These statistics suggest that CEOs spend their formative years in communities where males are more likely to hold outside employment, and when they do, they earn higher incomes than do their female counterparts.

To capture the overall effect of gender imbalances in CEOs' families, educational institutions, and communities, we construct three corresponding indexes and show their moments in Table 2, Panel D. Each index is computed as the average within-sample percentile rank of the respective attributes and ranges from 0 to 1, where higher values indicate early-life exposure to gender imbalances and low female socialization. For example, we calculate *Family gender imbalance index* as the average between the percentile rankings of each CEO's *Non-working mother*, *Parents' education imbalance*, *Parents' income imbalance*, *Children's gender imbalance*, and *Siblings' gender imbalance*. All inputs in the indexes are equally weighted. If one of the index components is missing, the index is computed as an equally weighted average of the available inputs.

In summary, CEOs come from white-collar, well-educated families with the typical incomes in the top quartile of the national distribution. In the majority of CEOs' families, the father is the only income earner and the more educated spouse. Our descriptive evidence on CEOs' family descent and endowed social status adds to prior work that studies CEOs' personal characteristics, such as wealth (Liu and Yermack 2012), personality (Kaplan and Sorensen 2017), and individual traits (Adams, Keloharju, and Knüpfer 2018). Our contribution to this research is to describe the formative years of CEOs and provide systematic evidence on the familial, educational, and communal factors that shape CEOs' characteristics.

5. CEO characteristics and the allocation of capital to male and female managers

This section develops our identification strategy and presents the main results. To motivate our empirical design and identify the correlates of division managers' gender, we first study the distribution of women among division managers across a variety of dimensions, including geographic regions, time periods, firms, industries, and divisions. We then develop an identification strategy that accounts for these patterns in the tests of capital allocation between male and female managers.

5.1. Female representation across regions, years, and firms

Appendix Figure B.1, Panel A shows the representation of women among division managers across geographic regions in the U.S., which are identified by the firm's headquarters. As expected, the fraction of women among division managers is the highest at firms headquartered in the traditionally liberal Northeastern states. In contrast, the fraction of women is the lowest in the more conservative Southwestern states, with the Western and Midwestern states in the middle of this range. These patterns resemble regional variation in female representation in the broader labor force shown in Fogli and Veldkamp (2011).

Appendix Figure B.1, Panel B focuses on the time-series. The fraction of female division managers in our sample does not show a clear time trend, fluctuating between 6.9% and 8.2% across the sample years (these differences are not statistically significant at common levels). This pattern is consistent with the evidence in Dezso and Ross (2012) that female representation among top executives at S&P 1500 firms leveled off in the first decade of the new millennium after steadily increasing in the prior decades.

Appendix Table B.3, Panel A studies how the fraction of female division managers is correlated with firm and CEO attributes. Across an array of firm characteristics, the most reliable pattern is that female managers are more prevalent at larger firms (correlation = 0.158), consistent with the findings on female representation in other contexts (Adams and Kirchmaier 2015). Correlations with other firm attributes are small: -0.012 to 0.051. The analysis of CEO attributes reveals that female division managers are more prevalent at firms led by CEOs with graduate degrees (correlation = 0.077) and larger social networks (correlation = 0.193). Correlations with other CEO attributes are below 0.05 in absolute magnitude.

In summary, women are more likely to serve as division managers at larger firms, firms located in the Northeastern states, and firms led by CEOs with graduate degrees and wider networks. These patterns align well with prior evidence on female representation in the broader firm universe.

5.2. Female representation across industries, divisions, and managers

Appendix Figure B.1, Panel C shows the distribution of female division managers across industries, defined at the level of divisions. Female managers are more likely to run divisions in healthcare products and nondurable consumer goods, and less likely to run divisions in energy and heavy manufacturing. These patterns are not unique to the conglomerate space. For example, Hebert (2019) shows that the cross-industry variation in female representation persists at start-ups and small private firms, with healthcare (energy and mining) among the sectors with the largest (smallest) fraction of women in leadership roles.

The top pane in Appendix Table B.3, Panel B investigates the attributes of divisions run by female managers, focusing on pairwise correlations. The only statistically significant correlation indicates that female-run divisions obtain less capital (correlation with CapEx = -0.044), despite the fact that female-run divisions do not face weaker investment opportunities (positive insignificant correlation with Tobin's Q).

The bottom pane of Panel B shows how the gender of division managers is associated with their professional characteristics. All pairwise correlations are modest. Female managers are slightly younger (correlation with age = -0.080), more educated (correlation with graduate degrees = 0.037), and more likely to hold external board seats (correlation = 0.209). The difference in board seats is consistent with an external demand for female directors in a recent push for board diversity (see Adams (2016) for a review).

Appendix Table B.3, Panel C refines the comparisons of female division managers to their male peers after accounting for managers' selection into firms and industries (firm and industry fixed effects), as well as time-series variation in female representation (year fixed effects). We find that male and female division managers working in the same conglomerates are statistically indistinguishable on measures of education, experience, external board seats, social ties, and skill. The only difference significant at 10% (coefficient on Ln (*Age*) = -0.035, *t*-statistic = 1.83) indicates that female managers are about a year younger than their male peers. In contrast, the small positive correlations of female gender with education and external board seats disappear after accounting for female managers' selection into industries and firms.

In summary, the fraction of women among division managers varies across industries and firms. After accounting for these patterns, female division managers are statistically indistinguishable from their male peers on all examined characteristics, except being slightly younger. Female-run divisions are similar to male-run divisions across a broad array of fundamentals, but receive less investment capital.

5.3. Empirical design

Baseline specification and control variables

Table 3 shows our baseline specification—panel regressions studying the role of division managers' gender in capital allocation. The unit of observation is a division-year, and the dependent variable is the ratio of division-level capital expenditure (CapEx) to book assets, expressed in percent. The value of annual CapEx in Compustat is the realized capital allocation for a given year, and it does not permit the disaggregation into the initially budgeted amounts and overage. The main variable of interest is the indicator *Female division manager*, which tests for the effect of a division manager's gender on capital allocation beyond the effect of other managerial attributes included as controls. These managerial controls include age, education, tenure with the firm, performance record, external board seats, internal board representation, and social connections to the CEO. Other controls include the attributes of the division, firm, and CEO (listed in Table 3) that have been shown to affect capital budgeting (Rajan, Servaes, and Zingales 2000; Ozbas and Scharfstein 2010). Independent variables are lagged by one year relative to the dependent variable. Here and henceforth, standard errors are clustered by firm to allow for time-series correlation in residuals.

Sources of identification and fixed effects

Our estimation exploits variation in capital allocations across divisions of the same firm, while controlling for unobservable heterogeneity across years, divisions' industries, and CEO cohorts.

We include four groups of fixed effects: (1) calendar year, (2) division's industry, (3) firm, and (4) CEO birth cohort. Calendar year fixed effects account for the time trend in capital availability in the economy and capture temporal variation in the overall female representation among division managers. Industry fixed effects account for the cross-sectional variation in female representation across industries and absorb cross-industry heterogeneity in capital intensity. Firm fixed effects account for selection of female managers into firms and absorb firm attributes that remain constant in our sample period, such as location and industry mix. CEO birth cohort fixed effects account for cross-generational variation in CEOs' investment policies, such as investment conservativism associated with a cohort's exposure to the Great Depression (Malmendier, Tate, and Yan 2011) or military draft (Benmelech and Frydman 2015). Birth cohorts are defined as five-year bins, and the earliest cohort consists of CEOs born in 1930–1934. Columns 1–4 in Table 3 sequentially add each group of fixed effects, and column 4 shows our full specification.

5.4. CEO characteristics and gender effects in capital budgeting

Table 3 shows that female division managers obtain less investment capital. This conclusion holds across all specifications with comparable point estimates, as indicated by the negative and statistically significant coefficients on the indicator *Female division manager*. According to the full specification in column 4, female managers obtain 67 basis points (bps) less in annual capital budgets relative to their male peers at the same firm. This effect is reliably significant at 1% (*t*-statistic = 3.78). Given the average annual investment for a division of 5.1 percent of book assets (or $147.2 million), this difference amounts to 13.1% of the average investment budget or $19.3 million per year.

The results from control variables confirm that division managers' characteristics play an important role in capital allocation, consistent with survey evidence in Graham, Harvey, and Puri (2015). CEOs allocate more capital to managers with longer tenures and stronger performance records (manager's trailing operating ROA). Also, CEOs provide more capital to managers with whom they share social connections.

The evidence from firm and division control variables yields expected outcomes. Profitable firms with higher valuations tend to invest more, and a larger fraction of these funds goes to divisions with high trailing performance (operating ROA) and better investment opportunities (industry Tobin's Q).

Table 4 studies the role of CEOs' formative experiences in capital allocation to male and female division managers, controlling for the same manager, division, and firm attributes as in Table 3 and including the same fixed effects for the year, division's industry, firm, and CEO cohort. Panel A augments our baseline specification in Table 3 with measures of CEOs' exposure to gender imbalances in the family (columns 1–5), school (columns 6–7), and community (columns 8–10). The variable of interest is the interaction term of gender-related CEOs' formative experiences and the indicator *Female division manager*.

Panel A shows that female division managers obtain less capital in firms run by CEOs with early-life exposure to gender imbalances. The coefficients on the interaction terms between these measures and the indicator *Female division manager* are negative across all specifications and statistically significant in eight of the ten columns. The effects of formative experiences are economically important. For example, the point estimate on the main interaction term in column 1 (coefficient = -0.269) indicates that CEOs brought up in families with a stay-at-home mother allocate 27 bps less in annual CapEx to female division managers than to their observationally similar male peers at the same firm. This estimate amounts to a

reduction of 5.3% in the annual CapEx. This result is consistent with prior evidence on the economically large effect of a stay-at-home mother on the development of gender norms. For example, in a survey of gender attitudes in a nationally representative U.S. sample, Farre and Vella (2013) identify the mother's employment status as one of the strongest predictors of gender norms: "the difference between the attitudes of children with and without a working mother is similar to that for children born to the most and the least traditional individual in the sample." (p. 225). Among other factors, we find that the gender composition of a CEO's children has a stronger influence (coefficient = -0.375, *t*-statistic = 2.03) than that of his siblings (coefficient = -0.115, *t*-statistic = 1.52).[5] This result parallels prior evidence that an agent's children have a powerful effect on his gender-related decisions (Washington 2008; Gompers and Wang 2018).

Table 4, Panel B shows the joint effect of formative experiences, focusing on the aggregate gender imbalance indexes from the CEO's family (columns 1–2), school (columns 3–4), and community (columns 5–6). Each index is computed as the average within-sample percentile rank of the respective attributes and ranges from 0 to 1, where higher values indicate exposure to gender imbalances. The even and odd columns report regression estimates from specifications with and without firm fixed effects, respectively.

Columns 1–6 in Panel B show that the interaction term *Female division manager * CEO index* is negative and statistically significant across all three indexes. The results suggest that female division managers obtain less capital at firms run by CEOs who spent their formative years in environments linked to less egalitarian gender attitudes. To illustrate economic magnitudes, consider a change of 0.5 (50 percentiles) in the community index, equivalent to a move from a county in the 25th percentile rank to the 75th percentile rank according to the gender gap in labor force participation, income, and education for working adults. According to the point estimate in column 5 on the term *Female division manager * CEO community index* (coefficient = -0.509), CEOs brought up in communities with more gender inequality (75th percentile) allocate 25 bps less in CapEx (-0.509 * 0.5 = -0.25) to female managers than to their male peers, as compared with CEOs who grew up in communities with less gender inequality (25th percentile).

Columns 7–8 include all indexes jointly in the same regression. In these specifications, the effect of family and education characteristics remains reliably negative and statistically significant. The joint inclusion of all gender-related formative experiences appears to explain the majority of the gender gap in

[5] In untabulated tests, we find that the point estimates on the interaction terms in columns 4 and 5 are statistically distinct at 10%.

capital allocations. For example, when the baseline specification of capital allocations (column 4 in Table 3) is augmented with measures of CEOs' formative experiences (column 8 in Table 4), most of the effect of the gender gap is explained by the interaction terms of formative experiences with the female manager indicator. Furthermore, the point estimate on the indicator *Female division manager* shrinks and becomes statistically indistinguishable from zero (*t*-statistic = 1.03). This result indicates that the gender gap in capital budgets largely disappears at firms run by CEOs with comprehensive exposure to gender equity.

Columns 7–8 also speak to the relative importance of the family, community, and education characteristics. In particular, the joint inclusion of family and education characteristics drives out the effect of community attributes. In columns 7–8, the point estimates on the interaction term of the community index with the female manager indicator remain negative, but become small and statistically insignificant. This suggests that community norms are captured by the gender norms in the family and local schools.

Finally, Table 4 also highlights another important aspect of investment policies for CEOs with male-dominated backgrounds—namely, larger annual CapEx. This can be seen by the positive and significant coefficients on the terms *CEO gender imbalance* in Panel A and CEO indexes in Panel B. This result aligns well with prior evidence that early-life exposure to masculinist gender norms is associated with more active and competitive economic behaviors. Gneezy, Leonard, and List (2009) find that men raised in a male-dominated, patriarchal environment behave more competitively. Using natural experiments, Baranov et al. (2018) and Grosjean and Khattar (2019) show that exposure to male-dominated environments causes more aggressive economic and social behaviors, which persist in the long run. In our setting, a more active investment policy is consistent with a manifestation of traditional masculinity norms and what the management literature labels a "macho" management style (Rutherford 2001). Overall, our evidence suggests that a CEO's early-life exposure to gender inequity is associated with a more masculinist management style, as reflected in total investment and its distribution between male and female managers.

In summary, female division managers obtain less investment capital than their male counterparts at the same firm. This gap in capital allocations is strongly related to the CEO's early-life exposure to gender imbalances in the family, community, and school. The joint effect of these factors explains most of the economic gap in capital allocations between male and female managers.

5.5. External validity

This section examines the external validity of our proxies for CEOs' gender attitudes constructed from formative years. First, we study how our proxies are correlated with external, out-of-sample assessments of CEOs' gender policies. Second, we investigate how the effect of our measures differs between young and old CEOs, thus exploiting cross-generational variation in CEOs' exposure to societal gender norms.

Table 5, Panel A shows correlations between CEOs' formative experiences and independent assessments of CEOs' gender policies by the research firm KLD Research & Analytics (henceforth, KLD). The annual assessment scores by KLD are based on the analysis of corporate policies, employee interviews, and pending litigation. Prior work shows that KLD scores provide informative signals about CEO policies on employee relations, diversity, and social responsibility (Chatterji, Levine, and Toffel 2009; Cheng, Hong, and Shue 2016) and capture CEOs' liberal or conservative attitudes (Di Giuli and Kostovetsky 2014).

We focus on three categories of KLD scores that characterize the CEO's gender issues: (i) promotion of women and minorities, (ii) work-life benefits, and (iii) women and minority contracting. The first category evaluates promotion opportunities for women in positions with profit-and-loss responsibilities. The second category examines the CEO's policies in accommodating working mothers in terms of the provision of childcare and family benefits. The third category examines the allocation of a firm's purchasing contracts to businesses owned or operated by women and minorities.

Table 5, Panel A shows that CEOs' exposure to gender imbalances during formative years is strongly correlated with their policies on gender issues in the firm. This relation is particularly strong for CEOs' family and community characteristics. In particular, the CEOs' family and community imbalance indexes are reliably negatively correlated (significant at least at 5%) with KLD assessment scores on all of the three categories of women-friendly policies: promotion, work-life benefits, and contracting. In other words, CEOs with exposure to gender imbalances in their family and community are significantly less likely to adopt women-friendly policies inside the firm. A directionally similar, but statistically weaker effect, arises for CEOs' exposure to gender imbalances at school (columns 2, 5, and 8).

As another validity check, we study how the relation between CEOs' formative experiences and capital allocations varies with CEO age. If our measures capture CEOs' gender attitudes, their effect should be stronger for older CEOs who grew up in the periods of greater gender inequality. This prediction is

grounded in prior evidence that older birth cohorts in the U.S. hold more conservative gender views (e.g., Cichy, Lefkowitz, and Fingerman 2007). Recent work shows that these findings extend to CEOs. Newton and Simutin (2014) find that older male CEOs award smaller pay to female managers than do younger CEOs. Loughran and McDonald (2015) show that CEOs at older firms use male-centered language and attribute these effects to their cultural perceptions developed during periods of gender inequality.

Table 5, Panel B studies how the relation between a CEO's formative experiences and capital allocations varies between old-generation CEOs and their younger counterparts. We introduce a binary indicator *CEO early birth cohort*, which is equal to one if the CEO's birth cohort is earlier than the sample median (i.e., if the CEO was born before 1950). This indicator is time-invariant for each CEO, and it is based on the CEO's birth year from LNPR and state birth records. The dependent variable is the capital allocation to a division (in percent), and the main variable of interest is the triple interaction term *Female division manager * CEO index * CEO early birth cohort*. Here and henceforth in specifications with triple interactions, we report the main interaction terms of interest: the double interaction terms *Female division manager * CEO early birth cohort* and the triple interaction terms *Female division manager * CEO index * CEO early birth cohort*. The unreported variables and interaction terms are listed in the table legends.

The results show that the relation between CEOs' gender attitudes and capital allocations is significantly stronger for CEOs from earlier birth cohorts. This amplifying effect is directionally consistent across all measures of CEOs' formative experiences and statistically significant at 10% for the familial factors (*t*-statistic = 1.95) and educational factors (*t*-statistic = 1.92). According to column 1, the effect of the CEO's familial factors on capital allocations is about 30% stronger for CEOs born before 1950 than for CEOs born in later cohorts. This estimate is derived by comparing the coefficients on the interaction terms *Female division manager * CEO family index* (coefficient = -0.374) and *Female division manager * CEO family index * CEO early birth cohort* (coefficient = -0.105). Overall, the results indicate that the gender gap in capital budgeting is related to an observable CEO attribute in a way consistent with prior research.

In summary, CEOs' early-life exposure to gender imbalances is strongly correlated with independent assessments of CEO policies in promoting female managers and allocating resources to female contractors. The effect of formative experiences is stronger for CEOs born before 1950, consistent with prior evidence on variation in gender attitudes between older and younger U.S. executives.

5.6. Omitted CEO characteristics and CEO-firm matching

We alert the reader to two sources of endogeneity in the relation between CEOs' attitudes and firm policies: (i) simultaneity (reverse causality) and (ii) omitted variables, including the matching of CEOs to firms.

The first issue—simultaneity—refers to the possibility that corporate policies affect CEOs' gender attitudes. Our research design shuts down this channel by using early-life experiences as a source of variation in CEOs' gender attitudes. Since these experiences long predate CEOs' professional tenures, our identification exploits the component of CEOs' backgrounds free from the influence of corporate policies.

The second issue—omitted variables—may arise because a missing variable could drive the gender gap in capital allocations, while being correlated with CEOs' attributes. For example, suppose that firms located in more conservative states have less female-friendly policies, and CEOs with conservative gender attitudes are more likely to join firms located in conservative states. This possibility is consistent with the evidence in Yonker (2017b) that CEOs are more likely to join firms near their state of origin. In this case, the correlation between CEOs' gender attitudes and the gender gap in capital allocations would be explained by the matching of CEOs to firms based on an omitted firm attribute, such as geographic location.

Column 1 in Table 6 shows our baseline specification from panel regressions explaining division-level capital expenditure, which include fixed effects for the year, industry, firm, and CEO birth cohort. Because this specification relies on within-firm variation, the results indicate that the relation between CEOs' gender attitudes and firm policies cannot be explained by any firm characteristics that remain unchanged during our sample period, such as location, industry, complexity, or diversification.

Column 2 augments the baseline specification with CEO fixed effects, which absorb time-invariant differences across CEOs, such as innate ability, endowed wealth, or risk aversion. With the inclusion of CEO fixed effects, the time-invariant term *CEO gender imbalance index* (an aggregate index across all family, education, and community measures of gender inequity) is absorbed in the regressions. The results show that CEOs' early-life exposure to gender imbalances continues to be strongly associated with the gender gap in capital allocations, as shown by the negative coefficient (significant at 5%) on the interaction term *CEO gender imbalance index* * *Female division manager*. In comparison to column 1, the coefficient on the indicator *Female division manager* drops from -0.296 to -0.162, suggesting that unobservable CEO attributes explain an additional 45% of the remaining gender gap relative to our baseline specification.

Column 3 replaces CEO and firm fixed effects with *CEO * Firm* fixed effects. In this column, the estimates are derived from the variation in capital allocations within CEO-firm pairs. By holding constant CEO-firm pairs, this specification accounts for the matching between CEOs and firms. The coefficient on the interaction term *Female division manager * CEO gender imbalance index* is negative, significant at 5%, and retains most of its economic magnitude relative to the baseline specification.

In summary, our conclusions are robust to absorbing time-invariant CEO attributes that could be correlated with formative experiences. Our results also hold after accounting for the matching between CEOs and firms. This evidence raises a high bar for a possible omitted variable and appears most consistent with prior findings that CEOs' attributes influence firm policies (e.g., Bennedsen, Nielsen, Pérez-González, and Wolfenzon 2007; Malmendier and Tate 2008; Cronqvist, Makhija, and Yonker 2012; Jenter and Lewellen 2015; Dai, Rau, Stouraitis, and Tan 2019).

5.7. Omitted division manager characteristics and manager-division matching

While male and female division managers appear similar on observable attributes, they may vary on unobservables relevant for investment, such as leadership or risk aversion. Their divisions may also differ on important attributes uncaptured by our controls. This section tests the robustness to these issues.

Column 4 of Table 6 augments our specification in the previous columns with division fixed effects, which absorb cross-division heterogeneity. In this specification, the estimates are derived from within-division variation in capital allocations. After accounting for cross-division heterogeneity, our main results continue to hold, as shown by the negative interaction term *Female division manager * CEO gender imbalance index*, which is significant at 5% (*t*-statistic = 2.13). Moreover, after capturing time-invariant division attributes in addition to the dynamic division controls, the point estimate on the indicator *Female division manager* shrinks to -0.071 (compared with -0.296 in the baseline specification in column 1) and becomes statistically indistinguishable from zero at conventional levels. This indicates that our sequential decomposition of the sources of variation explains nearly all of the economic magnitude of the gender gap.

Column 5 adds division manager fixed effects, which absorb time-invariant differences across division managers that could be correlated with gender, such as innate ability, competitiveness, leadership, or risk aversion. With the inclusion of division manager fixed effects, the time-invariant term *Female division manager* is absorbed in the regressions. The interaction term *Female division manager * CEO*

gender imbalance index remains negative and significant at 5%. This result suggests that the relation between CEOs' formative experiences and capital allocations is unlikely to be fully explained by statistical discrimination—a theory that the differential treatment of male and female agents is driven by managerial characteristics correlated with gender and relevant for economic outcomes (Phelps 1972; Arrow 1973).

The results in column 5 also provide an approximate estimate of the amount of variation in capital allocations between male and female managers attributable to managers' intrinsic, time-invariant qualities. After adding division manager fixed effects, the adjusted *R*-squared rises from 0.665 to 0.718, suggesting that unobservable differences across managers explain an additional 5.3% of the variation in capital allocations over and above the effect of managers' gender, age, experience, education, social connections, and other personal characteristics included as control variables.

Column 6 of Table 6 replaces division manager and division fixed effects with *Division manager * Division* fixed effects. In this specification, the estimates are derived from the variation in capital allocations within manager-division pairs. By locking in the manager-division pair, this specification accounts for the matching between managers and divisions. Thus, the estimates in this regression represent the effects of capital allocations over and above the effect of division managers' appointments to divisions—the focus of our next section.

The results in column 6 show that CEOs with early-life exposure to gender inequity allocate less capital to female managers. The coefficient on the interaction term *CEO imbalance index * Female division manager* is negative and statistically significant at 10% (*t*-statistic = 1.85). The point estimate on the interaction term (coefficient = -0.194 in column 6) represents about two-thirds of the point estimate on this interaction term in the specification without manager or division fixed effects (coefficient = -0.312 in column 3). Thus, the relation between CEO backgrounds and capital allocations remains economically important after accounting for the matching between managers and their divisions.

In summary, our main conclusions are robust to controlling for time-invariant unobservable characteristics of division managers and the matching between managers and divisions, suggesting that the gender gap is unlikely to be explained by statistical discrimination alone.

6. Economic mechanisms

This section studies two non-mutually exclusive mechanisms that may contribute to the gender gap in capital budgets: (i) the appointment channel and (ii) the capital allocation channel. The first channel posits that female managers get less capital by being appointed to underfunded divisions. The second channel captures the incremental allocations to female managers, holding constant their assignment to divisions.

6.1. The appointment channel

Table 7, Panel A estimates a linear probability model for the likelihood that a female (rather than male) manager is appointed to a division as a function of the CEO's background and division's attributes in the year before the appointment. The dependent variable is an indicator equal to one for the appointment of a female manager and zero for a male manager. To isolate division managers' appointments, we focus on division-year observations in which the division manager has changed but the CEO has not.

Panel A demonstrates that CEOs with conservative backgrounds are less likely to appoint women as division managers, as shown by the negative and statistically significant coefficients on CEO gender imbalance indexes across all columns. Further, when CEOs with such backgrounds do appoint women as division managers, female managers join divisions with historically smaller capital allocations, as indicated by the negative coefficient on the term *CEO imbalance index* * *Lagged division CapEx*, significant at 1% in column 1 and at 5% in columns 2–3. There is also weaker evidence that CEOs with conservative backgrounds appoint women to historically less profitable divisions, as shown by the negative coefficient on the term *CEO imbalance index* * *Lagged division operating ROA*, significant at 10% in columns 1–2.

Table 7, Panel B studies how a CEO's early-life exposure to gender imbalances is associated with promotions, demotions, and separations of female division managers, using a linear probability model with fixed effects for the year, industry, firm, and CEO birth cohort. In column 1, promotions are defined as transitions to larger divisions (with book assets of at least 20% greater) or transitions to the set of the top-5 paid executives in the firm. In column 2, demotions are defined as transitions to smaller divisions (with book assets at least 20% smaller) or transitions out of the set of the top-5 paid executives in the firm. In column 3, separations are defined as division managers' departures from the firm in a given year.

Panel B shows that CEOs with early-life exposure to gender imbalances are less likely to promote and more likely to demote female division managers. Also, female division managers are more likely to

separate from firms run by such CEOs. Based on the coefficient on the term *CEO gender imbalance index* * *Female division manager* (coefficient = 0.115; *t*-statistic = 2.27), an increase in the CEO's comprehensive imbalance index of 0.5 (equivalent to a move from the 25th to the 75th percentile towards greater gender inequity) is associated with a 5.8 percentage point increase in the separations of female division managers.

In summary, CEOs with conservative backgrounds are less likely to appoint women as division managers or promote them, and are more likely to assign women to capital-poor divisions. Thus, the lower capital allocations to female managers are partially explained by their assignment to underfunded divisions.

6.2. The capital allocation channel

To capture the effect of the capital allocation channel incremental to the appointment channel, we focus on CEO turnovers, a setting in which a manager's assignment to a division remains constant (the appointment channel is mute) but the CEO's background changes due to the CEO turnover. To select CEO turnovers that are unlikely to be driven by changes in divisions' investment opportunities, we focus on turnovers for natural causes, such as illness, death, retirement, or succession plan, as detailed in the legend of Table 8.

Table 8 reports estimates from first-difference regressions in which the dependent variable is the annual change in the division's CapEx for division-year observations in which the CEO has changed from the previous year, but the division manager has not. To minimize changes in divisions' and managers' characteristics over time, we compare the first capital allocations under the new CEO (the year after the turnover) with the last capital allocations under the prior CEO (the year before the turnover). We find that an increase in a CEO's exposure to gender imbalances is associated with lower capital allocations to female managers. This result is statistically significant at 5% for all indexes of gender imbalances (*t*-statistics of 1.99 to 2.44 for the interaction terms), despite the small sample of quasi-natural CEO turnovers. Since the division managers remain unchanged, and the new CEO is unlikely to have influenced their appointment, these results indicate that the CEO's background affects capital allocation beyond the appointment channel.

In summary, the capital allocation channel contributes to the gender gap in capital budgeting. Holding constant the assignment of managers to divisions, an increase in a CEO's exposure to gender imbalances is associated with lower capital allocations to female managers. Since the division managers' attributes remain unchanged, these results provide further evidence that the gender gap in capital allocations is unlikely to be explained by omitted managerial characteristics correlated with gender.

7. Possible explanations

This section reviews several non-mutually exclusive explanations for the relation between CEOs' early-life exposure to gender imbalances and capital allocations to male and female division managers: (1) information asymmetry, (2) favoritism, (3) childbirth, and (4) risk taking.

7.1. Information asymmetry and learning

The information asymmetry hypothesis posits that CEOs with male-dominated backgrounds have less experience in dealing with women in professional settings. For example, CEOs who attended all-male high schools and colleges or those who grew up in male-dominated environments are likely to develop male-centered professional networks. Thus, such CEOs may face greater information asymmetry when assessing female managers' ability, capital demands, or investment forecasts. Theory predicts that CEOs allocate less capital to managers in the face of information asymmetry (Antle and Eppen 1985; Harris and Raviv 1996).

We develop two proxies for information asymmetry between a CEO and a female division manager. The first is *External CEO*, an indicator equal to one for CEOs who were hired into their job from another firm rather than being promoted internally. We hypothesize that CEOs who come from the outside are likely to face greater information asymmetry about the "inherited" division managers at the firm they join. Our second proxy aims to capture the effect of a CEO's learning about a manager's skill and style via repeated interactions. As a proxy for repeated interactions, we use the trailing number of years that the CEO and division manager have worked at the same firm in their current roles, labeling this proxy *Temporal overlap*.

Columns 1–2 of Table 9 show that information asymmetry between CEOs and female division managers contributes to the gender gap in capital allocations. As in all specifications with triple interaction terms, we report the main variables of interest and state the unreported terms in the legend. Column 1 shows that the negative relation between a CEO's exposure to gender imbalances and capital allocations to female managers is stronger for external CEOs. This effect, significant at 10%, is captured by the negative coefficient on the triple interaction term *Female division manager * CEO gender imbalance index * External CEO*. Column 2 shows that the negative relation between a CEO's early-life exposure to gender imbalances and capital allocations to female managers is attenuated when the CEO can observe a division manager's performance for a longer period (longer temporal overlap), and this attenuation effect is statistically significant at 5%. Overall, our results support the information asymmetry hypothesis.

7.2. CEO favoritism

This hypothesis posits that CEOs with male-dominated backgrounds favor male over female managers for personal reasons. For example, such CEOs may find it easier (consciously or not) to deal with male division managers on large investment projects, thus allocating them more funds. Prior work has documented various forms of CEO favoritism in capital allocations, such as bridge-building with division managers (Xuan 2009) and nepotism in the allocation of cash windfalls (Glaser, Lopez-de-Silanes, and Sautner 2013).

To construct an independent and replicable measure of unequal treatment of male and female agents, we rely on legal actions against the company's management on gender and diversity issues, using data from KLD. Our first proxy, *Lawsuits on gender & diversity*, is KLD's score (code: DIV-con-A) indicating involvement in discrimination-related litigation. KLD codes this score as a binary indicator which equals one for company-years with significant gender-related legal issues and controversies.

Our second proxy for favoritism in resource allocation, *Low contracting with women & minorities*, is based on KLD's assessment of a gender tilt in the allocation of procurement contracts. This measure captures the management's revealed preferences in a closely related setting—the allocation of purchase orders. KLD codes this score (code: DIV-str-E) as a binary indicator which equals one for company-years with significant contract allocations to women and minorities. We define *Low contracting with women & minorities* as an indicator which equals one if the respective KLD audit score denotes low allocations of contracts to women and minorities.

The results in columns 3–4 in Table 9 support the favoritism hypothesis. Column 3 shows that the negative relation between a CEO's early life exposure to gender imbalances and capital allocations to female managers is amplified by our proxy for favoritism based on discrimination-related lawsuits. This effect is captured by the negative coefficient on the triple interaction term *Female division manager * CEO imbalance index * Lawsuits on gender & diversity*. This effect is statistically significant at 5%.

The results in column 4 yield a qualitatively similar conclusion. The negative relation between the CEO's exposure to gender imbalances and capital allocation to female managers is amplified by the favoritism proxy based on the gender tilt in the allocation of procurement contracts.

Overall, gender favoritism, as measured by discrimination-related litigation and a tilt in the allocation of contracts, contributes to the gap in capital allocations between male and female managers.

7.3. Career interruptions due to childbirth

This hypothesis posits that CEOs with conservative backgrounds restrain long-term investments in female managers' divisions because they expect female managers to interrupt their careers for childbirth. Consistent with this view, Keloharju, Knüpfer, and Tag (2019) provide evidence that during several years after childbirth, female executives work shorter hours, and their career progression slows down.

To test this hypothesis, we study whether capital allocations depend on the likelihood of female managers to have additional children. Using the statistics on female fertility (Martin et al., 2018), we exploit the sharp drop in the likelihood of childbirth for women at age 40. We introduce an indicator *Division manager under 40* and test whether it affects the relation between CEO backgrounds and capital allocations.

The results appear in column 5 of Table 9. The evidence in support of the childbirth hypothesis is weaker than for the first two channels. Directionally, the negative coefficient on the triple interaction term in column 5 indicates that CEOs with conservative backgrounds allocate less capital to female division managers of childbearing age than to their older counterparts who are unlikely to have more children. However, this relation falls short of being statistically significant (*t*-statistic = 1.16 and *p*-value = 0.25).

7.4. Risk-taking

This hypothesis posits that CEOs with more conservative backgrounds allocate less capital to female managers because such CEOs have concerns about women's tolerance for and ability to take risks. For example, Kanze, Huang, Conley, and Higgins (2018) find that female entrepreneurs obtain less venture capital funding because investors express concerns about women's ability to take risks.

Columns 6–7 of Table 9 study whether the relation between CEOs' backgrounds and capital allocations to female managers varies with the riskiness of the female managers' divisions, using two proxies: *Division cash flow volatility* and *Industry beta* for the division (defined in Appendix A). The results for both proxies show that directionally, CEOs with more conservative backgrounds allocate less capital to female division managers running riskier divisions, but these associations are weak. The point estimates on the triple interaction terms of interest are consistently negative, but noisy (*t*-statistics = 1.15 and 1.36).

In summary, the gender gap in capital budgeting is likely a result of a combined influence of several non-mutually exclusive economic mechanisms. Among the four explanations we examine, we find stronger evidence in support of information asymmetry and favoritism.

8. Governance, investment efficiency, and value

This section studies the association between the effect of CEOs' formative experiences on capital budgeting and firm outcomes. Our goal is to understand whether the link between the CEO's experiences and capital allocations is positively or negatively associated with firm outcomes and whether such effects are amplified or attenuated by corporate governance characteristics. Since corporate outcomes are affected by a variety of correlated factors, these results should be viewed as associations without implying causality.

If the relation between CEOs' gender attitudes and capital allocations reflects a subjective or subconscious preference, it should be attenuated under governance mechanisms unaffected by similar subjective judgments. On the other hand, if this relation reflects an optimal firm policy, it should be magnified in the presence of strong governance. To distinguish between these interpretations, we study two dimensions of governance: (i) internal (the board of directors), and (ii) external (industry competition).

Since our primary focus is the role of gender inside the firm, we examine the presence of female leadership in the chief monitoring role—the chair of the board. Prior work shows that the presence of an out-of-group member with monitoring authority acts as a powerful control mechanism. Female directors allocate more effort to monitoring, and their presence increases the CEO's turnover-performance sensitivity (Adams and Ferreira 2009) and audit quality (Lai et al. 2017). Consistent with the monitoring role of female directors in gender policies, the announcement return to the appointment of female directors is higher than for male directors at firms that stand to benefit from gender diversity (Adams, Gray, and Nowland 2012).

Table 10, Panel A studies whether the relation between CEOs' formative experiences and capital allocations to female managers varies in the presence of a female chair of the board. We focus on the chair of the board because it is arguably the most important monitoring position and because the cross-sectional variation in ordinary female directorships is small.

Panel A shows that the relation between CEOs' gender attitudes and capital allocations is attenuated in the presence of a female board chair. This effect, captured by the triple interaction terms *Female division manager * CEO index * Female board chair*, persists across all measures of CEOs' formative experiences. According to column 1, the effect of CEOs' family factors on capital allocations is reduced by 30% when the firm's board of directors is chaired by a woman. This can be seen by comparing the coefficients on the interaction terms *Female division manager * CEO family index* (coefficient = -0.532) and *Female division*

*manager * CEO family index * Female board chair* (coefficient = 0.163). Columns 2–3 show comparable attenuation effects for the education and community indexes: 23% and 35%, respectively.

These results parallel recent evidence in other settings. Tate and Yang (2015) show that the gender gap in employee compensation shrinks when the same workers move from a male-led to a female-led plant after an exogenous shock. Gompers and Wang (2018) find that the presence of women as senior venture capital partners narrows the gender gap in investment and hiring decisions, resulting in better performance.

Our next analysis focuses on an external governance mechanism—industry competition. This analysis is grounded in the long-standing theoretical work in economics. Becker (1957) develops a theory of non-pecuniary motivation in the labor market and formalizes the role of managerial preferences in "whether to hire, work with, or buy from an individual or group." (p. 11). Becker's key prediction is that industry competition curbs the effect of taste-based managerial preferences on hiring and resource allocation. Arrow (1973) shows that if managerial preferences impose costs on the firm, this behavior will be driven out in perfectly competitive markets. Empirical work confirms that industry competition improves investment productivity (Nickell 1996; Aghion et al. 2009), cuts managerial slack, and serves as an alternative control mechanism when a firm's internal governance is weak (Giroud and Mueller 2010).

Table 10, Panel B studies how the link between CEOs' formative experiences and capital allocations varies with the intensity of industry competition. Following Giroud and Mueller (2010), industry competition is defined as the Herfindahl-Hirschman index (HHI), computed as the sum of revenue-based squared market shares of all firms in the firm's core industry (three-digit SIC code), so that higher index values reflect weaker competition. The results show that the link between CEOs' formative experiences and capital allocation is stronger in less competitive industries. The coefficients on the interaction term *Female division manager * CEO index * HHI* are consistently negative for all measures of formative experiences, suggesting that female managers obtain fewer resources from CEOs with conservative backgrounds when firms operate in less competitive industries where CEOs are likely to have more slack in investment decisions. These estimates are significant at 10% for two of the three CEO indexes.

In our final analyses, we study how the relation between CEOs' formative experiences and the gender gap in capital budgeting is associated with firm outcomes. Table 11 examines investment efficiency. Following the literature on internal capital markets (Shin and Stulz 1998; Ozbas and Scharfstein 2010), we

study the sensitivity of capital investment to its marginal product measured by Tobin's Q of standalone firms in the division's industry. If the gender gap in capital allocations reflects optimal redistributions of capital, it should be associated with higher investment efficiency, as in the models of efficient redistribution across divisions (e.g., Stein 1997). Conversely, if the effect of CEOs' gender attitudes reflects personal preferences, it will introduce frictions and weaken the link between investment and its marginal product, as in the models of CEOs' agency issues in capital budgeting (e.g., Rajan, Servaes, and Zingales 2000).

Table 11 shows that the effect of CEOs' formative experiences on the allocation of capital weakens the link between division investment and the marginal product of capital. This result is captured by the negative coefficient on the interaction terms of the CEO indexes of formative experiences and industry Q across all specifications. These effects are statistically significant at 10% for family and education characteristics. Overall, the evidence in Table 11 suggests that the effect of a division manager's gender on investment allocations reduces the sensitivity of investment to its marginal product.

Table 12 tests how the effect of CEOs' formative experiences on capital allocation is associated with economic outcomes. Panel A focuses on divisions' performance. Across columns 1–3, the dependent variable is division-level profitability, sales growth, and market share growth in the division's industry. To mitigate simultaneity concerns, the dependent variables are measured in the year following the measurement of capital allocations and controls. The results suggest that lower capital allocations to female managers under CEOs with conservative backgrounds constrain divisions' growth and profitability. These effects, captured by the interaction term *CEO gender imbalance index * Female division manager,* are significant at 5% for the profitability measure and at 10% for the market share and growth measures.

Panel B focuses on firm performance. Columns 1–3 show a negative association between a CEO's exposure to gender imbalances and his firm's outcomes: ROA, Tobin's Q, and stock returns. This result is consistent across all three measures, and it is statistically significant at 5%. Since these regressions include firm fixed effects, this result is driven by the variation in CEOs' characteristics for the same firm. In other words, a given firm appears to perform worse when it is run by a CEO with less egalitarian gender attitudes.

Columns 4–6 test whether the negative relation between a CEO's exposure to gender imbalances and firm outcomes is related to the gender composition of division managers. In these columns, we augment the regression specification with an indicator *Female division manager* and the interaction term *CEO*

*imbalance index * Female division manager*. In this specification, the indicator *Female division manager* is equal to one during firm-years when a firm employs at least one female division manager.

Columns 4–6 show that the negative association between a CEO's early-life exposure to gender imbalances and firm outcomes operates primarily via the interaction effect *CEO imbalance index * Female division manager*. The coefficients on this interaction term are consistently negative across all specifications, and all of them are statistically significant at 5%. This result suggests that a CEO's exposure to gender imbalances is more strongly related to firm outcomes when there is gender variation among division managers. In addition, with the inclusion of the interaction term *CEO imbalance index * Female division manager* in columns 4–6, the coefficients on *CEO imbalance index* shrink and become statistically indistinguishable from zero. This pattern suggests that most of the negative relation between a CEO's exposure to gender imbalances and firm outcomes is captured by the interaction of the CEO's background and the gender variation across a firm's division managers.

In summary, the relation between CEOs' early-life exposure to gender imbalances and capital allocations weakens when women serve in the top monitoring role and when industry competition is more intense. The effect of a division manager's gender on capital allocations beyond the effect of economic fundamentals is associated with lower investment efficiency and weaker performance.

9. Conclusion

This paper has studied the origins and real effects of the gender gap in resource allocations in the context of U.S. conglomerates. We find that male managers obtain more investment capital than their female peers, and this pattern is strongly related to the CEO's exposure to gender imbalances during formative years.

Recent work suggests that our findings may extend to other settings. In particular, an agent's exposure to female socialization in the family has been shown to affect gender policies not only at the level of individual firms, as in venture capital financing (Gompers and Wang 2018), but also at the macro level, as in the national legislation process (Washington 2008) and federal courts (Glynn and Sen 2015).

Our paper makes a first step toward compiling systematic evidence on the family descent, early education, and home environments of U.S. CEOs and understanding their role in financial policies. We hope that the growing interest in the role of agents' formative experiences will continue to yield novel insights into their decisions.

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Appendix A: Variable Definitions

This appendix lists the main variables and provides their definitions. Entries in parentheses refer to the annual Compustat item name.

A.1. Firms

Book assets = Book value of total assets (at) in $millions.

Earnings per share (EPS) = Basic earnings per share, including extraordinary items (epspi).

HH Index = The Herfindahl-Hirschman index, computed as the sum of squared market shares (based on sales) of all publicly-traded firms in a given three-digit SIC industry.

Market value = Market value of common equity (csho*prcc).

Return on assets (ROA) = Net income (ni) / total assets (at).

Size = The natural logarithm of book assets (at).

Stock return = The annual return on the firm's stock.

Tobin's Q = Market value of assets (book assets (at) + market value of common equity (csho*prcc) - common equity (ceq) - deferred taxes (txdb)) / (0.9*book value of assets (at) + 0.1*market value of assets).

A.2. Divisions

Capital expenditure (CapEx)= The ratio of division-level capital expenditure (capx) to identifiable book assets (at).

Cash flow volatility = The volatility of a division's operating cash flows (ops) scaled by its identifiable book assets (at) over the past five years.

Core division = An indicator equal to 1 if the division operates in the same industry as the firm itself (based on the three-digit SIC code industry classification) and 0 otherwise.

Industry beta = The weighted average beta of all publicly traded standalone firms in the division's industry, based on the three-digit SIC classification. Beta is calculated using monthly returns over the previous five years with the CRSP value-weighted market index as a proxy for the market portfolio.

Industry Tobin's Q = The median market-to-book ratio across all standalone firms in the division's industry (based on the three-digit SIC code industry classification).

Market share growth = The annual percentage growth in market share, measured by the share of a division's sales in the total sales in its industry, defined according to a three-digit SIC classification.

Operating ROA = Annual operating profit of a division (ops) divided by its book assets (at).

Profitability = The ratio of division operating cash flow (ops) to division sales (sale), following Ozbas and Scharfstein (2010).

Sales growth = The annual percentage growth in division sales (sale).

Size = The natural logarithm of the division's identifiable total assets (at).

A.3. CEOs

Age = CEO's age in years.

CEO early birth cohort = An indicator that equals one if the CEO's birth cohort is earlier than the sample median cohort (1950–1954). The CEO's birth cohort is defined as a five-year period according to the year of birth, where the earliest cohort in the sample spans 1930–1934, and the latest cohort spans 1969–1974.

External board seats = The number of directorships at other firms.

External CEO = an indicator variable that equals one if the CEO's prior position immediately preceding his current CEO position was with another firm.

Graduate degree = An indicator equal to 1 if the manager holds a graduate degree and 0 otherwise.

Log network size = The natural logarithm of the number of connections between the CEO and other executives in BoardEx based on education, memberships in nonprofits, and prior employment.

Male = An indicator equal to 1 if the manager is male and 0 if the manager is female.

MBA = An indicator equal to 1 if the manager holds an MBA degree and 0 otherwise.

Tenure with the firm = The number of years the manager has worked at the firm.

A.4. Directors

Board size = The number of board members.

Fraction of female directors = The ratio of the number of female directors to the number of board members.

Female board chair = An indicator equal to 1 if the board chair is female and 0 if the chair is male.

A.5. Division managers

Age = Manager's age in years.

Board member = An indicator equal to 1 if the manager serves on his firm's board of directors and 0 otherwise.

External board seats = The number of directorships at other firms.

Graduate degree = An indicator equal to 1 if the manager holds a graduate degree and 0 otherwise.

Male = An indicator equal to 1 if the manager is male and 0 if the manager is female.

MBA = An indicator equal to 1 if the manager holds an MBA degree and 0 otherwise.

Tenure with the firm = The number of years the manager has worked at the firm.

Social connections to CEO = Summary measure of social connections of a division manager relative to other division managers in the same conglomerate, defined as in Duchin and Sosyura (2013). It is defined as the number of connections between the division manager and the CEO based on education history, nonprofit work, and prior employment, adjusted for the average number of connections between other division managers and the CEO within a firm.

Performance record = The average *Operating ROA* of divisions run by the manager in previous years.

Separation of division managers = An indicator that equals 1 if a division manager who worked at the firm in the previous year is no longer with the firm.

Temporal overlap = the number of years that the CEO and division manager have worked together in the company in their current roles.

Demotion of division managers = An indicator that equals 1 if a division manager is assigned to a new division that is at least 20% smaller in book assets than the division overseen in the previous year or if a division manager who appeared on the list of the firm's five highest-paid executives in the previous year is no longer on the top-five list (but remains with the firm).

Promotion of division managers = An indicator that equals 1 if a division manager is assigned to a new division that is at least 20% larger in book assets than the division overseen in the previous year or if a division manager enters the list of the firm's five highest-paid executives, while not being on the list in the previous year.

A.6. CEO family characteristics and formative years

A.6.1. Family characteristics

Father education, years = The number of years of formal education for the CEO's father.

Father attended college = An indicator equal to 1 if the CEO's father attended college and 0 otherwise

Mother education, years = The number of years of formal education for the CEO's mother.

Mother attended college = An indicator equal to 1 if the CEO's mother attended college and 0 otherwise.

Parents' education imbalance = Difference between *Father education* and *Mother education*, scaled by average education.

Father white-collar job = An indicator equal to 1 if the CEO's father had a white-collar job and 0 otherwise.

Non-working mother = An indicator equal to 1 if the CEO's mother did not work outside the house and 0 otherwise.

Mother income = The annual income in dollars of the CEO's mother. For stay-at-home mothers, this variable is set to zero.

Father income = The annual income in dollars of the CEO's father.

Parents' income imbalance = Difference between *Father income* and *Mother income*, scaled by their average income.

Number of children = The number of the CEO's children.

Number of sons = The number of the CEO's sons.

Number of daughters = The number of the CEO's daughters.

Children's gender imbalance = The difference between *Number of sons* and *Number of daughters* scaled by *Number of children*. For CEOs with no children, this variable is set to zero.

Number of siblings = The number of the CEO's siblings.

Number of brothers = The number of the CEO's brothers.

Number of sisters = The number of the CEO's sisters.

Siblings' gender imbalance = The difference between the number of the CEO's brothers and sisters, scaled by the number of the CEO's siblings. For CEOs with no siblings, this variable is set to zero.

A.6.2. Education characteristics

High School

Private = An indicator equal to 1 if the CEO attended a private high school and 0 otherwise.

All-male = An indicator equal to 1 if the CEO attended an all-male high school and 0 otherwise.

Religious = An indicator equal to 1 if the CEO attended a religious high school and 0 otherwise.

University

Private = An indicator equal to 1 if the CEO attended a private college and 0 otherwise.

All-male = An indicator equal to 1 if the CEO attended an all-male college and 0 otherwise.

University gender imbalance = The average ratio of male students to total students in the college the CEO attended, measured during the years of the CEO's attendance.

A.6.3. Community characteristics

Labor force participation rate, males = The rate of male labor force participation in the county where the CEO attended high school, measured as of the decennial census year closest to the year when the CEO reached the age of 18.

Labor force participation rate, females = The rate of female labor force participation in the county where the CEO attended high school, measured as of the decennial census year closest to the year when the CEO reached the age of 18.

Labor force participation gender imbalance = The difference between male and female labor force participation rates in the county where the CEO attended high school, measured as of the decennial census year closest to the year when the CEO reached the age of 18.

Income for employed males, 2016 dollars = The average annual income for employed males in the county where the CEO attended high school, measured as of the decennial census year closest to the year when the CEO reached the age of 18.

Income for employed females, 2016 dollars = The average annual income for employed females in the county where the CEO attended high school, measured as of the decennial census year closest to the year when the CEO reached the age of 18.

Income gender imbalance = The difference between *Income for employed males* and *Income for employed females*, scaled by the average income of males and females in the county.

Male education (years) = The average number of years of formal education for adult males in the county where the CEO attended high school, measured as of the decennial census year closest to the year when the CEO reached the age of 18.

Female education (years) = The average number of years of formal education for adult females in the county where the CEO attended high school, measured as of the decennial census year closest to the year when the CEO reached the age of 18.

Education gender imbalance = The difference between *Male education* and *Female education*, scaled by the average number of years of education for males and females in the county.

A.6.4. Gender imbalance indexes

Family gender imbalance index = The average between the within-sample percentile rankings of each CEO's *Non-working mother*, *Parents' education imbalance*, *Parents' income imbalance*, *Siblings' gender imbalance*, and *Children's gender imbalance*. The aggregation of the percentile rankings is done such that greater values of the index indicate exposure to more gender inequity. If an index component is missing, the index is computed as an equally weighted average of the available inputs. The index ranges from 0 to 1.

Education gender imbalance index = The average between the within-sample percentile rankings of each CEO's *All-male high school indicator* and *University gender imbalance*. The aggregation of the percentile rankings is done such that greater values of the index indicate exposure to more gender inequity and less female socialization. If an index component is missing, the index is computed based on the available data.

Community gender imbalance index = The average between the within-sample percentile rankings of each CEO's *Labor force participation gender imbalance*, *Income gender imbalance*, and *Education gender imbalance*. The aggregation of the percentile rankings is done such that greater values of the index indicate exposure to more gender inequity. The index ranges from 0 to 1.

Gender imbalance index = The average of each CEOs' indexes: *Family gender imbalance index, Education gender imbalance index,* and *Community gender imbalance index*. The index ranges from 0 to 1.

A.7. Firms' social ratings

Promotion of women and minorities = An external audit score from the research firm KLD Research & Analytics that measures whether the company has made notable progress in the promotion of women and minorities, particularly to line positions with profit-and-loss responsibilities in the corporation.

Outstanding work/life benefits = An external audit score from the research firm KLD Research & Analytics that measures whether the company has outstanding employee benefits or other programs addressing work/life concerns, e.g., childcare, elder care, or flextime.

Women and Minority contracting = An external audit score from the research firm KLD Research & Analytics that measures whether the company does at least 5% of its subcontracting, or otherwise has a demonstrably strong record on purchasing or contracting, with women- and/or minority-owned businesses.

Lawsuits on gender and diversity = An indicator variable that equals one if an external audit score from the research firm KLD Research & Analytics indicates that the company has paid substantial fines or civil penalties as a result of gender or diversity issues, or has otherwise been involved in major controversies related to such issues.

Low contracting with women and minorities = An indicator variable that equals one if an external audit score from the research firm KLD Research & Analytics indicates poor record in "purchasing from or contracting with women- and/or minority-owned businesses."

Appendix B: Sample Construction and Selection

This appendix describes the construction of our sample and compares the characteristics of our sample firms with those of all other industrial conglomerates in the S&P 1500 index.

Appendix Table B.1
Sample Construction

This table shows the sample selection criteria and provides the number of firms screened out by each sample filter. The sample consists of industrial conglomerates in the S&P 1500 index, excluding firms with functional organizational structure and firms with missing data on divisional managers or CEO background. The sample period is from January 2000 to December 2008.

Sample	**# Firms**	**# Divisions**	**# Observations**
S&P 1500 industrial firms with at least 2 divisions	806	3,024	12,282
- Firms with non-divisional organizational structure	396	1,706	7,491
- Firms with incomplete data on all divisional managers	35	127	566
- Firms with female CEOs	9	30	73
- Firms with missing data on CEO background	8	51	198
= Final Sample	**358**	**1,110**	**3,954**

Appendix Table B.2
Sample Selection

This table compares the characteristics of firms, CEOs, and division managers in our main sample with those of other industrial conglomerates in the S&P 1500 index that are excluded by sample filters. The main sample consists of industrial conglomerates in the S&P 1500 index, excluding firms with non-divisional organizational structure and firms with missing data on division managers and CEO backgrounds. Sample selection criteria appear in Appendix Table B1. The sample period is from January 2000 to December 2008, and the values reported are time-series averages over this period. Statistical significance levels for the test of the difference in means are indicated as follows: *=10%, **=5%, ***=1%.

	Our sample	Other S&P 1500 conglomerates	Difference	t-statistics
Firms				
Earnings per share (EPS)	1.76	1.73	0.04	0.34
Stock return	0.07	0.06	0.01	0.89
Cash holdings	0.11	0.11	0.00	0.18
Profitability	0.04	0.04	0.00	0.39
Capital expenditures	0.04	0.04	0.00	1.11
Market-to-book	1.85	1.82	0.03	1.18
Size (log assets)	8.61	8.26	0.35	7.04***
CEOs				
Age, years	55.91	56.51	-0.60	0.73
Male indicator	0.98	0.98	0.00	0.17
Tenure with the firm, years	14.53	13.76	0.77	1.03
MBA indicator	0.41	0.36	0.05	0.99
External board seats	2.17	1.80	0.37	1.33
Division managers				
Age, years	50.57	50.79	-0.22	0.65
Male indicator	0.92	0.95	-0.03	0.93
Tenure with the firm, years	10.78	11.91	-1.13	1.50
MBA indicator	0.39	0.34	0.05	2.45**
External board seats	0.22	0.19	0.03	1.51

Appendix Table B.3
Descriptive Correlations: The Gender of Division Managers

This table provides descriptive correlations between the gender of division managers and the characteristics of the managers, divisions, firms, and CEOs. Panel A shows the pairwise correlations between the fraction of female division managers in a firm and the characteristics of the firm (top pane) and its CEO (bottom pane). Panel B shows the pairwise correlations between the female gender of a division manager and the attributes of her division (top pane) and her professional characteristics (bottom pane). Panel C compares the characteristics of male and female division managers. In Panel C, the dependent variable is one of division managers' characteristics, and all regressions include year, industry, and firm fixed effects. The variable *Female division manager* is an indicator that equals 1 if the manager's gender is female. The variable *Fraction of female division managers* is the ratio of the number of female division managers to the total number of division managers in a firm. Variable definitions appear in Appendix A. In Panels A and B, significance levels for the correlation estimates are indicated as follows: * = 5% or better. In Panel C, the *t*-statistics (in brackets) are based on standard errors that are heteroskedasticity consistent and clustered at the firm level, and significance levels are indicated as follows: * = 10%, ** = 5%, *** = 1%.

Panel A: Firm and CEO Attributes

	Correlation with *Fraction of female division managers*
Firm	
Capital expenditure	0.047
Return on assets (ROA)	0.018
Earnings per share (EPS)	-0.012
Size (log assets)	0.158*
Number of divisions	0.013
Tobin's Q	0.051*
CEO	
Age	0.024
Graduate degree	0.077*
Tenure with the firm	0.038
External board seats	0.045
Log network size	0.193*

Panel B: Division and Manager Attributes

	Correlation with indicator *Female division manager*
Division	
Capital expenditure	-0.044*
Operating ROA	0.008
Size (log assets)	-0.075
Core division	-0.005
Industry Tobin's Q	0.074
Division manager	
Age	-0.080*
Graduate degree	0.037*
Tenure with the firm	-0.021
Performance record	-0.001
Board member	-0.014
External board seats	0.209*
Social connections to the CEO	0.182*

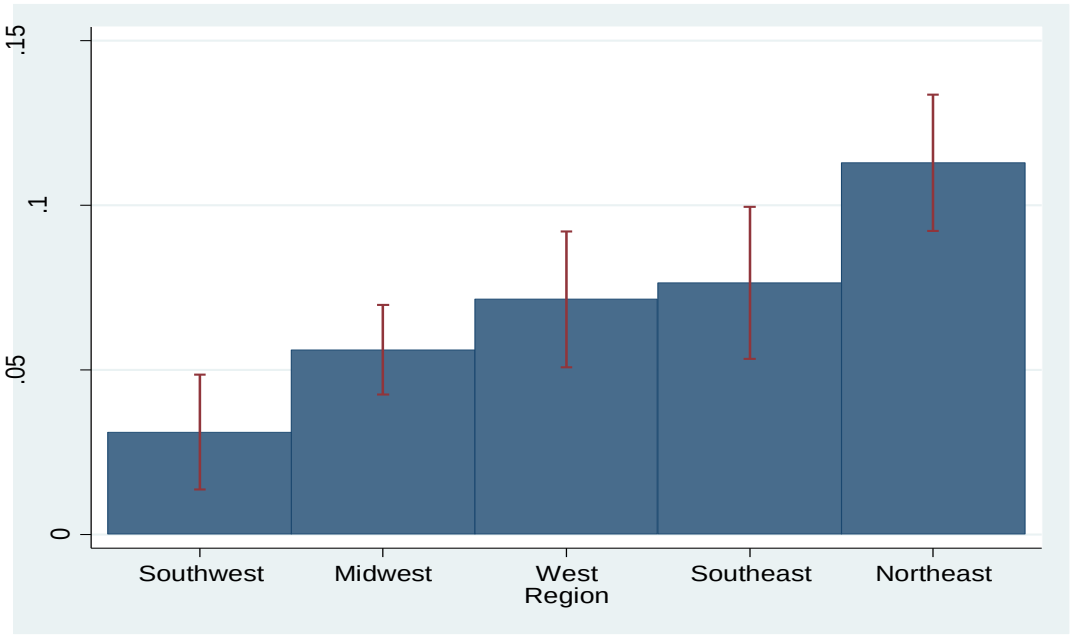
Panel C: Comparisons of Male and Female Division Managers

Division manager attribute	Age	Graduate degree	Tenure with the firm	Performance record	Board member	External board seats	Social connections to CEO
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female division manager	-0.035* [1.831]	0.031 [0.564]	-0.120 [0.936]	-0.022 [1.328]	-0.048 [1.209]	-0.003 [0.036]	-0.056 [1.448]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.317	0.328	0.403	0.184	0.491	0.491	0.833
N_obs	3,904	3,904	3,904	3,904	3,904	3,904	3,904

Appendix Figure B.1
Female Representation among Division Managers across Regions, Industries, and Years

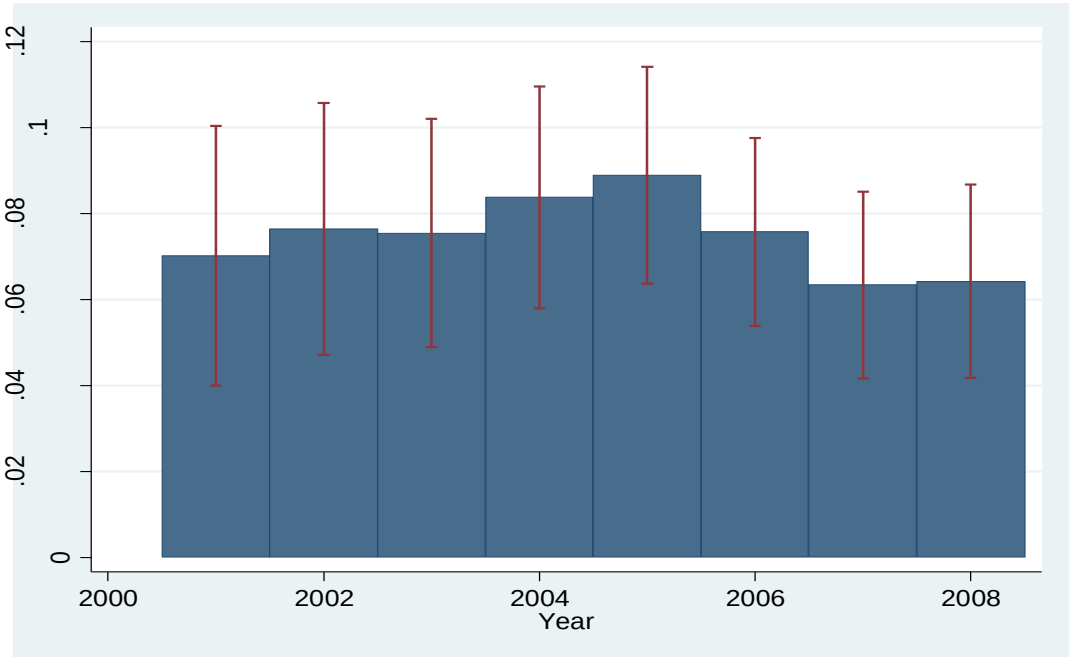
Panel A: The Average Fraction of Female Division Managers across Geographic Regions

The figure shows the average fraction of female division managers at sample firms headquartered in different geographic regions. The five geographic regions in the U.S. are defined according to the classification by the National Geographic Society. The assignment of states into regions and the detailed regional maps are available from the website of the National Geographic Society: https://www.nationalgeographic.org/maps/united-states-regions/. The histogram bars correspond to the variable *Fraction of female division managers*, defined as the ratio of the number of female division managers to the total number of division managers in a firm. The values shown are the averages for all firms in the sample headquartered in a given geographic region. The vertical error bars indicate 95% confidence intervals.



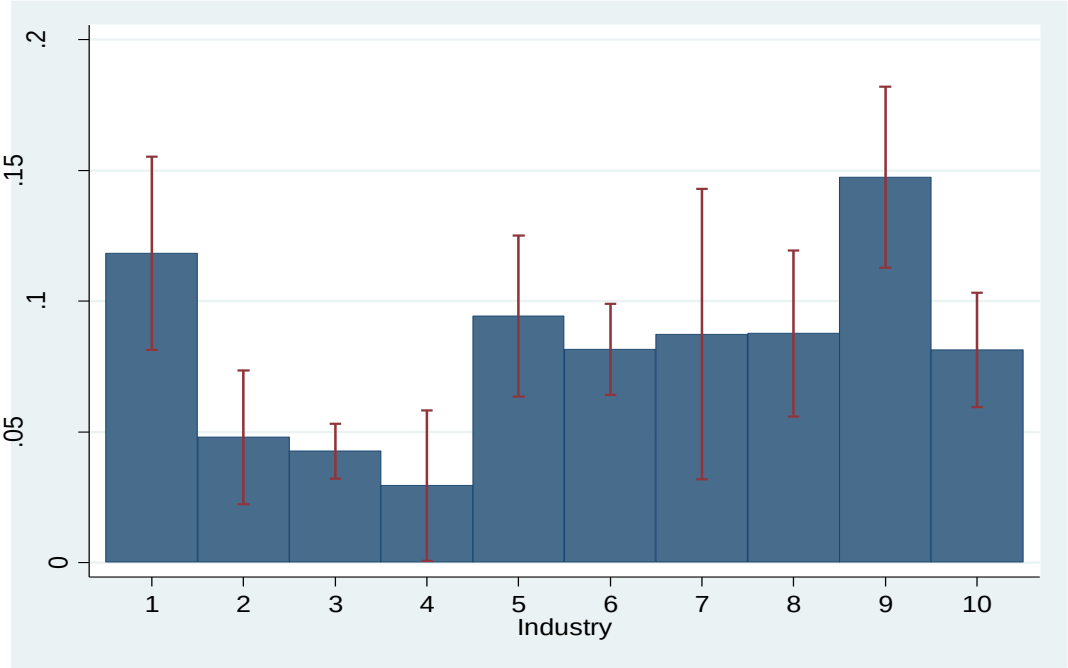
Panel B: The Average Fraction of Female Division Managers across Sample Years

The figure shows the average fraction of female division managers across sample years: 2000 to 2008. The histogram bars correspond to the variable *Fraction of female division managers*, defined as the ratio of the number of female division managers to the total number of division managers in a firm. The values shown are the averages across all firms in a given sample year. The vertical error bars indicate 95% confidence intervals.



Panel C: The Average Fraction of Female Division Managers across Industries

The figure shows the average fraction of female division managers across industries. Industries are defined at the division level according to the Fama-French 10-industry classification. The values shown are the averages of the ratio of female division managers to the total number of division managers across all divisions in a given industry. The vertical error bars indicate 95% confidence intervals.



1	2	3	4	5
Consumer NonDurables	Consumer Durables	Manufacturing	Energy	Chemicals
6	7	8	9	10
Business Equipment	Telecommunications	Shops	Healthcare	Other

Figure 1
CEOs' home communities

This figure shows the geographical distribution of the communities where the CEOs grew up. The circles in this figure map the location of the high schools attended by the CEOs in our sample. The area of the circle increases proportionately with the number of CEOs who attended the corresponding school. All CEOs in the sample attended high schools in the continental states. Therefore, Alaska and Hawaii are not shown.

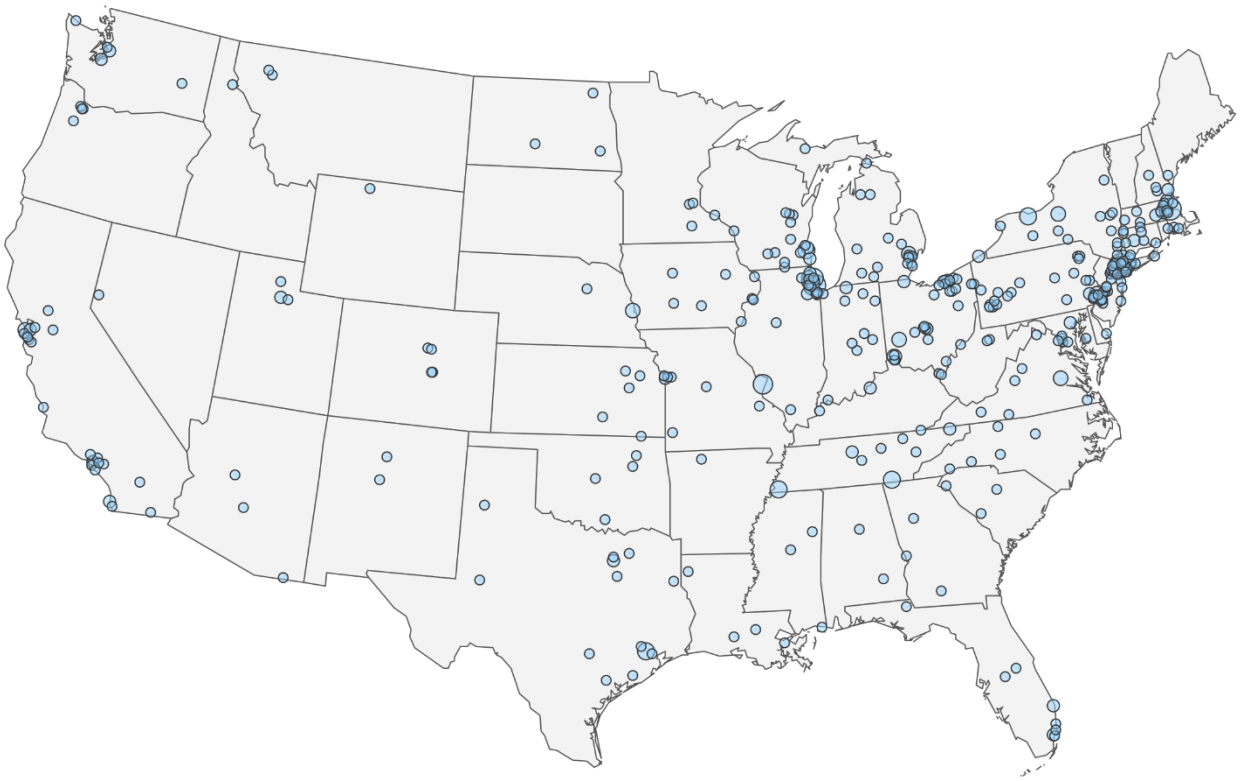


Figure 2
Education attainment of CEOs' parents and the general population

This figure compares the years of education attained by parents of CEOs and by all adults between 21 and 45 years of age. The data are from decennial federal censuses.

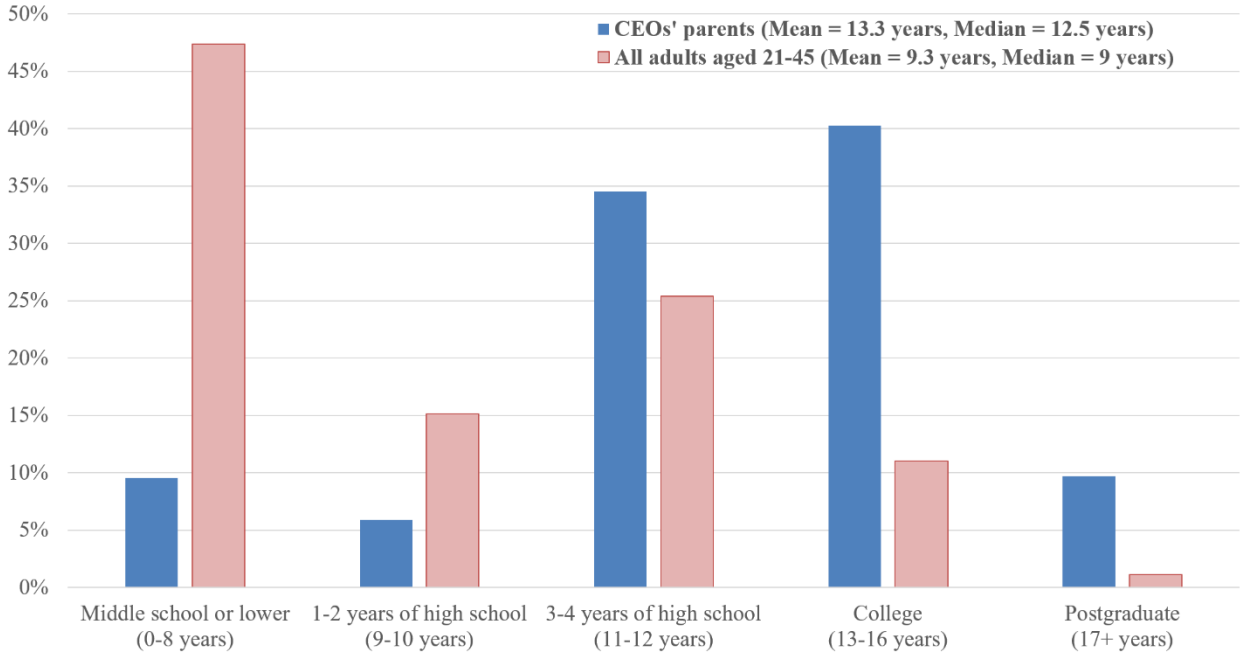
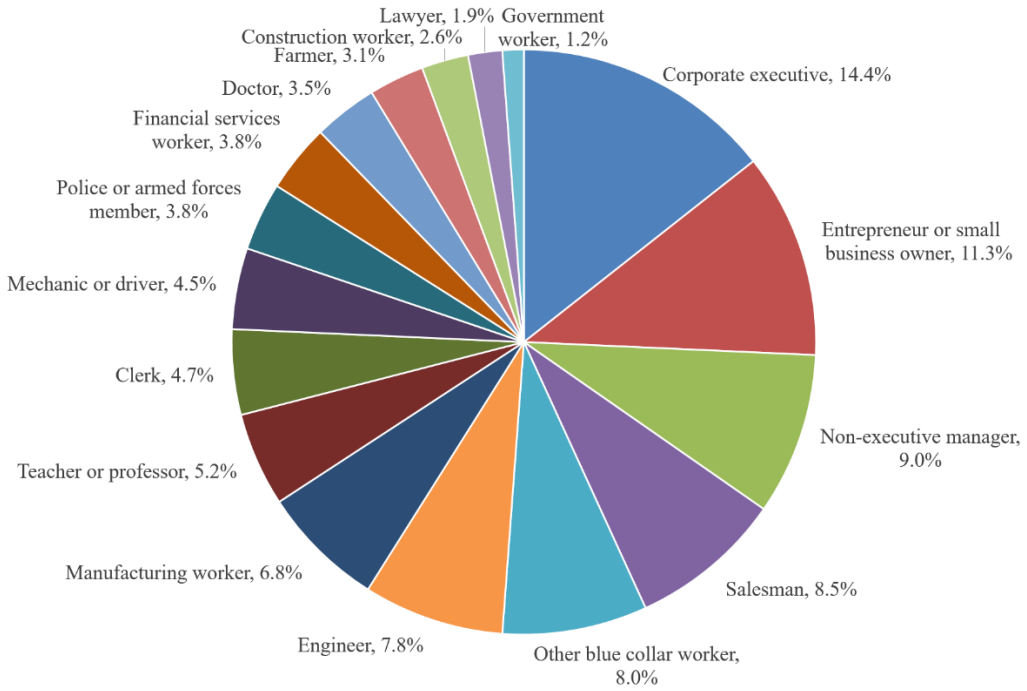


Figure 3
Professional occupations of CEOs' parents

This figure shows the occupations of CEOs' fathers (Panel A) and mothers (Panel B). For mothers, occupations are provided for those working outside the home. The data are obtained from the decennial federal census, obituaries, newspaper articles, and other public sources summarized in Section 3.3 and the Internet Appendix.

Panel A. Fathers' occupations



Panel B. Mothers' occupations

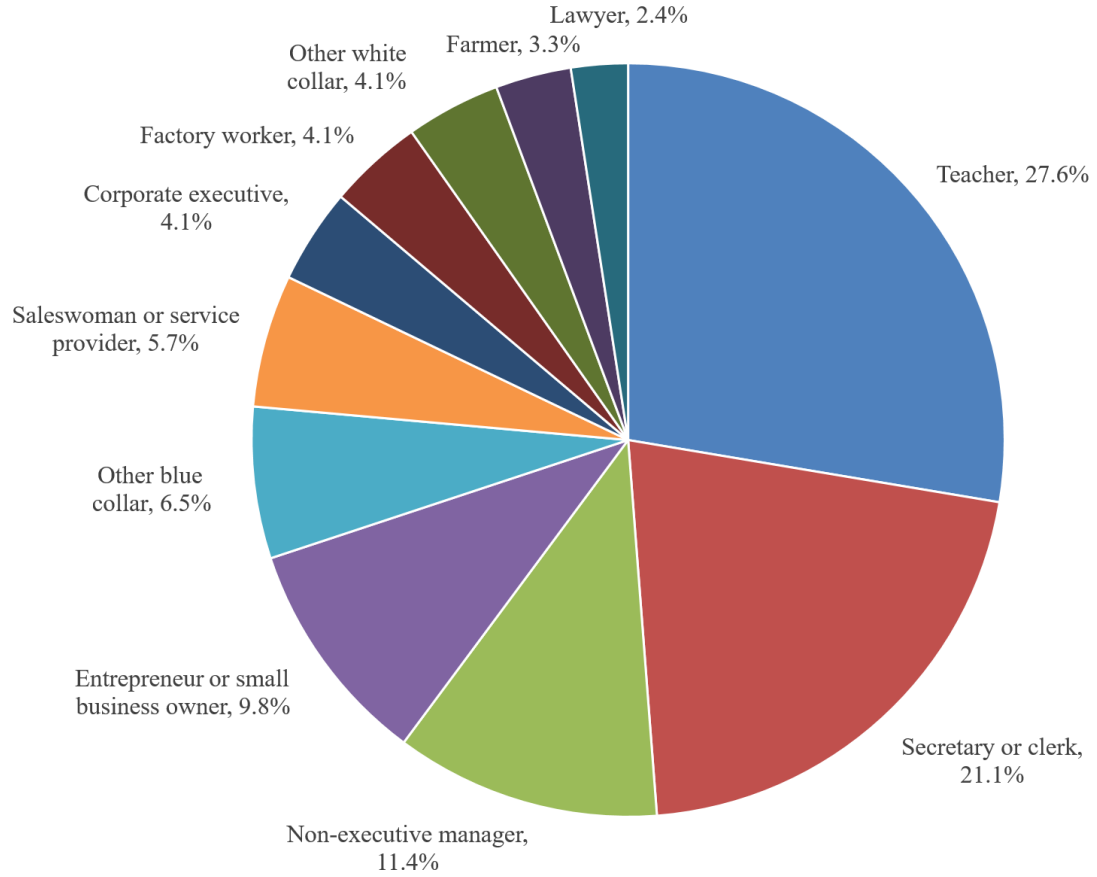
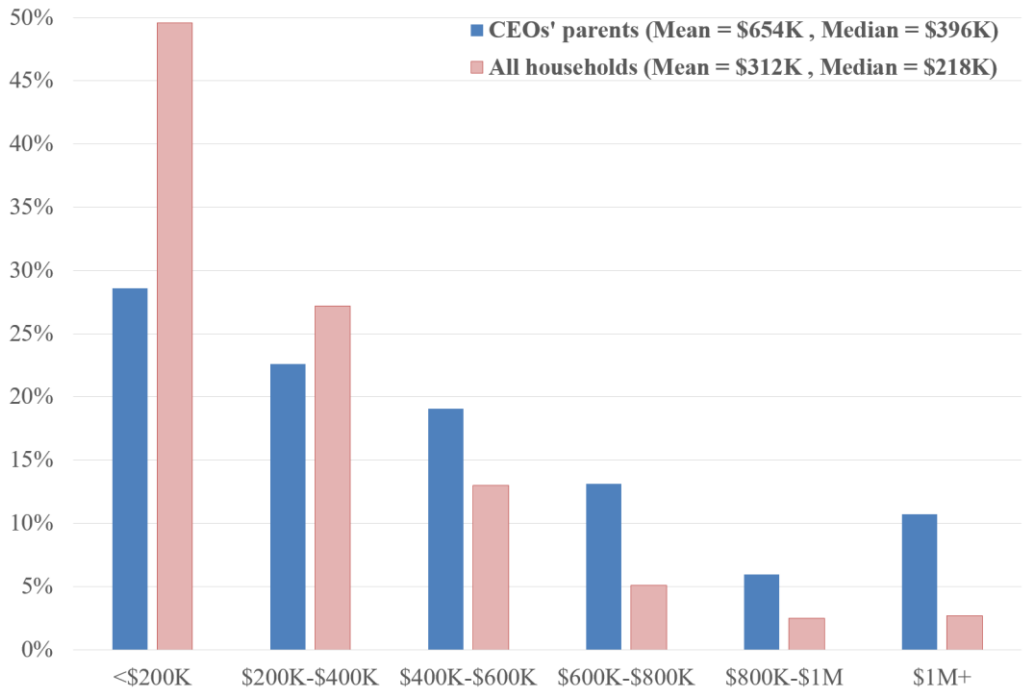


Figure 4
House values and incomes of CEOs' parents and the general population

This figure compares the socioeconomic status between the families where CEOs grew up and the general population. Panel A compares the values of houses owned by CEOs' parents with the value of houses owned by adults between ages 21 and 45 in the general population. Panel B compares the annual incomes of the two groups. The data are obtained from the 1940 decennial federal census. House prices are scaled by the ratio of the median December 2016 house sale price reported by Zillow to the median house price in the 1940 census. Incomes are scaled by the ratio of the median household income in 2016 as reported by the Census Bureau to the median household income in the 1940 census.

Panel A. House values



Panel B. Incomes

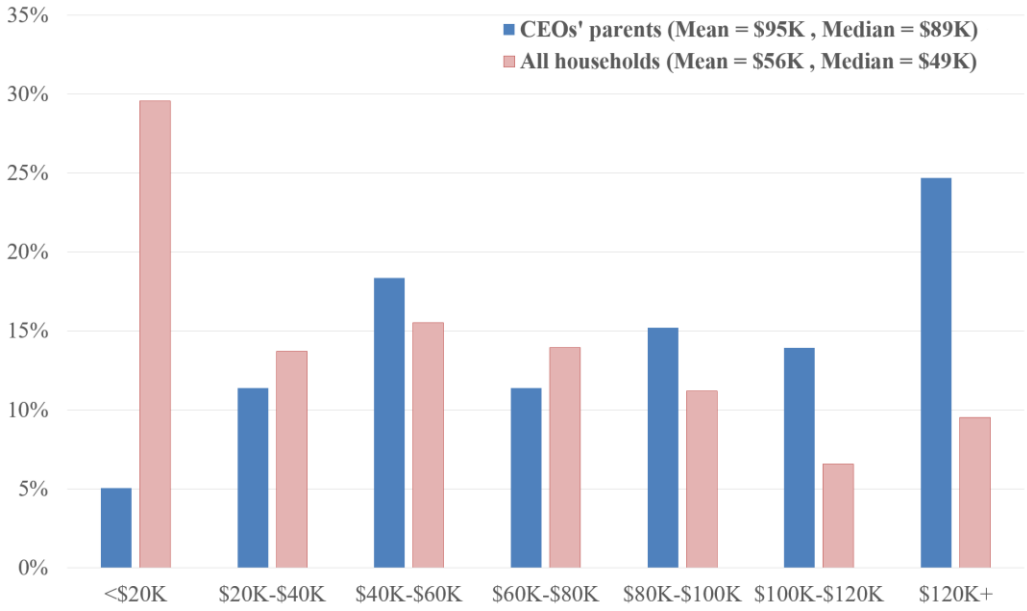


TABLE 1
Summary Statistics

This table reports summary statistics. The sample consists of industrial conglomerates in the S&P 1500 index with available data on capital expenditures, book assets, division managers, and CEO backgrounds. Variable definitions and sample selection criteria appear in Appendixes A and B, respectively. The number of observations for firm-level variables represents the number of firm-years, and the number of observations for division-level variables represents the number of division-years. The reported values are time-series averages over the sample period: January 2000 to December 2008.

Panel A: Firms and Divisions

Variable	Mean	25th percentile	Median	75th percentile	Standard deviation	Number of observations
Company level						
Market value, $millions	14,914	1,203	3,474	11,064	38,867	1,631
Book assets, $millions	13,548	1,545	3,626	10,480	50,751	1,639
Sales, $millions	7,988	1,461	3,448	8,871	10,377	1,639
Capital expenditure, $millions	487.3	44.9	123.4	360.0	1,294.0	1,634
Capital expenditure/assets (%)	4.242	2.207	3.321	5.078	3.271	1,634
Number of divisions	3.100	2.000	3.000	4.000	1.284	1,652
Earnings per share (EPS)	1.663	0.612	1.591	2.879	3.231	1,632
Return on assets (ROA)	0.043	0.020	0.053	0.087	0.113	1,639
Tobin's Q	1.858	1.273	1.598	2.105	0.913	1,631
HH Index	0.221	0.157	0.193	0.251	0.152	1,644
Division level						
Book assets, $millions	3,198	284	856	2,440	14,939	4,197
Sales, $millions	3,176	382	1,117	2,952	6,963	4,208
Capital expenditure, $millions	147.2	8.0	31.2	100.0	588.5	3,954
Capital expenditure/assets (%)	5.079	1.913	3.672	6.397	5.574	3,954
Operating ROA	0.147	0.070	0.128	0.206	0.163	3,941
Industry Tobin's Q	1.593	1.245	1.480	1.845	0.475	4,208
Core division indicator	0.545	0.000	1.000	1.000	0.498	4,208

Panel B: CEOs, Directors, and Division Managers

Variable	Mean	25th percentile	Median	75th percentile	Standard deviation	Number of observations
CEOs						
Age, years	55.91	51.00	56.00	60.00	6.51	1,635
Male indicator	1.00	1.00	1.00	1.00	0.00	1,635
Tenure with the firm, years	14.53	5.10	11.61	18.08	10.84	1,642
Graduate degree indicator	0.62	0.00	1.00	1.00	0.49	1,638
MBA indicator	0.41	0.00	0.00	1.00	0.49	1,629
External board seats	2.17	1.00	2.00	3.00	1.27	1,640
Log network size	6.35	5.83	6.55	7.15	1.23	1,632
Division managers						
Age, years	50.57	48.00	50.36	54.00	5.54	4,049
Male indicator	0.92	1.00	1.00	1.00	0.26	4,049
Tenure with the firm, years	10.78	3.00	8.00	16.00	9.75	3,981
Graduate degree indicator	0.79	1.00	1.00	1.00	0.41	3,976
MBA indicator	0.39	0.00	0.00	1.00	0.49	3,976
External board seats	0.22	0.00	0.00	0.00	0.41	3,968
Social connections to CEO	0.01	-0.16	0.00	0.14	0.34	4,011
Performance record	0.15	0.07	0.13	0.20	0.26	3,962
Directors						
Board size	9.66	8.00	10.00	11.00	2.92	1,639
Number of female directors	1.27	1.00	1.00	2.00	0.93	1,639
Fraction of female directors	0.12	0.08	0.11	0.18	0.09	1,639
Female board chair indicator	0.08	0.00	0.00	0.00	0.28	1,639

TABLE 2
CEO Family Characteristics and Formative Years

This table describes the personal backgrounds of the 587 CEOs in our sample, focusing on their immediate family (Panel A), education (Panel B), home community (Panel C), and exposure to gender imbalances (Panel D). Data sources and sample records used in collecting CEOs' personal data appear in the Internet Appendix. In Panels A and C, personal incomes are scaled to the 2016 dollars, using the ratio of the median household income in 2016 to the median household income reported in the corresponding census. In Panel B, statistics on high schools and colleges are reported for the dates of the CEOs' attendance, using data from the U.S. Department of Education and high school archives. In Panel C, community attributes are measured for the county where each CEO went to high school, and the measurement is as of the national census year closest to the year when the CEO reaches age 18. Variable definitions and sample selection criteria appear in Appendixes A and B, respectively.

Panel A: Family Characteristics

Variable	Mean	25th percentile	Median	75th percentile	Standard deviation
Parents					
Father education, years	13.54	12.00	14.00	16.00	3.25
Father attended college, indicator	0.56	0.00	1.00	1.00	0.50
Mother education, years	12.95	12.00	12.00	16.00	2.64
Mother attended college, indicator	0.43	0.00	0.00	1.00	0.50
Parents' education imbalance	0.01	0.00	0.00	0.12	0.20
Father white-collar job, indicator	0.71	0.00	1.00	1.00	0.45
Non-working mother, indicator	0.79	1.00	1.00	1.00	0.41
Mother income, 2016 dollars	40,155	23,616	35,817	51,167	25,635
Father income, 2016 dollars	91,545	51,167	78,719	118,078	57,575
Parents' income imbalance	0.54	0.29	0.55	0.83	0.47
Siblings					
Number of siblings	3.703	2.000	3.000	4.000	2.265
Number of brothers	1.778	1.000	1.000	2.000	1.426
Number of sisters	1.925	1.000	2.000	2.000	1.492
Siblings' gender imbalance	-0.044	-0.333	0.000	0.333	0.496
Children					
Number of children	2.78	2.00	2.00	3.00	1.35
Number of sons	1.34	1.00	1.00	2.00	1.11
Number of daughters	1.30	1.00	1.00	2.00	1.06
Children's gender imbalance	-0.10	-0.33	-0.14	0.00	0.55

Panel B: Education Characteristics

Variable	Mean	25th percentile	Median	75th percentile	Standard deviation
High school					
Private indicator	0.25	0.00	0.00	1.00	0.44
All-male indicator	0.16	0.00	0.00	0.00	0.37
Religious indicator	0.18	0.00	0.00	0.00	0.39
University					
Private indicator	0.49	0.00	0.00	1.00	0.50
All-male indicator	0.10	0.00	0.00	0.00	0.30
University gender imbalance	0.65	0.56	0.63	0.72	0.16

Panel C: Community Characteristics

Variable	**Mean**	**25th percentile**	**Median**	**75th percentile**	**Standard deviation**
Labor force participation rate, males	0.940	0.928	0.944	0.958	0.035
Labor force participation rate, females	0.419	0.360	0.413	0.452	0.106
Labor force participation gender imbalance	0.522	0.469	0.538	0.595	0.114
Income for employed males, 2016 dollars	60,155	31,998	56,903	70,606	41,896
Income for employed females, 2016 dollars	29,902	18,555	28,692	32,225	20,121
Income gender imbalance	0.678	0.345	0.634	0.829	0.464
Male education, years	11.31	10.59	11.37	12.13	1.33
Female education, years	11.14	10.62	11.27	11.80	1.09
Education gender imbalance	0.168	0.025	0.241	0.379	0.356

Panel D: Gender Imbalance Indexes

Variable	**Mean**	**25th percentile**	**Median**	**75th percentile**	**Standard deviation**
Family gender imbalance index	0.506	0.373	0.599	0.620	0.179
Education gender imbalance index	0.503	0.340	0.487	0.644	0.203
Community gender imbalance index	0.501	0.408	0.503	0.583	0.134
Gender imbalance index (aggregate)	0.507	0.436	0.507	0.587	0.111

TABLE 3
Allocation of Capital between Male and Female Division Managers

This table studies the allocation of investment capital between male and female division managers. The dependent variable is the ratio of the division-level capital expenditure to book assets, expressed in percent. All independent variables are measured at the beginning of the year for which the capital budget is determined and are therefore lagged by one year relative to the dependent variable. The sample consists of industrial conglomerates in the S&P 1500 index with available data on capital expenditures, book assets, division managers, and CEO backgrounds. The sample period is from 2000 to 2008. Variable definitions and sample selection criteria appear in Appendixes A and B, respectively. The regressions include year, year and industry, or year, industry and firm fixed effects, as well as CEO birth cohort fixed effects. The *t*-statistics (in brackets) are based on standard errors that are heteroskedasticity consistent and clustered at the firm level. Significance levels are shown as follows: * = 10%, ** = 5%, *** = 1%.

Model	(1)	(2)	(3)	(4)
Female division manager	-0.455**	-0.533***	-0.668***	-0.672***
	[2.072]	[3.434]	[3.866]	[3.778]
Division manager controls				
Age	0.098	0.079	0.113	0.115
	[1.049]	[0.026]	[1.004]	[1.005]
Graduate degree	0.085	0.079	0.238	0.235
	[0.045]	[0.174]	[0.708]	[0.753]
Tenure	0.465***	0.371*	0.219	0.215
	[2.627]	[1.873]	[0.617]	[0.694]
Performance record	0.371**	0.211*	0.415**	0.415**
	[2.228]	[1.741]	[2.046]	[2.122]
Social connections to CEO	0.898***	1.233***	1.131***	1.124***
	[3.066]	[2.750]	[2.848]	[2.816]
Board member	0.368	0.152	0.067	0.062
	[1.157]	[0.631]	[0.059]	[0.034]
External board seats	-0.287	-0.309	-0.639*	-0.639*
	[0.983]	[0.710]	[1.680]	[1.727]
Division controls				
Industry Tobin's Q	0.616***	0.618***	0.652***	0.656***
	[3.860]	[3.980]	[3.141]	[3.199]
Operating ROA	4.207***	4.041***	2.505***	2.510***
	[7.131]	[7.380]	[4.226]	[4.123]
Size (log assets)	-0.096*	-0.199***	-0.161	-0.164
	[1.670]	[4.446]	[1.465]	[1.511]
Core division	0.307	0.113	-0.070	-0.066
	[1.515]	[0.105]	[0.673]	[0.603]
Firm level				
Earnings per share (EPS)	0.087***	0.112***	0.140**	0.137**
	[2.926]	[2.581]	[2.466]	[2.412]
Return on assets (ROA)	-1.208	-1.478	-2.028	-2.022
	[0.784]	[1.053]	[1.356]	[1.266]
Size (log assets)	-0.103	-0.216**	-0.677*	-0.680*
	[1.118]	[2.223]	[1.808]	[1.782]
Number of divisions	-0.171**	-0.220**	-0.095	-0.097
	[2.375]	[2.279]	[0.558]	[0.523]
Tobin's Q	0.666***	0.807***	0.923***	0.921***
	[5.295]	[5.556]	[4.021]	[4.137]
CEO controls				
Graduate degree	-0.444*	-0.171	0.324	0.323
	[1.916]	[1.169]	[0.794]	[0.786]
Tenure with the firm	0.829***	0.668***	0.105	0.106
	[7.766]	[6.984]	[1.109]	[1.081]
External board seats	-0.231**	-0.106	0.119	0.116
	[2.446]	[1.619]	[0.027]	[0.021]
Log network size	0.224	0.170*	0.483***	0.476***
	[1.638]	[1.649]	[2.659]	[2.645]
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	No	Yes	Yes	Yes
Firm fixed effects	No	No	Yes	Yes
CEO birth cohort fixed effects	No	No	No	Yes
R^2	0.058	0.283	0.554	0.579
N_obs	3,904	3,904	3,904	3,904

TABLE 4
CEO Background and Capital Allocations to Female Managers

This table studies how CEO characteristics affect the allocation of capital between male and female division managers. The dependent variable is the ratio of the division-level capital expenditure to book assets, expressed in percent. The sample consists of industrial conglomerates in the S&P 1500 index with available data on capital expenditures, book assets, division managers, and CEO backgrounds. The sample period is from 2000 to 2008. Variable definitions and sample selection criteria appear in Appendixes A and B, respectively. Control variables include the same characteristics of the firm, division, CEO, and division manager as in Table 3. All independent variables are measured at the beginning of the year for which the capital budget is determined and are therefore lagged by one year relative to the dependent variable. In Panel A, all regressions include year, industry, firm, and CEO birth cohort fixed effects. In Panel B, all regressions include year, industry, and CEO birth cohort fixed effects, and alternate with respect to firm fixed effects. The *t*-statistics (in brackets) are based on standard errors that are heteroskedasticity consistent and clustered at the firm level. Significance levels are indicated as follows: * = 10%, ** = 5%, *** = 1%.

Panel A: Individual Measures of Gender Imbalance

Background	Family					Education			Community	
Measure of CEO gender imbalance	Non-working mother	Parents' education imbalance	Parents' income imbalance	Siblings' gender imbalance	Children's gender imbalance	All-male high school	University gender imbalance	Labor force participation gender imbalance	Income gender imbalance	Education gender imbalance
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Female division manager	-0.276 [1.064]	-0.381** [2.508]	-0.370** [2.308]	-0.385* [1.809]	-0.185 [1.407]	-0.317** [2.254]	-0.514** [2.309]	-0.499** [2.521]	-0.209 [1.161]	-0.566** [2.112]
CEO gender imbalance	0.293* [1.819]	0.260** [2.566]	0.284* [1.877]	0.474** [2.336]	0.383* [1.880]	0.189** [2.257]	0.395* [1.722]	0.083** [2.223]	0.234** [2.441]	0.162** [2.261]
Female division manager x CEO gender imbalance	-0.269** [2.036]	-0.236* [1.867]	-0.187** [2.064]	-0.115 [1.515]	-0.375** [2.025]	-0.506** [2.380]	-0.261 [1.247]	-0.112* [1.650]	-0.195** [1.988]	-0.185** [2.127]
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.587	0.583	0.627	0.618	0.589	0.585	0.582	0.581	0.586	0.584
N_obs	3,904	3,904	980	1,125	1,619	3,904	3,904	3,904	3,904	3,904

Panel B: Pooled Indexes of Gender Imbalance

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female division manager	-0.220** [2.050]	-0.303* [1.875]	-0.235** [2.050]	-0.283** [2.020]	-0.359** [2.401]	-0.373** [2.271]	-0.255 [1.326]	-0.270 [1.033]
CEO family index	0.406** [2.260]	0.393*** [2.586]					0.311** [2.574]	0.368** [2.418]
Female division manager x CEO family index	-0.632** [2.357]	-0.477** [2.156]					-0.373** [2.307]	-0.437** [2.226]
CEO education index			0.419** [2.275]	0.404** [2.519]			0.289** [2.017]	0.264* [1.903]
Female division manager x CEO education index			-0.740** [2.560]	-0.468** [2.346]			-0.361** [2.358]	-0.531*** [2.724]
CEO community index					0.364* [1.927]	0.388** [2.050]	0.226 [1.363]	0.218 [1.443]
Female division manager x CEO community index					-0.509* [1.818]	-0.533* [1.813]	-0.234 [1.524]	-0.168 [1.507]
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.343	0.592	0.337	0.587	0.334	0.586	0.346	0.592
N_obs	3,904	3,904	3,904	3,904	3,904	3,904	3,904	3,904

TABLE 5
External Validity

This tables tests the external validity of our proxies for CEOs' gender attitudes. Panel A shows correlations between CEOs' exposure to gender imbalances during formative years and external assessments of their firms' policies toward women. The dependent variable is an external audit score for one of the firm's policies toward women: promotion, work-life benefits, and contracting. The audit scores are from the research firm KLD Research & Analytics. Panel B studies how the relation between CEOs' formative experiences and capital allocations to male and female managers varies with the CEO's birth cohort. The dependent variable is the ratio of division-level capital expenditure to book assets, expressed in percent. The regression models enrich the baseline specification (Table 4, Panel B) with the variable *CEO early birth cohort* and its interaction terms. *CEO early birth cohort* is a binary indicator that equals one if the CEO's birth cohort is earlier than the sample median cohort (1950–1954). The CEO's birth cohort is computed based on the birth year reported in Lexis Nexis Public Records. The CEO's birth cohort is defined as a five-year period according to the year of birth, where the earliest cohort in the sample spans 1930–1934, and the latest cohort spans 1969–1974. For brevity, Panel B reports only the coefficients on the main variables of interest: the double interaction terms *Female division manager* x *CEO index* and the triple interaction terms *Female division manager* x *CEO index* x *CEO early birth cohort.* Unreported coefficients include *CEO imbalance indexes*, *Female division manager*, *CEO birth cohort fixed effects* and the double interaction terms *CEO index x CEO early birth cohort* and *Female division manager x CEO early birth cohort*. In both panels, control variables include the characteristics of the firm, division, division manager, and CEO listed in Table 3. Variable definitions appear in Appendix A. The *t*-statistics (in brackets) are based on standard errors that are heteroskedasticity consistent and clustered at the firm level. Significance levels are indicated as follows: * = 10%, ** = 5%, *** = 1%.

Panel A: CEO Background and Firm Polices toward Women

Dependent variable	Promotion of women and minorities			Outstanding work/life benefits			Women & Minority contracting		
CEO imbalance index	Family	Education	Community	Family	Education	Community	Family	Education	Community
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CEO imbalance index	-0.375*** [2.840]	-0.087 [1.029]	-0.100** [2.167]	-0.317** [2.496]	-0.143 [1.173]	-0.151** [2.157]	-0.210** [2.053]	-0.150* [1.749]	-0.076** [2.422]
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.223	0.226	0.229	0.194	0.178	0.180	0.144	0.158	0.146
N_obs	1,186	1,186	1,186	1,186	1,186	1,186	1,186	1,186	1,186

Panel B: CEO Birth Cohort

Model	(1)	(2)	(3)
Female division manager x CEO family index	-0.374** [2.027]		
Female division manager x CEO family index x CEO early birth cohort	-0.105* [1.951]		
Female division manager x CEO education index		-0.283** [2.196]	
Female division manager x CEO education index x CEO early birth cohort		-0.134* [1.919]	
Female division manager x CEO community index			-0.391 [1.327]
Female division manager x CEO community index x CEO early birth cohort			-0.117 [1.141]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes
R^2	0.594	0.590	0.588
N_obs	3,904	3,904	3,904

TABLE 6
Unobservable Managerial Characteristics and the Matching of CEOs to Firms and Managers to Divisions

This table studies the robustness of our main results to unobservable characteristics of CEOs and division managers and their matches to firms and divisions, respectively. The dependent variable is the ratio of the division-level capital expenditure to book assets, expressed in percent. *CEO gender imbalance index* aggregates each CEO's early-life exposure to gender imbalances in the family, school, and community by calculating the arithmetic average of three indexes: *Family gender imbalance index*, *Education gender imbalance index*, and *Community gender imbalance index*. The sample consists of industrial conglomerates in the S&P 1500 index with available data on capital expenditures, book assets, division managers, and CEO backgrounds. The sample period is from 2000 to 2008. Variable definitions and sample selection criteria appear in Appendixes A and B, respectively. Control variables include the same characteristics of the firm, division, CEO, and division manager as in Table 3. All independent variables are measured at the beginning of the year for which the capital budget is determined and are therefore lagged by one year relative to the dependent variable. All the regressions include year fixed effects, and alternate with respect to other fixed effects. The *t*-statistics (in brackets) are based on standard errors that are heteroskedasticity consistent and clustered at the firm level. Significance levels are indicated as follows: * = 10%, ** = 5%, *** = 1%.

Model	(1)	(2)	(3)	(4)	(5)	(6)
Female division manager	-0.296* [1.908]	-0.162* [1.718]	-0.118* [1.702]	-0.071 [1.614]		
CEO gender imbalance index	0.398** [2.515]					
Female division manager x CEO gender imbalance index	-0.481** [2.089]	-0.338** [2.041]	-0.312** [2.025]	-0.259** [2.128]	-0.236** [2.099]	-0.194* [1.851]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Baseline fixed effects	Year, Industry, Firm, CEO birth cohort	Year, Industry, Firm	Year, Industry	Year	Year	Year
Other fixed effects	N/A	CEO	CEO x Firm	CEO x Firm, Division	CEO x Firm, Division, Division manager	CEO x Firm, Division x Division manager
R^2	0.597	0.611	0.619	0.665	0.718	0.790
N_obs	3,904	3,904	3,904	3,904	3,904	3,904

TABLE 7

The Appointment Channel: Appointments, Promotions, and Separations of Division Managers

Panel A studies how division and CEO characteristics are associated with the appointment of female managers to divisions. The dependent variable is the appointment of a female division manager. The sample includes all division manager turnovers in which the CEO does not change. The characteristics of divisions are measured in the year immediately preceding the year of division managers' appointments. Divisions' characteristics include: *CapEx*, measured by the percentage ratio of division-level capital expenditure to book assets; *Size*, measured by the natural logarithm of book assets; *Operating ROA*, measured by the ratio of the division's operating profit to its book assets; the binary indicator *Core division*, which equals one if the division operates in the conglomerate's core industry, based on the three-digit SIC classification; *Division cash flow volatility*, measured as the volatility of a division's operating cash flows scaled by its book assets over the past 5 years; and *Industry beta*, measured as the weighted average beta of all publicly traded standalone firms in the division's industry, based on the three-digit SIC classification. Panel B studies the relation between CEOs' formative experiences and labor market outcomes for female division managers. In column 1, the dependent variable is *Promotion of division managers*, defined as an indicator variable that equals 1 if a division manager is assigned to a new division that is at least 20% larger in book assets than the division overseen in the previous year or if a division manager enters the list of the firm's five highest-paid executives, while not being on the list in the previous year. In column 2, the dependent variable is *Demotion of division managers*, defined as an indicator variable that equals 1 if a division manager is assigned to a new division that is at least 20% smaller in book assets than the division overseen in the previous year or if a division manager who appeared on the list of the firm's five highest-paid executives in the previous year is no longer on the top-five list (but remains with the firm). In column 3, the dependent variable is *Separation of division managers*, defined as an indicator variable that equals 1 if a division manager who worked at the firm in the previous year is no longer with the firm. *CEO gender imbalance index* is the average of *CEO family gender imbalance index*, *CEO education gender imbalance index*, and *CEO community gender imbalance index*. Control variables include the characteristics of the firm, division, division manager, and CEO listed in Table 3. Variable definitions appear in Appendix A. All regressions include year, industry, firm, and CEO birth cohort fixed effects. The *t*-statistics (in brackets) are based on standard errors that are heteroskedasticity consistent and clustered at the firm level. Significance levels are indicated as follows: * = 10%, ** = 5%, *** = 1%.

Panel A: Appointments of Female Division Managers

Dependent variable	Appointment of a female division manager		
CEO imbalance index	Family	Education	Community
Model	(1)	(2)	(3)
CEO imbalance index	-0.227** [2.110]	-0.169** [1.972]	-0.244* [1.860]
Lagged division CapEx	-0.032 [0.653]	-0.034 [0.803]	-0.62 [0.225]
CEO imbalance index x Lagged division CapEx	-0.507*** [2.967]	-0.340** [2.365]	-0.407** [2.262]
Lagged division size	-0.014 [0.804]	0.003 [0.263]	-0.036 [1.561]
CEO imbalance index x Lagged division size	-0.028 [1.268]	-0.024 [0.976]	-0.044 [1.157]
Lagged division operating ROA	0.026 [1.440]	0.039 [1.205]	0.053 [1.217]
CEO imbalance index x Lagged division operating ROA	-0.076* [1.725]	-0.103* [1.682]	-0.062 [1.375]
Lagged core division indicator	-0.055 [1.025]	-0.033 [0.861]	-0.010 [1.098]
CEO imbalance index x Lagged core division indicator	-0.124 [1.267]	-0.117 [1.049]	-0.188 [1.540]
Lagged division cash flow volatility	0.014 [0.558]	0.019 [0.804]	0.008 [0.411]
CEO imbalance index x Lagged division cash flow volatility	-0.023 [1.362]	-0.018 [1.144]	-0.032 [1.461]
Lagged industry beta	0.006 [0.258]	0.004 [0.195]	0.008 [0.233]
CEO imbalance index x Lagged industry beta	-0.014 [0.846]	-0.013 [0.793]	-0.011 [0.750]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes
R^2	0.286	0.293	0.285
N_obs	372	372	372

Panel B: Promotions, Demotions, and Separations of Division Managers

Dependent variable	Promotion of division managers	Demotion of division managers	Separation of division managers
Model	(1)	(2)	(3)
Female division manager	-0.022 [1.360]	0.037 [0.918]	0.082 [1.114]
CEO gender imbalance index	0.058** [2.185]	0.016* [1.885]	0.029* [1.902]
CEO gender imbalance index x Female division manager	-0.046* [1.725]	0.073* [1.847]	0.115** [2.266]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes
R^2	0.088	0.094	0.117
N_obs	3,904	3,904	3,904

TABLE 8

The Capital Allocation Channel: Evidence from CEO Turnovers for Quasi-Natural Causes

This table studies the turnover of CEOs and division managers. The table examines how changes in CEO characteristics at the time of CEO turnover affect the allocation of capital to male and female managers, while holding constant managers' appointments to divisions. It presents estimates from first-difference regressions, in which the dependent variable is the change in the percentage ratio of division-level capital expenditure to book assets between the first capital allocations under the new CEO (the year after the turnover) and the last capital allocations under the prior CEO (the year immediately preceding the turnover). This analysis is restricted to division-year observations where the CEO has changed from the previous year but the division manager has not changed. The CEO turnover events include CEO changes for natural causes, such as death, health issues, retirements, and succession plans. Such turnovers are identified on the basis of the information contained in the firm's press release or the Wall Street Journal article announcing the CEO's departure and must meet one of the following conditions: the departing CEO dies, departs due to health issues, retires at the age of 65 or older, reaches the prespecified age defined in the firm's succession plan, or the article states that the change is part of the firm's succession plan. Control variables include first differences in firm, division, division manager, and CEO characteristics listed in Table 3. Variable definitions appear in Appendix A. The *t*-statistics (in brackets) are based on standard errors that are heteroscedasticity consistent and clustered at the firm level. Significance levels are indicated as follows: * = 10%, ** = 5%, *** = 1%.

Dependent variable	ΔCapEx		
Model	(1)	(2)	(3)
Female division manager	-0.120 [0.570]	-0.379 [0.644]	-0.215 [0.229]
ΔCEO family index	1.052* [1.754]		
Female division manager x ΔCEO family index	-2.037** [1.985]		
ΔCEO education index		1.456** [2.301]	
Female division manager x ΔCEO education index		-2.670** [2.440]	
ΔCEO community index			1.372* [1.692]
Female division manager x ΔCEO community index			-2.534** [2.054]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
R^2	0.698	0.712	0.704
N_obs	254	254	254

TABLE 9
Possible Explanations

This table examines how the relation between CEOs' formative experiences and capital allocations to male and female managers varies with proxies for information asymmetry and learning (columns 1–2), favoritism (columns 3–4), career interruptions due to childbirth (column 5) and risk-taking (columns 6–7). The dependent variable is the ratio of division-level capital expenditure to book assets, expressed in percent. The regression models enrich the baseline specification (Table 4, Panel B) with the following variables and their interaction terms: (1) *External CEO*—an indicator variable that equals one if the CEO's prior position immediately preceding his current CEO position was with another firm; (2) *Temporal overlap*—the number of years that the CEO and division manager have worked together in the company in their current roles; (3) *Lawsuits on gender & diversity* —an indicator variable that equals one if the external audit score indicates substantial fines or civil penalties paid as a result of gender and diversity policies (where the audit scores are from the research firm KLD Research & Analytics); (4) *Contracting with women and minorities* —an indicator variable that equals one if the external audit score indicates poor record in "purchasing from or contracting with women- and/or minority-owned businesses" (where the audit scores are from the research firm KLD Research & Analytics); (5) *Division manager under 40*—an indicator variable that equals one if the division manager's age is under 40 years; (6) *Division cash flow volatility*—the volatility of a division's operating cash flows scaled by its book assets over the past 5 years; (7) *Industry beta*—the weighted average beta of all publicly-traded standalone firms in the division's industry, based on the three-digit SIC classification. For brevity, the table reports only the coefficients on the main variables of interest: the double interaction terms *Female division manager* x *CEO gender imbalance index* and the triple interaction terms *Female division manager* x *CEO gender imbalance index* x *V*, where *V* is one of the seven variables defined above. *CEO gender imbalance index* is the average of *CEO family gender imbalance index*, *CEO education gender imbalance index*, and *CEO community gender imbalance index*. The unreported coefficients include the double interaction terms *CEO gender imbalance index* x *V* and *Female division manager* x *V*. Control variables include the characteristics of the firm, division, division manager, and CEO listed in Table 3. Variable definitions appear in Appendix A. All regressions include year, industry, firm, and CEO birth cohort fixed effects. The *t*-statistics (in brackets) are based on standard errors that are heteroskedasticity consistent and clustered at the firm level. Significance levels are indicated as follows: * = 10%, ** = 5%, *** = 1%.

Explanation	Information asymmetry and learning		Favoritism		Career interruptions due to childbirth	Risk-taking	
V	External CEO	Temporal overlap	Lawsuits on gender & diversity	Contracting with women and minorities	Division manager under 40	Division cash flow volatility	Industry beta
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Female division manager	-0.272* [1.899]	-0.304* [1.922]	-0.309* [1.875]	-0.217* [1.699]	-0.315* [1.779]	-0.166** [2.123]	-0.248* [1.883]
CEO gender imbalance index	0.427** [2.391]	0.351** [2.227]	0.423** [1.973]	0.172** [2.158]	0.425** [2.075]	0.293** [2.017]	0.382** [2.204]
V	-0.128 [0.835]	-0.184 [1.018]	-0.082 [1.053]	-0.066 [0.947]	-0.130 [0.975]	-1.604 [1.202]	-0.096 [1.007]
Female division manager x CEO gender imbalance index	-0.287** [2.334]	-0.320** [2.285]	-0.313** [2.213]	-0.280** [2.096]	-0.314** [2.130]	-0.301** [2.219]	-0.294** [2.177]
Female division manager x CEO gender imbalance index x V	-0.091* [1.695]	0.062** [2.303]	-0.048** [2.201]	-0.076* [1.672]	-0.006 [1.155]	-1.026 [1.150]	-0.071 [1.335]
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.608	0.611	0.551	0.562	0.596	0.591	0.584
N_obs	3,904	3,904	3,126	3,395	3,904	2,658	2,658

TABLE 10
Corporate Governance

This table studies how the relation between CEO characteristics and capital allocations to male and female managers varies with corporate governance, as measured by the gender of the chair of the board (Panel A) and product market competition (Panel B). The dependent variable is the ratio of division-level capital expenditure to book assets, expressed in percent. In Panel A, *Female board chair* is a binary indicator that equals one when the chair of the board is a woman and zero otherwise. In Panel B, *HHI* is the Herfindahl-Hirschman index, defined as the sum of squared market shares (based on sales) of publicly-traded firms in a given three-digit SIC industry. For brevity, the table reports only the coefficients on the main variables of interest: the double interaction terms *Female division manager* x *CEO index* and the triple interaction terms *Female division manager* x *CEO index* x *Female board chair* (Panel A) and *Female division manager* x *CEO index* x *HHI* (Panel B). The unreported coefficients include *CEO indexes*, *Female division manager*, *Female board chair* (Panel A), *HHI* (Panel B), and the double interaction terms *CEO index* x *Female board chair* and *Female division manager* x *Female board chair* (Panel A), and the double interaction terms *CEO index* x *HHI* and *Female division manager* x *HHI* (Panel B). Control variables include the characteristics of the firm, division, division manager, and CEO listed in Table 3. Variable definitions appear in Appendix A. All regressions include year, industry, firm, and CEO birth cohort fixed effects. The *t*-statistics (in brackets) are based on standard errors that are heteroskedasticity consistent and clustered at the firm level. Significance levels are indicated as follows: * = 10%, ** = 5%, *** = 1%.

Panel A: Female Chair of the Board of Directors

Model	(1)	(2)	(3)
Female division manager x CEO family index	-0.532** [2.238]		
Female division manager x CEO family index x Female board chair	0.163* [1.854]		
Female division manager x CEO education index		-0.724** [2.536]	
Female division manager x CEO education index x Female board chair		0.166* [1.898]	
Female division manager x CEO community index			-0.571** [1.982]
Female division manager x CEO community index x Female board chair			0.198** [2.060]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes
R^2	0.588	0.590	0.582
N_obs	3,904	3,904	3,904

Panel B: Product Market Competition

Model	(1)	(2)	(3)
Female division manager x CEO family index	-0.311** [2.144]		
Female division manager x CEO family index x HHI	-0.708* [1.894]		
Female division manager x CEO education index		-0.278** [2.320]	
Female division manager x CEO education index x HHI		-0.603* [1.837]	
Female division manager x CEO community index			-0.181* [1.758]
Female division manager x CEO community index x HHI			-0.498 [1.442]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes
R^2	0.594	0.591	0.597
N_obs	3,904	3,904	3,904

TABLE 11
Capital Allocation Efficiency

This table studies how the CEO's early-life exposure to gender inequity is associated with investment efficiency in his firm's internal capital market. Investment efficiency is measured by the sensitivity of a division's capital investment to Tobin's Q in the division's industry, defined according to a three-digit SIC code. Industry Tobin's Q is the median market-to-book ratio across all publicly-traded single-segment firms in the division's industry. The dependent variable is the ratio of division-level capital expenditure to book assets, expressed in percent. Control variables include the characteristics of the firm, division, division manager, and CEO listed in Table 3. Variable definitions appear in Appendix A. All regressions include year, industry, firm, and CEO birth cohort fixed effects. The *t*-statistics (in brackets) are based on standard errors that are heteroskedasticity consistent and clustered at the firm level. Significance levels are indicated as follows: * = 10%, ** = 5%, *** = 1%.

Index type	Family	Education	Community
Model	(1)	(2)	(3)
CEO imbalance index	0.394*** [2.627]	0.412*** [2.615]	0.395** [1.962]
Tobin's Q	0.626*** [4.016]	0.620*** [3.953]	0.665*** [3.162]
CEO imbalance index x Tobin's Q	-0.271* [1.697]	-0.226* [1.900]	-0.192 [1.489]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes
R^2	0.592	0.597	0.586
N_obs	3,904	3,904	3,904

TABLE 12
Division and Firm Outcomes

This table studies how the CEO's early-life exposure to gender inequity is associated with division-level performance (Panel A) and firm-level performance (Panel B) in his firm. Division-level performance is measured by *Division profitability*, defined as the ratio of division operating cash flow to division sales as in Ozbas and Scharfstein (2010) (column 1), by *Sales growth*, defined as the annual percentage growth in division sales (column 2), and by *Market share growth*, defined as the annual percentage growth in market share, measured by the share of a division's sales in the total sales in its industry, defined according to a three-digit SIC code (column 3). Firm-level performance is measured by the return on assets, *ROA*, defined as the ratio of net income to book assets at the beginning of the year (columns 1 & 4), by *Tobin's Q*, defined as the ratio of the market value of equity plus book value of debt to book value of assets (columns 2 & 5), and by *Stock return*, defined as the annual return on the firm's stock (columns 3 & 6). All dependent variables are measured over the year immediately following the year over which the independent variables are measured. Control variables include the characteristics of the firm, division, division manager, and CEO listed in Table 3. *CEO gender imbalance index* is calculated as the average of *CEO family gender imbalance index*, *CEO education gender imbalance index*, and *CEO community gender imbalance index*. Variable definitions appear in Appendix A. All regressions include year, industry, firm, and CEO birth cohort fixed effects. The *t*-statistics (in brackets) are based on standard errors that are heteroskedasticity consistent and clustered at the firm level. Significance levels are indicated as follows: * = 10%, ** = 5%, *** = 1%.

Panel A: Division Performance

Performance measure	Profitability	Sales growth	Market share growth
Model	(1)	(2)	(3)
Female division manager	-0.018 [1.491]	0.042 [1.470]	-0.059 [0.054]
CEO gender imbalance index	-0.032 [1.083]	-0.084 [0.832]	-0.965 [0.104]
CEO gender imbalance index x Female division manager	-0.009** [2.033]	-0.032* [1.927]	-0.299* [1.883]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes
R^2	0.260	0.085	0.046
N_obs	3,904	3,904	3,904

Panel B: Firm Performance

Performance measure	ROA	Tobin's Q	Stock return	ROA	Tobin's Q	Stock return
Model number	(1)	(2)	(3)	(4)	(5)	(6)
CEO gender imbalance index	-0.003** [2.386]	-0.121** [2.266]	-0.010** [2.174]	-0.001 [1.226]	-0.033 [1.485]	-0.004 [0.719]
Female division manager				0.008 [0.993]	0.020 [1.118]	0.002 [0.881]
CEO gender imbalance index x Female division manager				-0.004** [2.293]	-0.106** [2.317]	-0.008** [2.064]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.456	0.794	0.395	0.472	0.806	0.415
N_obs	1,259	1,259	1,259	1,259	1,259	1,259

Internet Appendix for
"The Origins and Real Effects of the Gender Gap: Evidence from CEOs' Formative Years"

This appendix discusses the data and provides examples of CEO records. Section 1 summarizes data collection methods. Section 2 offers examples of data sources and discusses cross-verification procedures and robustness. Section 3 provides a comprehensive example of collecting and verifying data for one of the CEOs.

1. Data collection process

1.1 Identifying CEOs

We begin with the list of CEOs of industrial conglomerates in the S&P 1500 index in 2000-2008. We look up the age of each executive in Execucomp. Fifteen CEOs in our sample are missing from the database, and for one other CEO (Michael J. Callahan, execid=03469), Execucomp does not report age. To fill in the missing observations, we access SEC filings, including definitive proxy statements (DEF 14A), quarterly reports (10-Q), and annual reports (10-K). We are able to collect the age of 100% of the CEOs in our sample and thus approximate the year of birth.

Using the combination of the CEO's full name and birth year, we identify the executive in the Lexis Nexis Public Records database (LNPR). This database aggregates information on nearly 500 million unique U.S. individuals (both alive and deceased) available from various federal, state, and county records, such as drivers' licenses, property tax assessment records, marriage and divorce records, voter registration records, utility connection records, criminal records, and many others. This information is combined into a comprehensive person report for each individual, which provides the year and month of birth, the Social Security number (except the last four digits), history of residential addresses, and information on employment, among many other characteristics. We show an example of the LNPR person report for one of the CEOs in our sample in Figure IA.1.

1.2 Verification of CEO matches

We perform several validity checks of the accuracy of LNPR matches. First, we ensure that the person's employer, work email address, and occupation correspond to the CEO's firm. An individual's employment records are disclosed in the "Employment Locator" section of the LNPR person report, as illustrated in Figure IA.2. Second, we compare the executive's residential address in LNPR during his tenure as the CEO to the address of the firm's headquarters to ensure geographic proximity.

Finally, for a subsample of CEOs who make any political contributions, we compare zip codes of the CEO's home address reported by LNPR and the Federal Election Commission (FEC)[1]. This robustness check provides an external validation of the accuracy of our data, because data on CEOs' residential addresses in LNPR and FEC come from separate data sources (county records and utility connection bills in LNPR and political contribution forms in FEC, respectively). Using these verification methods, we are able to establish reliable matches to LNPR for 100% of CEOs in our sample.

1.3 CEO demographics

For each CEO, we collect from LNPR the month and year of birth and all variations of his name reported in official federal and state records (aggregated under the same Social Security number, SSN). We also obtain the state issuing the SSN, which is typically the state where the CEO grew up. Finally, we collect

[1] The political contribution data are publicly available at https://classic.fec.gov/finance/disclosure/norindsea.shtml.

from LNPR prior residential addresses and a list of potential relatives, including parents, spouses, and children. Using these data, we follow the multi-step process described in Chuprinin and Sosyura (2018) and summarized in the following section to identify a CEO's family in the census.

1.4 CEOs' family descent

To reliably identify a CEO's household in the census, we require an unambiguous match between his family composition and the list of household members in the census (parents and, if needed, siblings). The unique combination of family members in a household virtually eliminates the possibility of a spurious match. To identify a CEO's parents, we rely on state vital records.

In the first step, we use the CEO's full name and date of birth to retrieve his state birth record. These records are available from the health department of each state and cover all birth events, irrespective of personal characteristics. We retrieve state birth records using interfaces provided by the genealogy research services ancestry.com and familytree.com. Birth records identify both parents, and, depending on the state and time, can also show their ages, employment, and residence, all of which we record and use for cross-verification. Figure IA.3 provides an example.

In the second step, we supplement the above information with CEOs' marriage records. These official data typically provide full names of parents of the groom and bride, including the maiden name of the CEO's mother. We obtain digital state marriage records via the same search interface as above. To ensure an accurate match, we identify the CEO's current and previous spouses from his home deed records available in LNPR. In the overwhelming majority of cases, the CEO's home deeds are written to both spouses. For managers that have had multiple spouses, we check marriage records with all the spouses. Figure IA.4 shows a sample marriage record.

In the third step, we obtain obituaries for CEOs' parents to construct a comprehensive family tree. Obituaries list all of the members of the household, both surviving and predeceased, and provide their relationships. Since parents of almost all CEOs in our sample are deceased, their obituaries are available at the time of writing. We also collect obituaries for deceased CEOs. We identify the date of death from LNPR, which obtains this information from social security records.

We collect obituaries from two sources. The first source, legacy.com, is an online repository of memorials obtained from more than 1,500 newspapers and 3,500 funeral homes. The second source, newspapers.com, is the largest online newspaper archive that covers approximately 12,000 publications, including small regional outlets. To ensure an accurate match, we search for an obituary that lists the CEO and his spouse as surviving family members. Figure IA.5 provides an example.

Using the dates of death from obituaries and LNPR, we obtain state death records for CEOs' parents, which help to cross-verify education and occupation from an administrative data source (see Figure IA.6 for an example). In summary, using the combination of above vital records, we identify the composition of the family where the CEO grew up and cross-verify information from obituaries and state-level records.

Identifying CEOs' families in the census

Using the unique combination of the CEO's family members, we identify his household in the federal and state census records, which are compiled and made available in a digitized searchable format by the National Archives and Records Administration (archives.gov). The interface allows us to condition the search on the place and date of birth of the CEO and other household members and on their co-habitation in the same dwelling, resulting in precise matches.

The result of the search is a digital image of the census record, which provides 34 characteristics for each household member, including the precise address, years of education, employment details, and incomes. We show a blank 1940 federal census form in Figure IA.7 and a completed form for the family of one of the CEOs in Figure IA.8. We manually transcribe information from these forms into our dataset and cross-reference it against data from other sources as we discuss below in section 2 that covers data verification.

1.5 Education data

Colleges and graduate schools

We obtain information on higher education of CEOs from BoardEx. In this database, both the institution name and the graduation year are missing for 112 CEOs, and the graduation year is missing for 32 other executives. We hand-collect this missing information from SEC filings (primarily 10-K and DEF 14A), press releases announcing CEO appointments, and executive biographies. These resources allow us to establish undergraduate education for all CEOs in our sample who attended college.

For each university in our sample, we obtain historical annual data on student enrolment by gender from the National Science Foundation (webcaspar.nsf.gov). This resource compiles comprehensive information on U.S. colleges and universities, including enrolment numbers, degrees and certificates awarded, faculty and staff characteristics, and university finances. Using these data, we record the proportion of females in the student body in the year the CEO earned his undergraduate degree.

High schools

We build the dataset of high schools attended by the CEOs in several steps. First, we get high school data from BoardRoom Insiders, an executive search company specializing in management's personal information. Second, we use a digital archive of yearbooks made available by classmates.com.

Third, to verify ambiguous cases, we submit written disclosure requests for high school information and residential addresses to the registrar offices of the universities where the CEOs pursued undergraduate studies. These requests also allow us to confirm graduation years and degrees. Figure IA.9 shows an example of record disclosure in response to our request.

For each high school in our sample, we record the following characteristics during the years of the CEO's attendance: the exact address and its status as single-sex or co-educational, public or private, and religious or secular. We collect these data from the official school web pages that detail the institution's history. For high schools that moved location or shut down, we record this information from yearbook archives.

1.6 Community characteristics

We proxy for the community where the CEO grew up by the county where he attended high school. From the federal census conducted in the year closest to the CEO's 18^{th} birthday, we collect the following characteristics of adult men and women: the labor force participation rate, average annual income, and average number of education years. These data are available from Integrated Public Use Microdata Series, the largest individual-level population database in the world (IPUMS, ipums.org). This dataset compiles information from every U.S. census from 1790 to 2010.

We focus on counties as a unit of observation because this approach ensures data completeness. While geographic boundaries for locations as small as a census tract are sometimes available in NHGIS, community characteristics required for our analysis are sparsely populated at such high granularity.

2. Overcoming data limitations and ensuring accuracy through cross-verification

We describe potential limitations of the data, ways to mitigate them, and tests we conduct to verify robustness of our results. We also discuss the cross-verification procedures we use to ensure high data accuracy.

2.1 Locating an individual in the census records

Searchable federal and state census files are available from three main sources: familysearch.org, archives.gov, and ancestry.com. Two main limitations can arise when attempting to identify an individual in the census: obtaining no matches and obtaining too many matches.

Resolving the issue of no matches

The search for census records produces no matches when the optical character recognition (OCR) software used by the above websites errs when reading the handwriting of the census taker. In such cases, we follow a multistep process to find the desired census record. First, we repeat the search on the other two websites because they use distinct OCR software and hence differ in the outcomes of handwriting recognition. Second, we use ancestry.com's feature that allows searching on non-exact name strings and on the initials of first and middle names, which further alleviates problems from OCR errors. Third, we instead search for known relatives who might have resided in the same household as the individual in question.

When these approaches fail to produce a match, we look up the person in the archive of city directories coinciding with a CEO's formative years. City directories are available from ancestry.com and contain entries for working family members and their spouses (working or not) and include clearly typed names, occupations, and home and business addresses. Using the home address of the house where the CEO grew up (from city directories), we then find the census tract of that address and pull up the associated census page to locate the individual. We provide additional details and examples in section 2.5.

Resolving the issue of too many matches

When an individual has a common name, the search process often yields too many matches even when conditioning on the age of the individual and their state of residence. To resolve this issue, we exploit the feature of the search interface that allows for conditioning on the names of other members of the household. The combination of multiple household members allows for a unique and unambiguous match. For example, when searching for a CEO's father, we use the names of the cohabitating family members, primarily the CEO's mother and siblings. Relying on such procedures, we find census records even for individuals with very common names such as James Smith, Carl Campbell, and Robert Miller (all fathers of the CEOs in our sample).

2.2 Addressing concerns about using voluntarily reported data

Some of our data are based on voluntarily reported information such as newspaper announcements or obituaries. We alert the reader that the self-reported nature of these data introduces potential concerns about selection (e.g., selection on income). To overcome such concerns, we re-estimate our baseline tests of capital allocations to male and female managers for a subsample of CEOs with available federal census records. A distinct advantage of using information extracted from the census files is that it is disclosed for all U.S. residents and is uniformly coded across individuals. These high-quality, selection-free data allow us to unambiguously determine family characteristics and address concerns arising in voluntarily reported data.

Table IA.1, Panel A summarizes the results based on the subsample of CEOs with available census records. These tests yield the same conclusions with similar point estimates to those obtained in the broader sample (Table 4, Panel B). In particular, the CEO's exposure to gender inequity during formative years is associated with lower capital allocations to female division managers, and these conclusions are statistically significant for all three indexes: family (columns 1-2), education (columns 3-4), and community (columns 5-6), as shown by the coefficients on the interaction term *Female division manager * CEO imbalance index*.

When the effect of all three indexes is estimated jointly (columns 7-8), the evidence from the subsample restricted to Census records also yields the same conclusions as in the full sample. In these specifications, the effect of family and education characteristics remains reliably negative and statistically significant, while the effect of community factors is subsumed by the familial and educational factors. As in the main analysis, the joint inclusion of all gender-related formative experiences appears to explain the majority of the gender gap in capital allocations. The point estimate on the indicator *Female division manager* shrinks to -0.289 and becomes statistically indistinguishable from zero (t-stat = 0.94).

2.3 Resolving limitations due to incomplete information on CEO parents

Differences in earnings of CEOs' parents can be readily obtained from the 1940 census. However, parents of younger CEOs may have been in the early stages of their careers when the census was administered and their employment characteristics may have changed significantly by the time of the CEO's birth. To address this issue, we introduce a robustness test that ensures that the Census record provides a timely reflection of the characteristics of the family where the CEO was born. Specifically, we restrict our sample to CEOs with available household Census records who were born in or before 1945. Thus, we allow for a maximum delay of five years between the measurement of family characteristics and the CEO's birth.

In Table IA.1, Panel B, we re-estimate our baseline tests of capital allocations to male and female managers for a subsample of CEOs who have Census records and who were born in or before 1945. The results show the same conclusions we observed in Panel A also hold in this restricted sample. In particular, CEOs with early-life exposure to gender imbalances, whether measured by family, education, or community characteristics (columns 1-6), allocate less capital to female division managers. These conclusions are significant at 5% across all specifications in columns 1-5 and are significant at 10% in column 6. As in the main analysis, the joint inclusion of all three indexes of formative years in columns 7-8 appears to explain the majority of the gender gap in capital allocations and shows that the effect of family and education factors dominates the influence of community characteristics.

2.4 Resolving issues due to county lines

The average county in the U.S. has experienced between four and five changes to its size, shape, or location, and some counties have undergone over 20 adjustments to their boundaries. To account for these temporal changes in county lines, we map the coordinates of addresses high schools attended by the CEOs to historical county boundaries, which we obtain from the Atlas of Historical County Boundaries (https://publications.newberry.org/ahcbp) and the National Historical Geographic Information System (NHGIS, nhgis.org) and. This information is available for every federal census.

2.5 Ensuring data accuracy through cross-verification

At every step of the data collection process, we cross-reference records across multiple data sources to ensure high data accuracy. We now provide examples of cross-verification using city directories, vital records, and newspaper archives.

City directories

City directories, also known as white pages, present a rich resource to cross-verify the information collected from other sources and to fill in missing observations. The following example demonstrates both uses.

The census record of Don H. Davis, Jr., the CEO of Rockwell Collins, provides education and income for both his father and mother.[2] However, while we know that his mother is a teacher at a public school, the occupation of his father is missing. Searching for the father separately, we find several city directory listings, including the 1956 listing shown in the Figure IA.10. The record confirms his spouse (Lucille Davis) and reveals his address in Shreveport, Louisiana, as well as his occupation (oil well operator). The city and the spouse match those in the census.

Knowing the exact address is also valuable in the high school search as it allows us to narrow down the list of potential schools the CEO attended. After checking the list of public and private schools in the area, we verify via classmates.com that Don H. Davis, Jr. graduated from C.E. Byrd High School in 1957. Located at 3201 Line Ave, Shreveport, Louisiana, the school is 2.2 miles from the address listed in the city directory.

Vital records

Birth, marriage, and death records enrich our data by allowing us to fill in missing data points and to verify the accuracy of data from other sources. Merging these data with records from federal and state censuses, city records, interviews, biographies, and education data allows us to paint as complete of a picture of the formative year gender imbalance exposure of the CEOs as possible with the publicly available data.

For example, birth certificates typically show the names, ages, residence, and employment of parents, which we cross-reference against information in federal census forms (see Figure IA.3). Marriage certificates likewise can show the birth place and names of parents of the CEO, which can be cross-verified against the information from the census files to ensure high data accuracy (see Figure IA.4).

Death records offer a particularly rich source of data for cross-verification as they can provide not only the dates of birth and death but also the last occupation of the deceased before retirement. The top part of Figure IA.11 shows the death certificate for a parent of one of the CEOs in our sample. To cross-verify employment, date of birth, and residence of the deceased, the bottom part of the figure shows information from the 1940 census for that individual.

Newspaper archives

Newspaper articles, which we access via newspapers.com, offer a valuable source of information for cross-verification of our data. These articles often contain announcements that provide details on family composition, employment, and education of CEOs and their family members. For example, Figures IA.12, IA.13, and IA.14 show how this information can be gleaned from birth, marriage, and birthday party announcements, respectively. The information on CEOs' parents, spouse, and siblings we extract from these newspaper announcements matches the corresponding information we collect from other sources, including census files and state vital records.

3. A comprehensive example

In this section, we provide a comprehensive step-by-step illustration of collecting the data on formative year characteristics of family, education, and community of one of the CEOs in our sample. To illustrate

[2] http://search.ancestry.com/cgi-bin/sse.dll?db=1940usfedcen&indiv=try&h=120220386

the challenges that can arise in the process of data collection, we choose the CEO of Maytag, Leonard A. Hadley, for whom vital records, including the birth certificate and marriage certificates, are not available. We discuss how we resolve the issues arising when such records are missing, how we address other data challenges, and provide examples of using multiple data sources to ensure accuracy through cross-verification.

3.1 Identifying the CEO and his demographics

1. From Execucomp, we find that Leonard Hadley (execid = 00598) was 66 in 2000. This allows us to approximate his birth year as 1934.
2. Via the SEC's Edgar website, we find the DEF 14A filing of Maytag at the time he was the CEO (https://www.sec.gov/Archives/edgar/data/63541/000095013101500521/0000950131-01-500521.txt). This filing, dated April 3, 2001, confirms that at the time he was 66 and provides a brief biographical sketch:

> Leonard A. Hadley, 66, President and Chief Executive Officer, Maytag Corporation. Term expires 2003.
>
> Mr. Hadley was Maytag's Chairman and Chief Executive Officer until his retirement in August 1999. He returned as President and Chief Executive Officer and Director in November 2000. Mr. Hadley originally joined the Corporation in 1959 in the Accounting Department. He held a number of management positions before he was named a Vice President in 1979. He was named a Director in 1985, President of Maytag Company in 1986, elected an Executive Vice President of the Corporation in 1989, named Chief Operating Officer in 1990 and President in 1991. He was named Chief Executive Officer in 1992 and elected Chairman in 1993. He also serves as a director of Deere & Company, Snap-on Incorporated, and H Power Corp.

3. Having gathered the evidence suggesting that he was born around 1934, we are able to find his record in the LNPR database:

Full Name	Address	County	Phone
HADLEY, LEONARD A	[redacted] CEDAR RAPIDS, IA 52411-6782	LINN	[redacted]
ADDITIONAL PERSONAL INFORMATION			
SSN	DOB	Gender	LexID(sm)
[redacted]XXXX	Jul-34 (Age:80)		1024184559
Subject Summary			
Name Variations	View All Name Variations Sources		
1:00	HADLEY, LEONARD		
2:00	HADLEY, LEONARD A		
SSNs Summary	View All SSN Sources		
No.	**SSN**	**State Iss.**	**Date Iss.**
Most frequent SSN attributed to subject:			
1:00	[redacted]XXXX	Iowa	1952-1954

The record gives his month of birth and confirms that his SSN was issued in Iowa. It also shows that properties records are Iowa-based. For example:

2: [redacted] NEWTON, IA 50208-3534	
Address	Dates
[redacted] NEWTON, IA 50208-3534 JASPER COUNTY	5/1965 - 5/2004

We examine numerous employment records to confirm employment at Maytag. For example:

13: MAYTAG CORPORATION	
Name:	HADLEY, L A
Address:	[redacted] NEWTON, IA 50208-9201
Status:	WITHDRAWN
State:	GA
Corporation Number:	571207
Descriptive Status:	WITHDRAWN
Title:	CEO;CFO;SECRETARY
Record Type:	CURRENT
Record Date:	10/15/2014
Filing Date:	12/18/1997

4. Ancestry.com does not have Iowa birth or marriage records for the relevant historical periods. However, including Hadley's month and year of birth and his middle initial as search parameters on ancestry.com reveals an entry from *Marquis Who's Who* that lists his middle name:

Name	**Leonard** Anson **Hadley**
Birth	1934

It also reveals his exact birth date (July 4) from city directory records, where the address on file matches the address property records from LNPR:

Name:	Leonard A Hadley
Birth Date:	4 Jul 1934
Address:	[redacted], Newton, IA, 50208-3534

3.2 Identifying the CEO's parents, siblings, and children

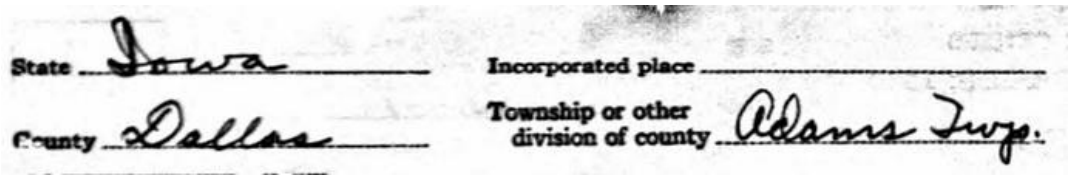
5. Using his first and middle names and searching newspaper records in Iowa via newspapers.com, we find the following announcement in the July 19, 1934 issue of *The Winterset Madisonian*:

Mrs. Floyd James is caring for Mrs. Willard Hadley and her new son Leonard Anson at the Hadley home.

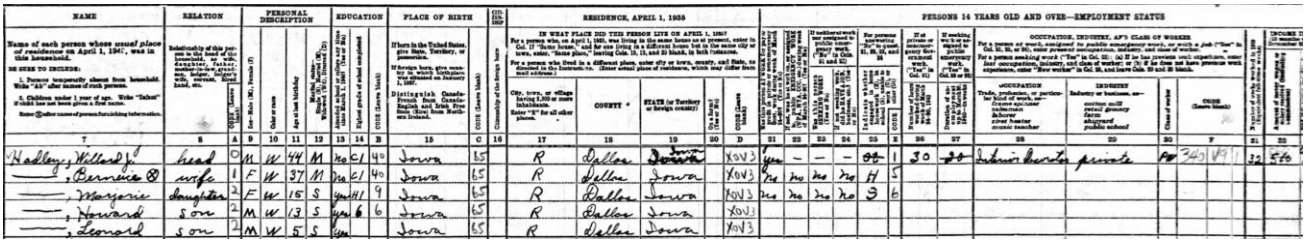
This establishes that his father's name is Willard.

6. We do not find the Hadley family on ancestry.com immediately but find it via familysearch.org.[3] The information gathered in the above steps is sufficient to find the Hadley family in the 1940 census via ancestry.com. They rented a house in the Adams Township of Dallas county in Iowa:

[3] Having found it on familysearch.org, we look up the exact census page on ancestry.com and find that the reason the initial search was unsuccessful was because ancestry.com's optical character recognition algorithm read the last name


State Iowa Incorporated place
County Dallas Township or other division of county Adams Twp.

We confirm that Leonard's father is Willard and find that his mother is named Berneice, and that he had a brother and a sister. We also see the education, employment, and income from both parents:



7. Having identified the mother's name, we search ancestry.com to find details on the her birth and death dates and locations:

Name:	Delora Berneice Hadley
Maiden Name:	[redacted]
Birth Date:	20 Oct 1902
Birth Place:	Adel, Dallas County, Iowa, United States of America
Death Date:	13 Sep 1982
Cemetery:	Bear Creek Cemetery
Burial or Cremation Place:	Dexter, Dallas County, Iowa, United States of America
Has Bio?:	Y
Father:	Leonard [redacted]
Mother:	Evalena [redacted]
Spouse:	Willard Jesse Hadley

The information allows us to cross-verify the father's name, residential address, and the mother's age against what is reported in the census.

as "Hodley" instead of "Hadley" and the first name as "Leonord" rather than "Leonard" (https://search.ancestry.com/cgi-bin/sse.dll?indiv=1&dbid=2442&h=123092918).

8. Knowing the date of death facilitates searching for the obituary of Hadley's mother, which we find in the September 22, 1982 issue of *The Winterset Madisonian*:

Delora Berneice Hadley, Adel

Services for Debra Berneice Hadley, 79, of Adel, who died Sept. 13, at the Winterset Care Center were held Thursday at Bear Creek Friends Church, Earlham, with the Rev. Robert Voorhees officiating.

The daughter of Leonard and Dell McKibben Cook, she was born Oct. 20, 1902 at Adel. She graduated from the Earlham Academy in 1920 and attended the University of Iowa for one year. She taught school at Bear Creek no. 4 for two years.

On June 20, 1923 she was married to Willard Hadley. They were parents of three children and spent 59 years in the Bear Creek and Earlham communities.

She gave piano lessons and helped lead singing groups in both school and church activities. She suffered her initial stroke on Sunday, Aug. 22, 1976 while leading a singing group in church.

Mrs. Hadley taught Sunday school classes and was an active member in the Cosmopolitan Club, a past president of the American Legion Auxiliary and past Matron of Earlham chapter 294 of the Eastern Star.

Survivors include her husband; children, Marjorie Smith of Earlham, Howard of Urbandale, and Leonard of Newton; eight grandchildren, six great-grandchildren and one brother, Otha Cook of Earlham.

Burial was at the Bear Creek Cemetery.

The information in the obituary allows us to cross-verify a number of prior data points pertaining to Berneice Hadley, including age, dates of birth and death, residence, level of education as one year of college ("C-1" on the census form), no permanent employment other than being active in church and giving piano lessons, the name of her husband, the same three children as in the census, and the residence of Leonard Hadley in Newton, Iowa.

9. Following a similar process, we locate Willard Hadley's dates of birth and death:

Name:	Willard Jesse Hadley
Birth Date:	12 Jan 1896
Birth Place:	Madison County, Iowa, United States of America
Death Date:	3 Nov 1987
Death Place:	Madison County, Iowa, United States of America
Cemetery:	Bear Creek Cemetery
Burial or Cremation Place:	Dexter, Dallas County, Iowa, United States of America
Has Bio?:	Y
Father:	Isaac [redacted]
Mother:	Mary [redacted]
Spouse:	Delora Berneice Hadley

10. Knowing the date of death of Hadley's father allows us to locate the obituary in the November 11, 1987 issue of *The Winterset Madisonian*:

Willard J. Hadley, Earlham

Services for Willard J Hadley, 91, Earlham, who died Nov. 3, were held Friday, Nov. 6, at the Bear Creek Friends Church in Earlham with the Rev. Keith Smith officiating. Burial was at the Bear Creek Cemetery. Military graveside rites were also performed by the Lorimor American Legion.

Born Jan. 12, 1896 in Dallas County near Earlham, he was the son of Isaac Anson and Mary Barnett Hadley He was a birthright member of the Bear Creek Friends Church.

He graduated from the Earlham Academy in 1914 and attended William Penn College. He served in the Army from July 1918 until May 1919 at Camp Gordon, Atlanta, Ga

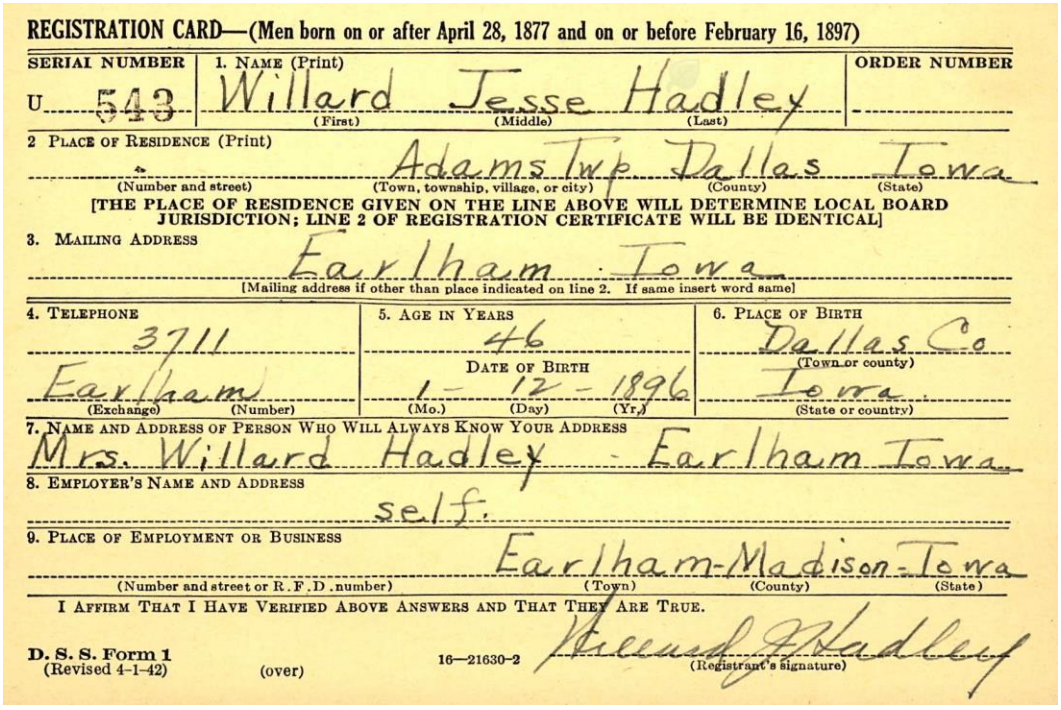
On June 20, 1923 he was married to Berneice Cook and they made their home in the Bear Creek Community The couple had three children: Marjorie Smith of Earlham, Howard of Des Moines and Leonard of Newton. Mr Hadley and his wife had celebrated their 50th wedding anniversary in 1973.

Mr. Hadley farmed in the Earlham area and was a past commander of the American Legion post and a past master of Madison Lodge No. 568 of Earlham and a member of the Des Moines Consistory.

He was preceded in death by his wife in 1982, his parents, a sister and a brother. His children and spouses, eight grandchildren and nine great-grandchildren survive.

As with Berneice's obituary, we can cross-validate information on Willard's age, dates of birth and death, residence, education, employment as a farmer, the name of the spouse, and the three children.

11. Willard's World War II draft registration card also confirms that as a farmer, he was self-employed:



REGISTRATION CARD—(Men born on or after April 28, 1877 and on or before February 16, 1897)

SERIAL NUMBER: U 543 | 1. NAME (Print): Willard (First) Jesse (Middle) Hadley (Last) | ORDER NUMBER:

2 PLACE OF RESIDENCE (Print): (Number and street) Adams Twp (Town, township, village, or city) Dallas (County) Iowa (State)

[THE PLACE OF RESIDENCE GIVEN ON THE LINE ABOVE WILL DETERMINE LOCAL BOARD JURISDICTION; LINE 2 OF REGISTRATION CERTIFICATE WILL BE IDENTICAL]

3. MAILING ADDRESS: Earlham Iowa

[Mailing address if other than place indicated on line 2. If same insert word same]

4. TELEPHONE: 3711 (Exchange) Earlhams (Number)

5. AGE IN YEARS: 46

DATE OF BIRTH: 1 (Mo.) 12 (Day) 1896 (Yr.)

6. PLACE OF BIRTH: Dallas Co. (Town or county) Iowa (State or country)

7. NAME AND ADDRESS OF PERSON WHO WILL ALWAYS KNOW YOUR ADDRESS: Mrs. Willard Hadley Earlham Iowa

8. EMPLOYER'S NAME AND ADDRESS: self.

9. PLACE OF EMPLOYMENT OR BUSINESS: (Number and street or R.F.D. number) Earlham (Town) Madison (County) Iowa (State)

I AFFIRM THAT I HAVE VERIFIED ABOVE ANSWERS AND THAT THEY ARE TRUE.

Howard J Hadley (Registrant's signature)

D. S. S. Form 1 (Revised 4-1-42) (over) 16—21630-2

12. From prabook.com, we cross-validate a number of previously established data points (https://prabook.com/web/leonard_anson.hadley/523534). We also uncover that Leonard Hadley had two children, a boy and a girl, which completes the characterization of his family in our dataset:

Connections

Children: Philip, Christine.

father: Willard J. Hadley

mother: Berneice (Cook) Hadley

child: Christine Hadley

child: Philip Hadley

3.3 Identifying the CEO's high school

13. The information gathered thus far indicates that Leonard Hadley almost certainly spent his formative years near Adams Township in Iowa. Searches on google maps reveal that the closest high school is approximately 7 miles away in Earlham, Iowa. Based on his birth year, we estimate that he would have graduated high school in 1952. Via classmates.com, we find that he indeed graduated from Earlham High School that year:

SENIORS

LEONARD A. HADLEY
"If brains were atomic bombs, he'd destroy the world."
Class President 3; Football 1, 2, 3, 4; Basketball 1; Manager 3, 4; Baseball 1, 2, 4; Track 1; Manager 3; Student Council 4; Annual Staff 4; Re-Echo Staff 4; F.F.A. 1; Junior Class Play; One Act Play 2.
He thinks that he wants to make lots of money, but first he is going to college and spend some.

14. Earlham High School is a co-educational, public, secular school. We verify that it has not moved location by comparing its photograph in the 1952 yearbook against the current address at 535 N Chestnut Ave, Earlham, Iowa, 50072:

3.4 Identifying the CEO's college

15. Via BoardEx, we find that Leonard Hadley (directorID = 4642310539) graduated from the University of Iowa in 1958, which we also confirm in his prabook.com entry:

> Education
>
> Student, Drake University, 1953. Bachelor of Science in Accounting, University Iowa, 1958.

16. To further cross-validate our data, we search for "Leonard Hadley" and "University of Iowa" and uncover his entry in The Iowa Business Hall of Fame. The information therein confirms numerous data points that we have recorded (http://www.iowabusinesshalloffame.com/inductees/hadley-leonard.html):

Leonard Hadley

Maytag Corporation, Newton
1934 -

Leonard Hadley credits his tremendous success in business to learning how to manage effectively. In his forty years at Maytag he gradually changed his style from one based on personal knowledge to one based on other people's knowledge, knowing how to use their expertise to move the company forward.

Born on the 4th of July 1934, Leonard Hadley grew up on a farm near Earlham, Iowa. He attended a one-room county school built by Quaker pioneers until it closed in 1947 and then joined other students being bused to Earlham public schools. In high school Hadley played football and baseball, organized the first student council and was valedictorian of his class. He enrolled in Drake University, but toward the end of the Korean War he was drafted into the Army. After military service he went to the University of Iowa, earning a degree in accounting in 1958.

17. We collect information on enrolment by student gender at the University of Iowa (FICE code is 001892) from WebCASPAR for the year closest to Leonard Hadley's graduation year.

3.5 Identifying the CEO's community characteristics

18. Finally, from the decennial census data available via IPUMS for the year closest to his graduation year, we collect the labor force participation rate, the average annual income, and the average number of education years for men and women in Madison county, where Earlham High School is located.

References

Chuprinin, O., and D. Sosyura. 2018. Family descent as a signal of managerial quality: Evidence from mutual funds. Review of Financial Studies 31:3756–3820.

Full Name	Address	County	Phone
[redacted]STEVEN ROBERT	[redacted] BOISE, ID 83715-6650	ADA	None Listed
ADDITIONAL PERSONAL INFORMATION			
SSN	DOB	Gender	LexID(sm)
[redacted]	Mar-60 (Age:54)		74255716
Subject Summary			
Name Variations	View All Name Variations Sources		
1:00	[redacted]STEVEN		
2:00	[redacted]STEVE		
3:00	[redacted]STEVE R		
4:00	[redacted]STEVE ROBERT		
5:00	[redacted]STEVEN		
6:00	[redacted]STEVEN R		
7:00	[redacted]STEVEN ROBERT		
SSNs Summary	View All SSN Sources		
No.	**SSN**	**State Iss.**	**Date Iss.**
Most frequent SSN attributed to subject:			
1:00	[redacted]XXXX	California	1977
DOBs	View All DOB Sources		
Reported DOBs:			
Mar-60			
Address Details			
4: 2603 E SWALLOWTAIL LN BOISE, ID 83706-6133			
Address	Dates	Phone	Actions
[redacted] BOISE, ID 83706-6133 ADA COUNTY	5/2000 - 2012		Get Report
Census Data for Geographical Region			
Median Head of Household Age:			30
Median Income:			$33,237
Median Home Value:			$185,000
Median Education:			13 years
Household Members			
[redacted]DALYNN			Get Report
Other Associates			
None Listed			

Figure IA.1
Example of a public record from LNPR
This figure shows selected information from the public record of one of the CEOs in our sample.

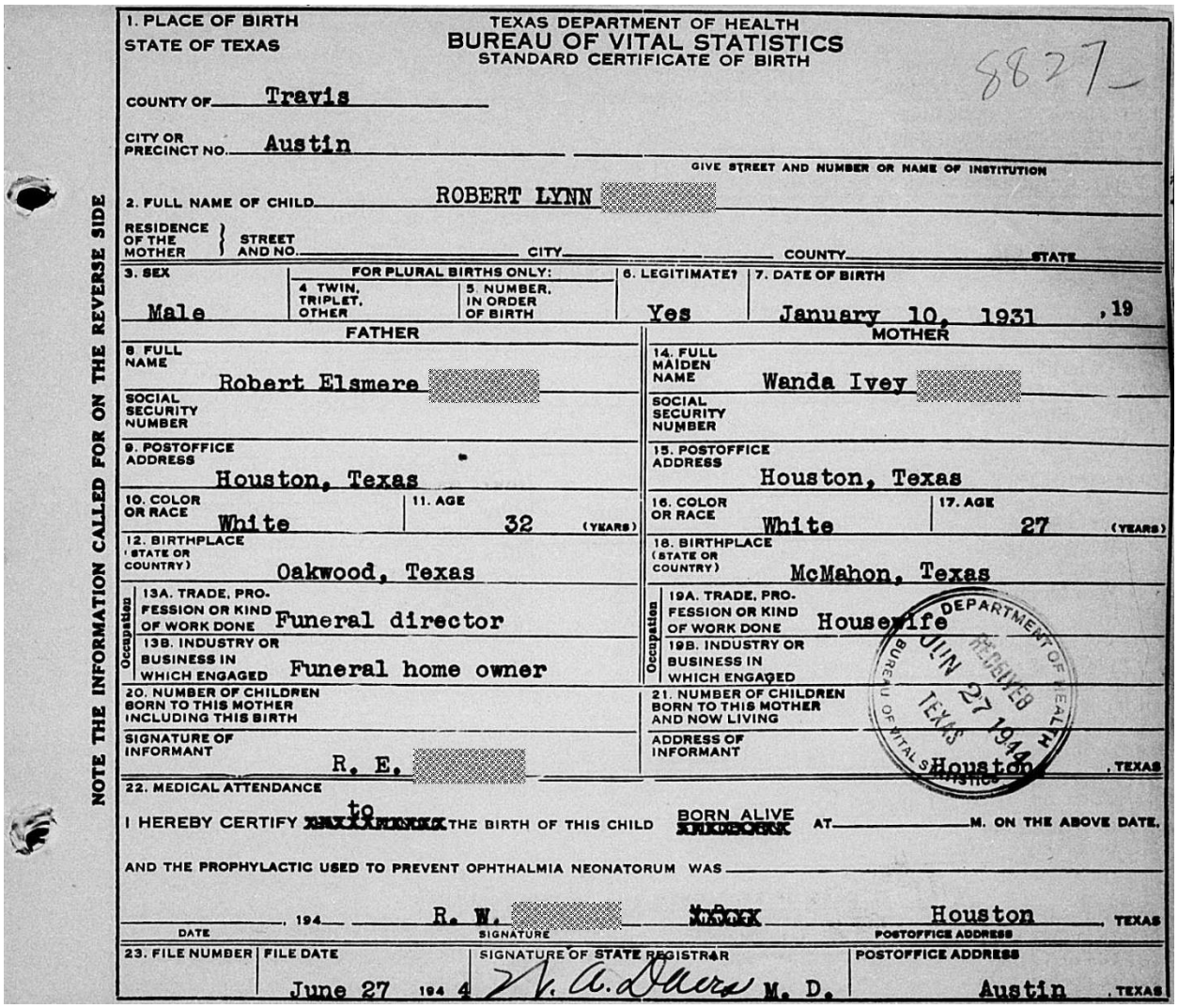
Full Name	Address
[redacted]STEVEN ROBERT	[redacted] BOISE, ID 83715-6650
Possible E-Mail Addresses	View All E-Mail Sources
[redacted]@MICRON.COM	
Employment Locator - 50 records found	

1	
Company Name:	MICRON SEMICONDUCTOR PRODUCTS, INC.
Name:	[redacted]STEVEN R
Title:	CEO
Address:	[redacted] BOISE, ID 83716-9632
SSN:	[redacted]XXXX
Phone:	[redacted]
Confidence:	High

2	
Company Name:	MICRON TECHNOLOGY, INC.
Name:	[redacted] STEVEN
Title:	CHAIRMAN OF THE BOARD
Address:	[redacted] BOISE, ID 83716-9632
SSN:	[redacted]-XXXX
Phone:	[redacted]
Confidence:	High

3	
Company Name:	MICRON TECHNOLOGY, INC.
Name:	[redacted] STEVEN R
Title:	CHM & CEO
Address:	[redacted] BOISE, ID 83716-9632
SSN:	[redacted]XXXX
Phone:	[redacted]
Confidence:	High

Figure IA.2
LNPR Employment Locator Example
This figure shows email address and employment information records from LNPR for one of the CEOs in our sample.



TEXAS DEPARTMENT OF HEALTH
BUREAU OF VITAL STATISTICS
STANDARD CERTIFICATE OF BIRTH

8827

1. PLACE OF BIRTH
STATE OF TEXAS
COUNTY OF Travis
CITY OR PRECINCT NO. Austin
GIVE STREET AND NUMBER OR NAME OF INSTITUTION

2. FULL NAME OF CHILD ROBERT LYNN [redacted]

RESIDENCE OF THE MOTHER — STREET AND NO. ____ CITY ____ COUNTY ____ STATE ____

3. SEX: Male
FOR PLURAL BIRTHS ONLY: 4. TWIN, TRIPLET, OTHER: ____ 5. NUMBER, IN ORDER OF BIRTH: ____
6. LEGITIMATE? Yes
7. DATE OF BIRTH: January 10, 1931, 19

FATHER

8. FULL NAME: Robert Elsmere [redacted]
SOCIAL SECURITY NUMBER: ____
9. POSTOFFICE ADDRESS: Houston, Texas
10. COLOR OR RACE: White
11. AGE: 32 (YEARS)
12. BIRTHPLACE (STATE OR COUNTRY): Oakwood, Texas
Occupation:
13A. TRADE, PROFESSION OR KIND OF WORK DONE: Funeral director
13B. INDUSTRY OR BUSINESS IN WHICH ENGAGED: Funeral home owner
20. NUMBER OF CHILDREN BORN TO THIS MOTHER INCLUDING THIS BIRTH: ____
SIGNATURE OF INFORMANT: R. E. [redacted]

MOTHER

14. FULL MAIDEN NAME: Wanda Ivey [redacted]
SOCIAL SECURITY NUMBER: ____
15. POSTOFFICE ADDRESS: Houston, Texas
16. COLOR OR RACE: White
17. AGE: 27 (YEARS)
18. BIRTHPLACE (STATE OR COUNTRY): McMahon, Texas
Occupation:
19A. TRADE, PROFESSION OR KIND OF WORK DONE: Housewife
19B. INDUSTRY OR BUSINESS IN WHICH ENGAGED: ____
21. NUMBER OF CHILDREN BORN TO THIS MOTHER AND NOW LIVING: ____
ADDRESS OF INFORMANT: ____ Houston, TEXAS

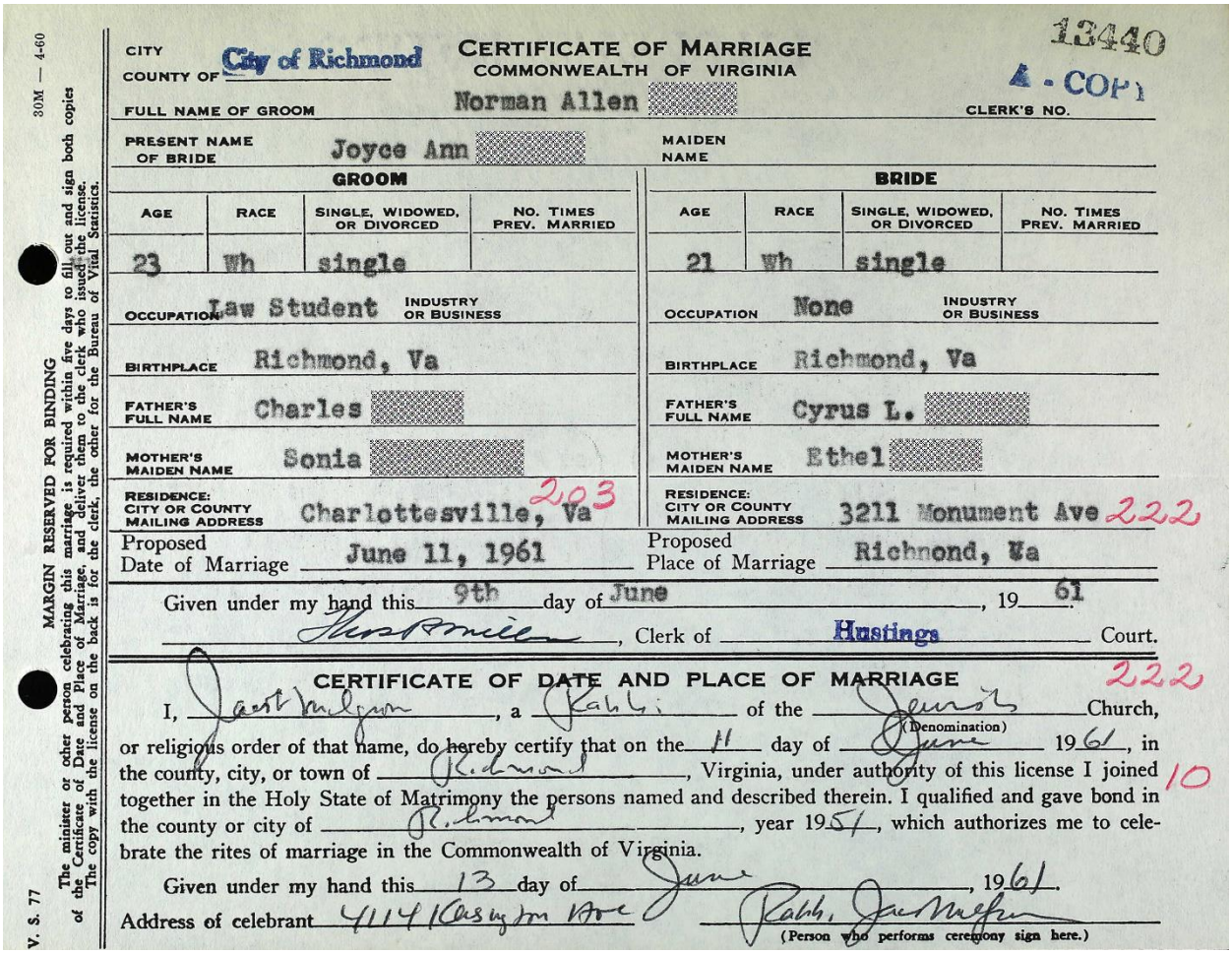
DEPARTMENT OF HEALTH RECEIVED JUN 27 1944 TEXAS BUREAU OF VITAL STATISTICS

22. MEDICAL ATTENDANCE
I HEREBY CERTIFY to THE BIRTH OF THIS CHILD BORN ALIVE AT ____ M. ON THE ABOVE DATE.
AND THE PROPHYLACTIC USED TO PREVENT OPHTHALMIA NEONATORUM WAS ____
____, 194__ R. W. [redacted] Houston, TEXAS
DATE — SIGNATURE — POSTOFFICE ADDRESS

23. FILE NUMBER: ____
FILE DATE: June 27 194 4
SIGNATURE OF STATE REGISTRAR: V. A. Daers M. D.
POSTOFFICE ADDRESS: Austin, TEXAS

NOTE THE INFORMATION CALLED FOR ON THE REVERSE SIDE

Figure IA.3
Example of birth certificate
This figure shows the birth certificate of one of the CEOs in our sample. In addition to the date and location of birth, it identifies both parents, their ages, occupations, and city of residence.



CITY / COUNTY OF City of Richmond

CERTIFICATE OF MARRIAGE
COMMONWEALTH OF VIRGINIA

13440
4 - COPY

FULL NAME OF GROOM: Norman Allen [redacted] — CLERK'S NO.

PRESENT NAME OF BRIDE: Joyce Ann [redacted] — MAIDEN NAME

GROOM				BRIDE			
AGE	RACE	SINGLE, WIDOWED, OR DIVORCED	NO. TIMES PREV. MARRIED	AGE	RACE	SINGLE, WIDOWED, OR DIVORCED	NO. TIMES PREV. MARRIED
23	Wh	single		21	Wh	single	

OCCUPATION: Law Student — INDUSTRY OR BUSINESS
OCCUPATION: None — INDUSTRY OR BUSINESS

BIRTHPLACE: Richmond, Va
BIRTHPLACE: Richmond, Va

FATHER'S FULL NAME: Charles [redacted]
FATHER'S FULL NAME: Cyrus L. [redacted]

MOTHER'S MAIDEN NAME: Sonia [redacted]
MOTHER'S MAIDEN NAME: Ethel [redacted]

RESIDENCE: CITY OR COUNTY MAILING ADDRESS: Charlottesville, Va 203
RESIDENCE: CITY OR COUNTY MAILING ADDRESS: 3211 Monument Ave 222

Proposed Date of Marriage: June 11, 1961
Proposed Place of Marriage: Richmond, Va

Given under my hand this 9th day of June, 19 61

[signature], Clerk of Hustings Court.

MARGIN RESERVED FOR BINDING

The minister or other person celebrating this marriage is required within five days to fill out and sign both copies of the Certificate of Date and Place of Marriage, and deliver them to the clerk who issued the license. The copy with the license on the back is for the clerk, the other for the Bureau of Vital Statistics.

30M — 4-60

V. S. 77

CERTIFICATE OF DATE AND PLACE OF MARRIAGE 222

I, Jacob Mulyan, a Rabbi of the Jewish (Denomination) Church, or religious order of that name, do hereby certify that on the 11 day of June 1961, in the county, city, or town of Richmond, Virginia, under authority of this license I joined together in the Holy State of Matrimony the persons named and described therein. I qualified and gave bond in the county or city of Richmond, year 1957, which authorizes me to celebrate the rites of marriage in the Commonwealth of Virginia. 10

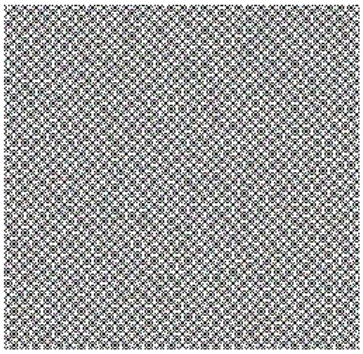
Given under my hand this 13 day of June, 1961.

Address of celebrant 4114 Ashburton Ave

Rabbi, Jacob Mulyan
(Person who performs ceremony sign here.)

Figure IA.4
Example of marriage certificate
This figure shows the marriage certificate of one of the CEOs in our sample. In addition to providing the details on the location and date of the wedding, the certificate lists the place of birth, residence, and parents of the bride and the groom.

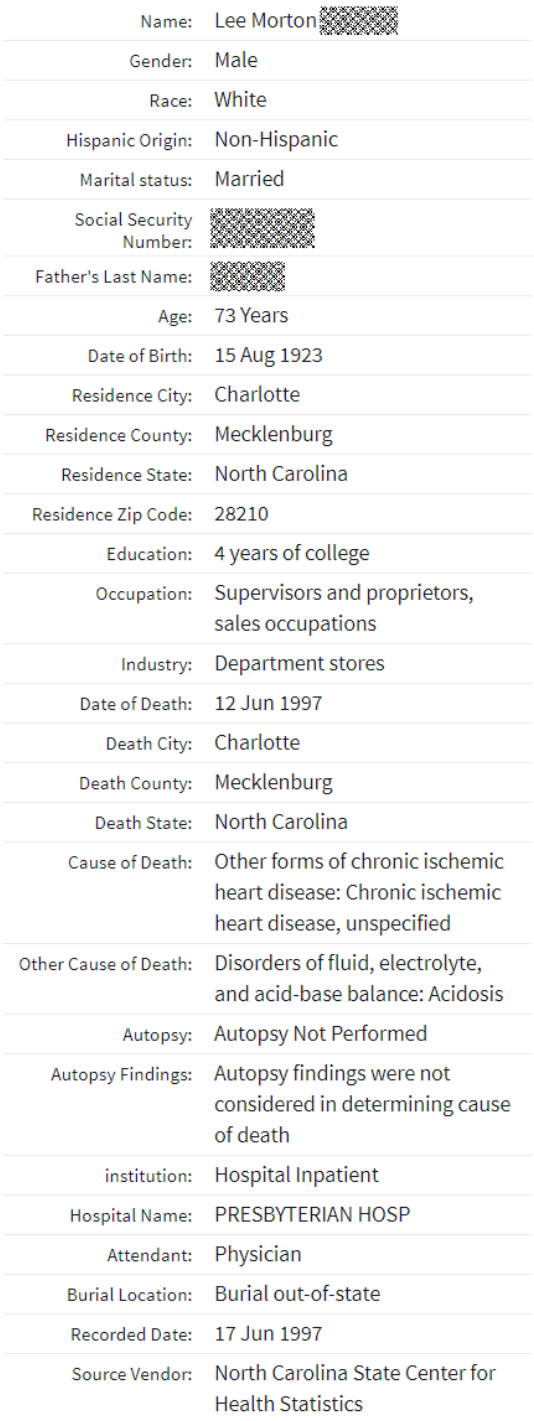
Raymond William



Raymond William

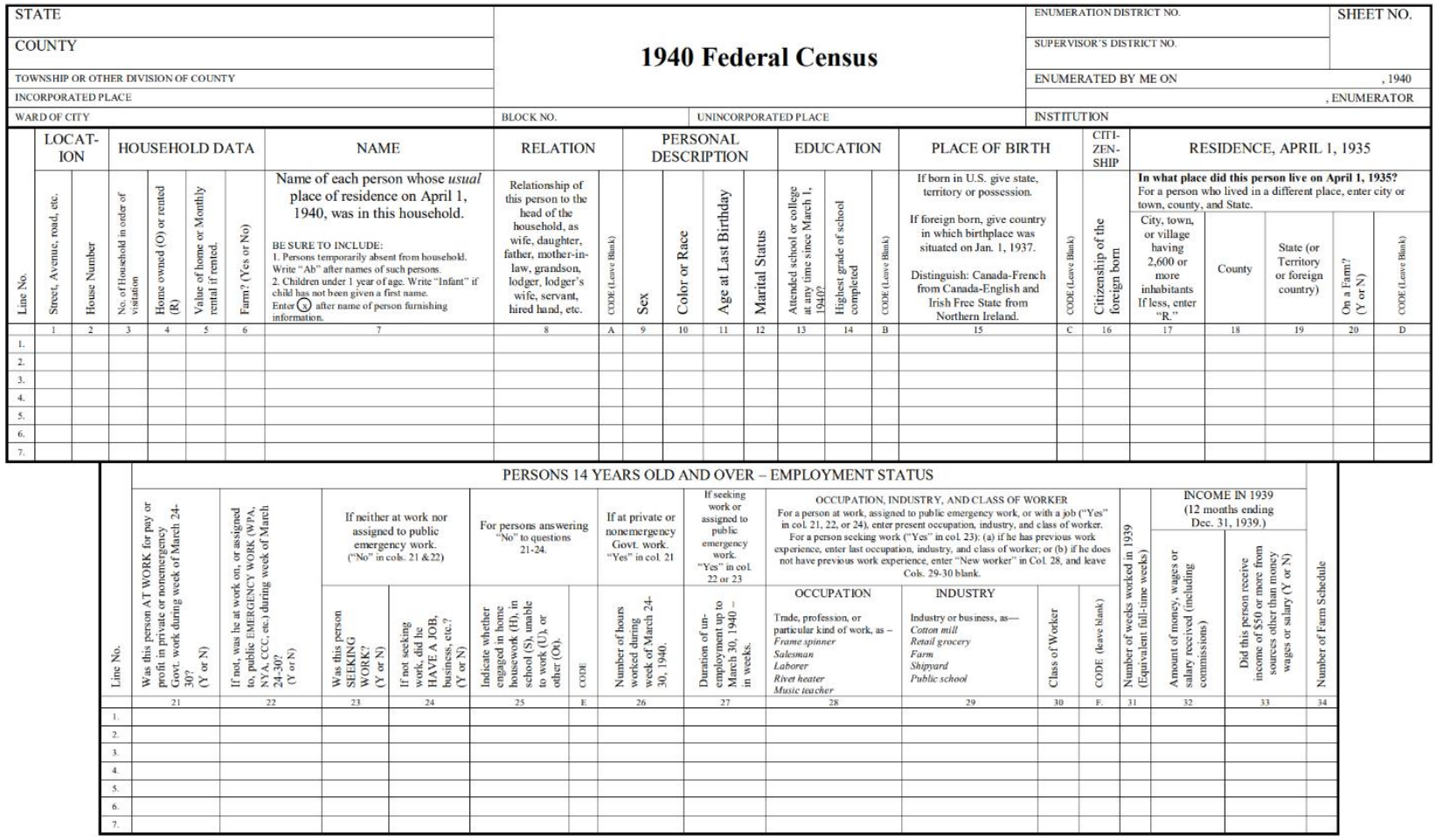
Raymond William of Tequesta, a beloved husband, father, stepfather, grandfather, brother and dear friend, passed away peacefully at his home on May 19, 2014 after a long and incredibly gallant battle with several illnesses. His loving wife of 20 years, Patricia Patt was by his side. Mr. was born on November 21, 1927 in Chicago, IL, the eldest of four sons to Dr. R.W. and Mary Sarena He is a graduate of The Groton School in Groton, MA and Harvard University, and earned his MBA at the Harvard School of Business. His distinguished business career included leadership as vice chairman of American Motors Corp. and later as C.O.O. of American Machine Foundry. Mr. was an avid golfer at Turtle Creek Country Club, where he played competitively and happily for 20 years; he was recognized for the distinction of his eight holes-in-one. Mr. was a member of several golf clubs around the country, including Frenchman's Creek in Jupiter; Woodway Country Club in Darien, CT; and Orchard Lake Country Club in Birmingham, MI. In addition to golfing, Mr. cherished spending time with family and he enjoyed traveling with his wife, oil-painting and playing his beloved drum set. Mr. gave generously to many causes and charities as well as to many individuals in need. His benevolent nature touched many people who sought his counsel and empathy. "All who knew and loved him will remember him best for his generosity, sense of humor, keen intellect and lust for life," said Patricia Patt Mr. s three brothers include Col. (Ret.) Richard (Carol) of McGaheysville, VA; John of Weatherford, TX; and the late Thomas formerly of Fairfield, CT. Mr. has four children by his first wife, Marmalee Noffke including Raymond William III (Susan) of Des Peres, MO; Scott (Susan) of Portola Valley, CA; Barry (Patrice) of Sonoma, CA; and Susan of NC. Mr. was the proud grandfather of Colleen and Ryan of St. Louis, MO; Andrew of Chicago, IL; Kyle of San Francisco, CA; Maverick, Dakota, Colt and Scout of Portola Valley, CA; and Avery a student at UCLA. Mr. was a loving stepfather to Patricia's children: Kimberly (Douglas) of Kittery Point, ME; Wendy (George) of Tampa, FL; Robin of Jupiter; Peter (Jane) of Stamford, CT; and Marcie (Robbie Bedell) of West Palm Beach. Patricia and her children wish to express their deep appreciation to Jenny, Norma, Lorna and Cece, the extraordinary caregivers who made it possible for Mr to spend the last four years of his life comfortably and happily at home. He loved each of them dearly. Funeral services will be held at 3:30 p.m., Tuesday, May 27 at Aycock-Riverside Funeral Home, 1112 Military Trail in Jupiter; a reception will follow. In lieu of flowers, please donate to in Mr. s name.

Figure IA.5
Example of an obituary
This figure shows an obituary of the father of one of the CEOs in the sample. It identifies his work, places of residence, wife, children and extended family. The obituary was published in The Palm Beach Post, May 23-24, 2014.



Name:	Lee Morton [redacted]
Gender:	Male
Race:	White
Hispanic Origin:	Non-Hispanic
Marital status:	Married
Social Security Number:	[redacted]
Father's Last Name:	[redacted]
Age:	73 Years
Date of Birth:	15 Aug 1923
Residence City:	Charlotte
Residence County:	Mecklenburg
Residence State:	North Carolina
Residence Zip Code:	28210
Education:	4 years of college
Occupation:	Supervisors and proprietors, sales occupations
Industry:	Department stores
Date of Death:	12 Jun 1997
Death City:	Charlotte
Death County:	Mecklenburg
Death State:	North Carolina
Cause of Death:	Other forms of chronic ischemic heart disease: Chronic ischemic heart disease, unspecified
Other Cause of Death:	Disorders of fluid, electrolyte, and acid-base balance: Acidosis
Autopsy:	Autopsy Not Performed
Autopsy Findings:	Autopsy findings were not considered in determining cause of death
institution:	Hospital Inpatient
Hospital Name:	PRESBYTERIAN HOSP
Attendant:	Physician
Burial Location:	Burial out-of-state
Recorded Date:	17 Jun 1997
Source Vendor:	North Carolina State Center for Health Statistics

Figure IA.6
Example of a death record
This figure shows the death record for the father of one of the CEOs in the sample. It identifies, among other things, his birth and death dates, residence, education, and occupation.



STATE | COUNTY | TOWNSHIP OR OTHER DIVISION OF COUNTY | INCORPORATED PLACE | WARD OF CITY

1940 Federal Census

ENUMERATION DISTRICT NO. | SHEET NO. | SUPERVISOR'S DISTRICT NO. | ENUMERATED BY ME ON , 1940 | , ENUMERATOR | BLOCK NO. | UNINCORPORATED PLACE | INSTITUTION

Line No.	LOCATION: Street, Avenue, road, etc.	LOCATION: House Number	HOUSEHOLD DATA: No. of Household in order of visitation	HOUSEHOLD DATA: Home owned (O) or rented (R)	HOUSEHOLD DATA: Value of home or Monthly rental if rented.	HOUSEHOLD DATA: Farm? (Yes or No)	NAME: Name of each person whose *usual* place of residence on April 1, 1940, was in this household. BE SURE TO INCLUDE: 1. Persons temporarily absent from household. Write "Ab" after names of such persons. 2. Children under 1 year of age. Write "Infant" if child has not been given a first name. Enter (X) after name of person furnishing information.	RELATION: Relationship of this person to the head of the household, as wife, daughter, father, mother-in-law, grandson, lodger, lodger's wife, servant, hired hand, etc.	CODE (Leave Blank)	PERSONAL DESCRIPTION: Sex	PERSONAL DESCRIPTION: Color or Race	PERSONAL DESCRIPTION: Age at Last Birthday	PERSONAL DESCRIPTION: Marital Status	EDUCATION: Attended school or college at any time since March 1, 1940?	EDUCATION: Highest grade of school completed	CODE (Leave Blank)	PLACE OF BIRTH: If born in U.S. give state, territory or possession. If foreign born, give country in which birthplace was situated on Jan. 1, 1937. Distinguish: Canada-French from Canada-English and Irish Free State from Northern Ireland.	CODE (Leave Blank)	CITIZENSHIP: Citizenship of the foreign born	RESIDENCE, APRIL 1, 1935: **In what place did this person live on April 1, 1935?** For a person who lived in a different place, enter city or town, county, and State. City, town, or village having 2,600 or more inhabitants If less, enter "R."	RESIDENCE, APRIL 1, 1935: County	RESIDENCE, APRIL 1, 1935: State (or Territory or foreign country)	RESIDENCE, APRIL 1, 1935: On a Farm? (Y or N)	RESIDENCE, APRIL 1, 1935: CODE (Leave Blank)
	1	2	3	4	5	6	7	8	A	9	10	11	12	13	14	B	15	C	16	17	18	19	20	D
1.																								
2.																								
3.																								
4.																								
5.																								
6.																								
7.																								

PERSONS 14 YEARS OLD AND OVER – EMPLOYMENT STATUS

Line No.	Was this person AT WORK for pay or profit in private or nonemergency Govt. work during week of March 24-30? (Y or N)	If not, was he at work on, or assigned to, public EMERGENCY WORK (WPA, NYA, CCC, etc.) during week of March 24-30? (Y or N)	If neither at work nor assigned to public emergency work. ("No" in cols. 21 & 22): Was this person SEEKING WORK? (Y or N)	If neither at work nor assigned to public emergency work. ("No" in cols. 21 & 22): If not seeking work, did he HAVE A JOB, business, etc.? (Y or N)	For persons answering "No" to questions 21-24. Indicate whether engaged in home housework (H), in school (S), unable to work (U), or other (Oth).	CODE	If at private or nonemergency Govt. work. "Yes" in col. 21: Number of hours worked during week of March 24-30, 1940.	If seeking work or assigned to public emergency work. "Yes" in col. 22 or 23: Duration of unemployment up to March 30, 1940 – in weeks.	OCCUPATION, INDUSTRY, AND CLASS OF WORKER. For a person at work, assigned to public emergency work, or with a job ("Yes" in col. 21, 22, or 24), enter present occupation, industry, and class of worker. For a person seeking work ("Yes" in col. 23): (a) if he has previous work experience, enter last occupation, industry, and class of worker; or (b) if he does not have previous work experience, enter "New worker" in Col. 28, and leave Cols. 29-30 blank. OCCUPATION: Trade, profession, or particular kind of work, as – *Frame spinner, Salesman, Laborer, Rivet heater, Music teacher*	OCCUPATION, INDUSTRY, AND CLASS OF WORKER. INDUSTRY: Industry or business, as— *Cotton mill, Retail grocery, Farm, Shipyard, Public school*	Class of Worker	CODE (leave blank)	Number of weeks worked in 1939 (Equivalent full-time weeks)	INCOME IN 1939 (12 months ending Dec. 31, 1939.): Amount of money, wages or salary received (including commissions)	INCOME IN 1939 (12 months ending Dec. 31, 1939.): Did this person receive income of $50 or more from sources other than money wages or salary (Y or N)	Number of Farm Schedule
	21	22	23	24	25	E	26	27	28	29	30	F.	31	32	33	34
1.																
2.																
3.																
4.																
5.																
6.																
7.																

Figure IA.7
Blank 1940 decennial federal census form
This figure shows the blank form with the first 34 questions of the 1940 federal census. The remaining 16 questions are not pertinent to our analysis.

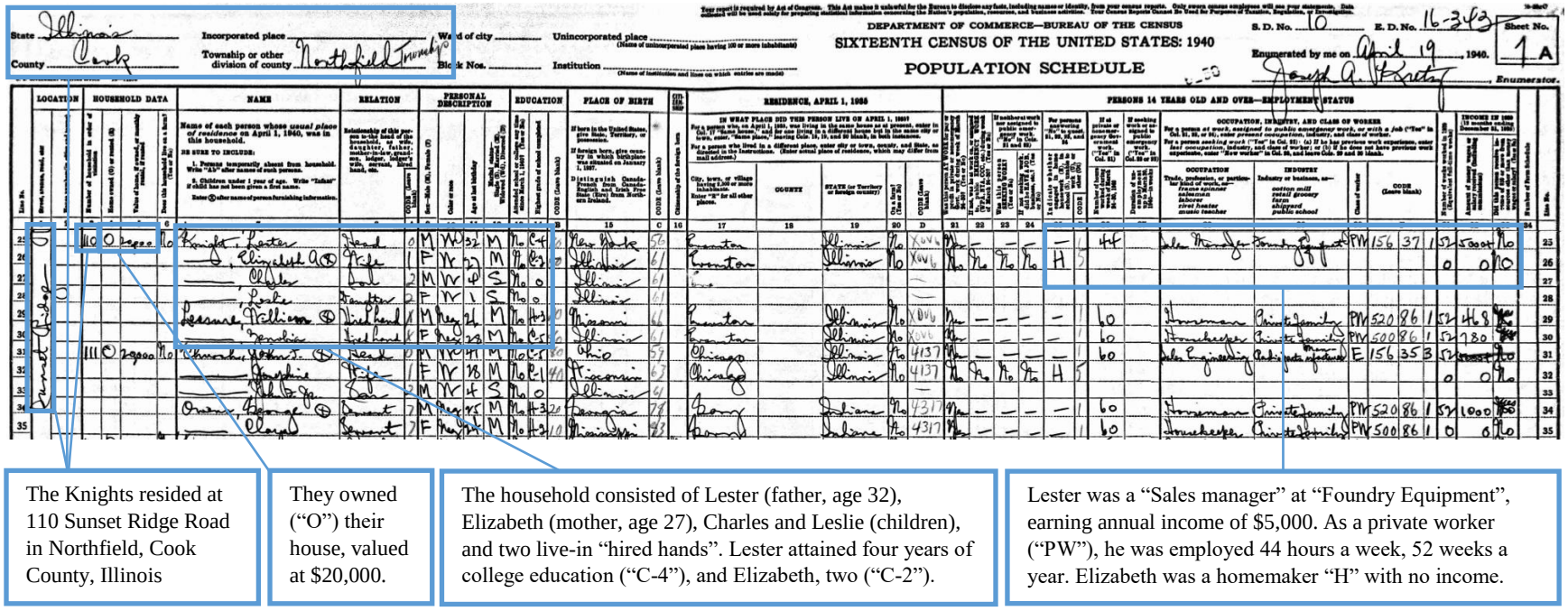
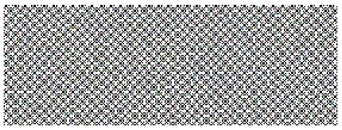


Figure IA.8
Example of a filled out 1940 decennial federal census form
This figure shows the filled out 1940 census form for the family of Lester and Elizabeth Knight, whose son, Charles F. Knight, grew up to become the CEO of Emerson Electric.



OFFICE OF THE REGISTRAR

June 26, 2015

To Whom it May Concern:

NAME: David

CERTIFICATE OF GRADUATION
from

This is to certify that

David

was granted the degree of

Associate in Applied Science in Supervision
Awarded at
December 22, 1973

Bachelor of Science in Supervision and Organizational Leadership with Distinction
Awarded at
June 7, 1970

The above named student attended High School in , Illinois. No address information is available for this student.

I CERTIFY THAT THE ABOVE INFORMATION IS ACCURATE AS OF THIS DATE.

Sincerely,

University Registrar

FJB:mte

IS ACCREDITED BY THE NORTH CENTRAL ASSOCIATION OF COLLEGES AND UNIVERSITIES.

FEDERAL EDUCATION SCHOOL CODE:

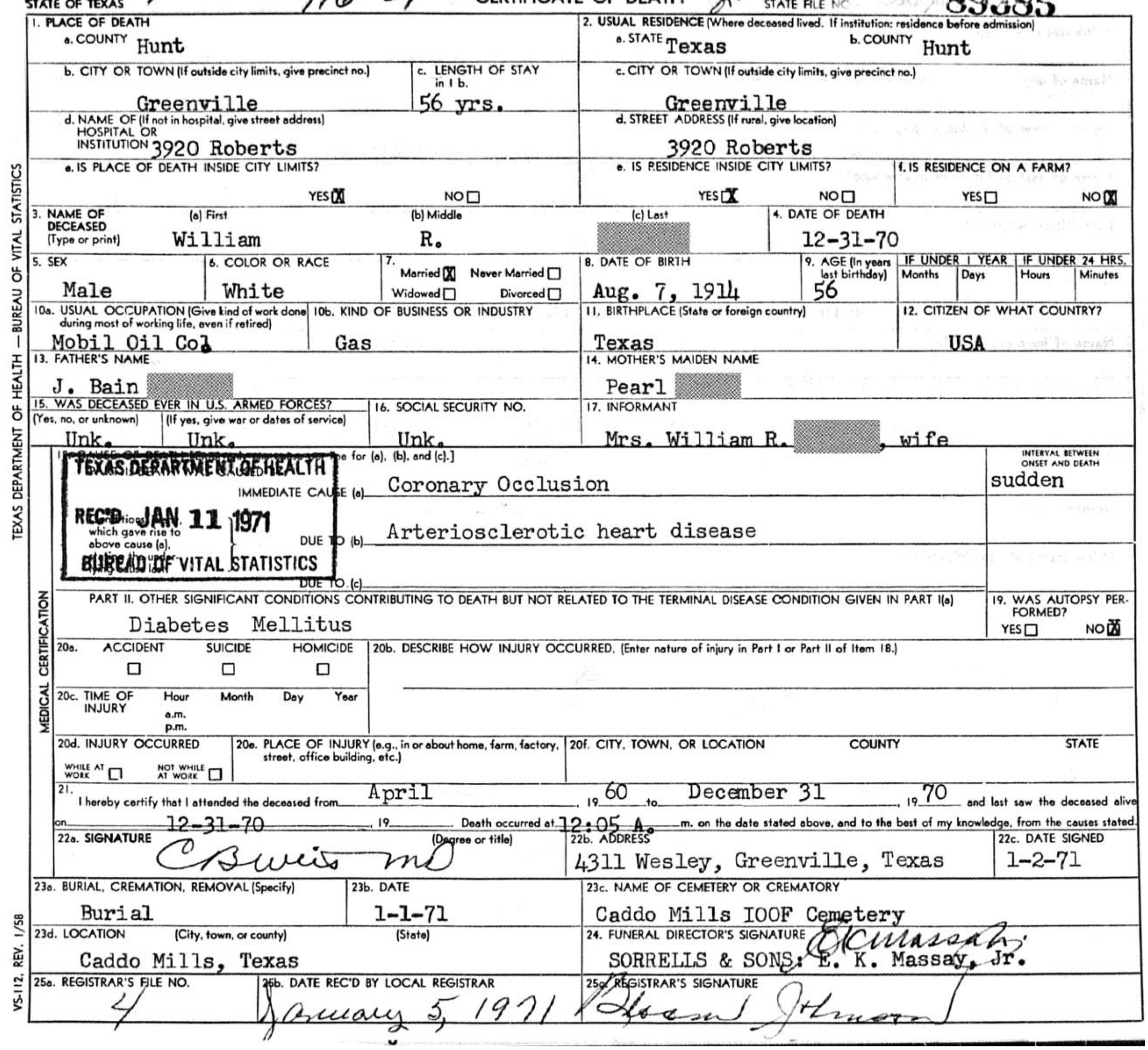
FAX:

Figure IA.9
Example of a registrar requests response
This figure shows the response from a university to our request to the registrar's office to confirm the university degrees received and the high school attended by one of the CEOs in the sample.

CITY DIRECTORY RECORD:

Name:	Don H [redacted]
Gender:	Male
Residence Year:	1956
Street address:	**4753 Crescent Drive**
Residence Place:	Shreveport, Louisiana, USA
Occupation:	**Oil Opr**
Spouse:	Lucille [redacted]
Publication Title:	Shreveport, Louisiana, City Directory, 1956

Figure IA.10
Example of a city directory listing
This figure shows city directory listing of the father of one of the CEOs in the sample. It identifies his address, occupation, and spouse.



116-01-1 116-01 4109 ...

STATE OF TEXAS CERTIFICATE OF DEATH STATE FILE NO. 89385

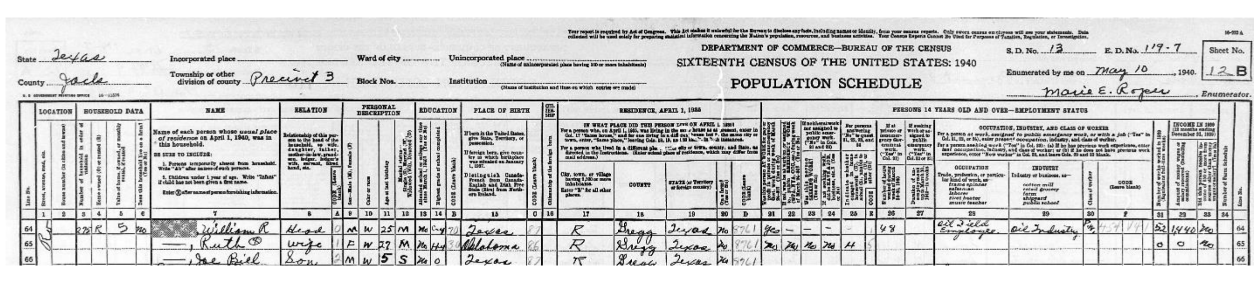
1. PLACE OF DEATH a. COUNTY Hunt
b. CITY OR TOWN (If outside city limits, give precinct no.) Greenville
c. LENGTH OF STAY in 1 b. 56 yrs.
d. NAME OF (If not in hospital, give street address) HOSPITAL OR INSTITUTION 3920 Roberts
e. IS PLACE OF DEATH INSIDE CITY LIMITS? YES [X] NO [ ]

2. USUAL RESIDENCE (Where deceased lived. If institution: residence before admission) a. STATE Texas b. COUNTY Hunt
c. CITY OR TOWN (If outside city limits, give precinct no.) Greenville
d. STREET ADDRESS (If rural, give location) 3920 Roberts
e. IS RESIDENCE INSIDE CITY LIMITS? YES [X] NO [ ]
f. IS RESIDENCE ON A FARM? YES [ ] NO [X]

3. NAME OF DECEASED (Type or print) (a) First William (b) Middle R. (c) Last [redacted]
4. DATE OF DEATH 12-31-70
5. SEX Male
6. COLOR OR RACE White
7. Married [X] Never Married [ ] Widowed [ ] Divorced [ ]
8. DATE OF BIRTH Aug. 7, 1914
9. AGE (In years last birthday) 56
IF UNDER 1 YEAR Months Days IF UNDER 24 HRS. Hours Minutes
10a. USUAL OCCUPATION (Give kind of work done during most of working life, even if retired) Mobil Oil Co.
10b. KIND OF BUSINESS OR INDUSTRY Gas
11. BIRTHPLACE (State or foreign country) Texas
12. CITIZEN OF WHAT COUNTRY? USA
13. FATHER'S NAME J. Bain [redacted]
14. MOTHER'S MAIDEN NAME Pearl [redacted]
15. WAS DECEASED EVER IN U.S. ARMED FORCES? (Yes, no, or unknown) Unk. (If yes, give war or dates of service) Unk.
16. SOCIAL SECURITY NO. Unk.
17. INFORMANT Mrs. William R. [redacted], wife

18. CAUSE OF DEATH ... for (a), (b), and (c).]
TEXAS DEPARTMENT OF HEALTH
REC'D JAN 11 1971
BUREAU OF VITAL STATISTICS
IMMEDIATE CAUSE (a) Coronary Occlusion
Conditions, if any, which gave rise to above cause (a), ... DUE TO (b) Arteriosclerotic heart disease
DUE TO (c)
INTERVAL BETWEEN ONSET AND DEATH sudden
PART II. OTHER SIGNIFICANT CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO THE TERMINAL DISEASE CONDITION GIVEN IN PART I(a) Diabetes Mellitus
19. WAS AUTOPSY PERFORMED? YES [ ] NO [X]
20a. ACCIDENT [ ] SUICIDE [ ] HOMICIDE [ ]
20b. DESCRIBE HOW INJURY OCCURRED. (Enter nature of injury in Part I or Part II of Item 18.)
20c. TIME OF INJURY Hour a.m. p.m. Month Day Year
20d. INJURY OCCURRED WHILE AT WORK [ ] NOT WHILE AT WORK [ ]
20e. PLACE OF INJURY (e.g., in or about home, farm, factory, street, office building, etc.)
20f. CITY, TOWN, OR LOCATION COUNTY STATE
21. I hereby certify that I attended the deceased from April, 1960 to December 31, 1970 and last saw the deceased alive on 12-31-70, 19__ Death occurred at 12:05 A. m. on the date stated above, and to the best of my knowledge, from the causes stated.
22a. SIGNATURE C Buis MD (Degree or title)
22b. ADDRESS 4311 Wesley, Greenville, Texas
22c. DATE SIGNED 1-2-71
23a. BURIAL, CREMATION, REMOVAL (Specify) Burial
23b. DATE 1-1-71
23c. NAME OF CEMETERY OR CREMATORY Caddo Mills IOOF Cemetery
23d. LOCATION (City, town, or county) (State) Caddo Mills, Texas
24. FUNERAL DIRECTOR'S SIGNATURE SORRELLS & SONS: E. K. Massay, Jr.
25a. REGISTRAR'S FILE NO. 4
25b. DATE REC'D BY LOCAL REGISTRAR January 5, 1971
25c. REGISTRAR'S SIGNATURE

TEXAS DEPARTMENT OF HEALTH — BUREAU OF VITAL STATISTICS
MEDICAL CERTIFICATION
VS-112, REV. 1/58



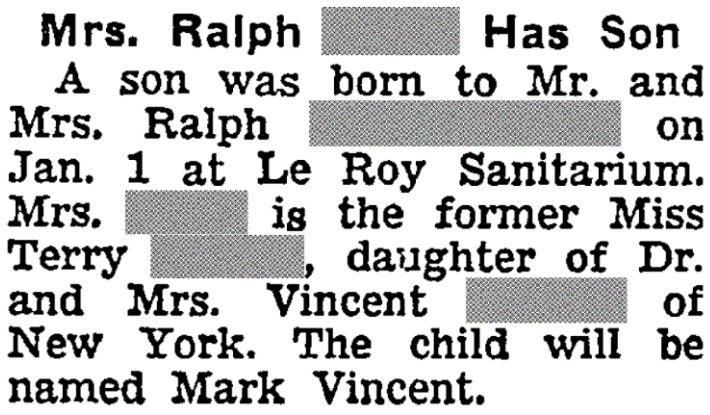
DEPARTMENT OF COMMERCE—BUREAU OF THE CENSUS
SIXTEENTH CENSUS OF THE UNITED STATES: 1940
POPULATION SCHEDULE

State Texas County Jack Township or other division of county Precinct 3
S. D. No. 13 E. D. No. 119-7 Sheet No. 12 B
Enumerated by me on May 10, 1940. Marie E. Rogers, Enumerator.

Line	Name	Relation	Sex	Color	Age	Marital	Place of birth
64	[redacted] William R	Head	M	W	25	M	Texas
65	—, Ruth	Wife	F	W	27	M	Oklahoma
66	—, Joe Bill	Son	M	W	5	S	Texas

Occupation (line 64): Oil Field Employee; Industry: Oil Industry; Income: 1440

Figure IA.11
Example of a death certificate
This figure shows in the top part the death certificate for a parent of one of the CEOs in our sample. To cross-verify employment, date of birth, and residence of the deceased, the bottom part of the figure shows information from the 1940 census for that individual.



Mrs. Ralph [redacted] Has Son

A son was born to Mr. and Mrs. Ralph [redacted] on Jan. 1 at Le Roy Sanitarium. Mrs. [redacted] is the former Miss Terry [redacted], daughter of Dr. and Mrs. Vincent [redacted] of New York. The child will be named Mark Vincent.

Figure IA.12
Example of a birth announcement
This figure shows the announcement of the birth of one of the CEOs in our sample. It was published in the January 15, 1957, issue of *The New York Times*.

MISS JOAN [redacted] BECOMES FIANCEE

Alumna of Rosemont College Will Be Married to John V. [redacted], Former Officer

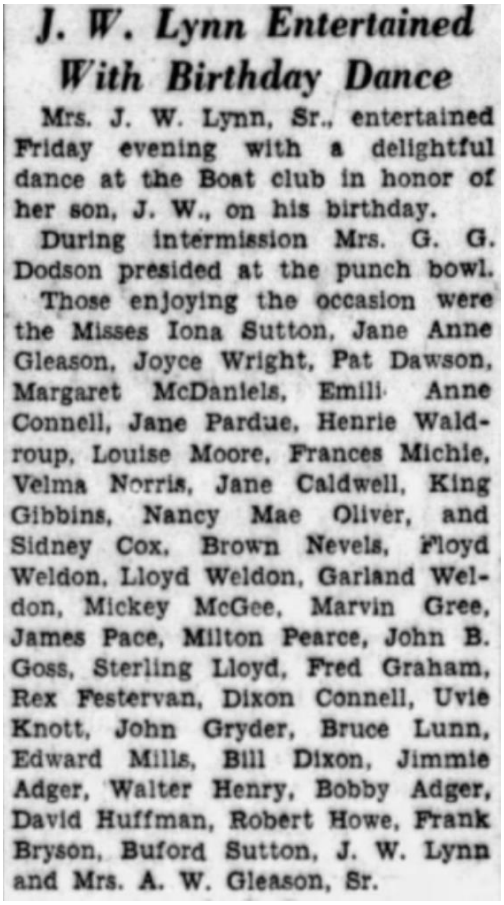
Special to THE NEW YORK TIMES.

SUMMIT, N. J., Oct. 4 — Announcement has been made by Mr. and Mrs. Edward P. [redacted] of the engagement of their daughter, Joan, to John V. [redacted], son of Mr. and Mrs. Marion C. [redacted] of New York.

The prospective bride attended the Kent Place School here, and the Convent of the Sacred Heart in Noroton, Conn. She was graduated from Rosemont (Pa.) College.

Mr. [redacted] was graduated from Villanova College. A former lieutenant, he served in the Army for three years, including duty in the Philippines. He is president of the American Mica Insulation Company.

Figure IA.13
Example of marriage announcement
This figure shows an announcement in the October 5, 1948 issue of The New York Times of the marriage of one of the CEOs in the sample. The announcement identifies the bride and the groom, their parents, and the groom's education and employment.



J. W. Lynn Entertained With Birthday Dance

Mrs. J. W. Lynn, Sr., entertained Friday evening with a delightful dance at the Boat club in honor of her son, J. W., on his birthday.

During intermission Mrs. G. G. Dodson presided at the punch bowl.

Those enjoying the occasion were the Misses Iona Sutton, Jane Anne Gleason, Joyce Wright, Pat Dawson, Margaret McDaniels, Emili Anne Connell, Jane Pardue, Henrie Waldroup, Louise Moore, Frances Michie, Velma Norris, Jane Caldwell, King Gibbins, Nancy Mae Oliver, and Sidney Cox, Brown Nevels, Floyd Weldon, Lloyd Weldon, Garland Weldon, Mickey McGee, Marvin Gree, James Pace, Milton Pearce, John B. Goss, Sterling Lloyd, Fred Graham, Rex Festervan, Dixon Connell, Uvie Knott, John Gryder, Bruce Lunn, Edward Mills, Bill Dixon, Jimmie Adger, Walter Henry, Bobby Adger, David Huffman, Robert Howe, Frank Bryson, Buford Sutton, J. W. Lynn and Mrs. A. W. Gleason, Sr.

Figure IA.14
Example of party announcement
This figure shows an announcement of a recent birthday dance in March 25, 1939 issue of The Times of Shreveport, Louisiana. In the list of names of the attendees, we identify siblings of William C. Weldon, the future CEO of Johnson and Johnson.

Table IA.1
CEO Background and Capital Allocations to Female Managers: CEO Data Availability
This table studies how CEO characteristics affect the allocation of capital between male and female division managers. The dependent variable is the percentage ratio of the division-level capital expenditure to book assets. The sample consists of industrial conglomerates in the S&P 1500 index with available data on capital expenditures, book assets, division managers, and CEO backgrounds. The sample period is from 2000 to 2008. Variable definitions and sample selection criteria appear in Appendixes A and B, respectively. Control variables include the same characteristics of the firm, division, CEO, and division manager as in Table 3. All independent variables are measured at the beginning of the year for which the capital budget is determined and are therefore lagged by one year relative to the dependent variable. All regressions include year, industry, and CEO birth cohort fixed effects, and alternate with respect to firm fixed effects. The *t*-statistics (in brackets) are based on standard errors that are heteroskedasticity consistent and clustered at the firm level. Significance levels are indicated as follows: * = 10%, ** = 5%, *** = 1%.

Panel A: Pooled Indexes of Gender Imbalance for CEOs with Available Census Data

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female division manager	-0.325*	-0.413*	-0.272*	-0.233**	-0.373**	-0.576**	-0.125	-0.289
	[1.872]	[1.686]	[1.937]	[2.181]	[2.386]	[1.980]	[1.136]	[0.943]
CEO family index	0.288**	0.628**					0.185***	0.435**
	[2.137]	[2.561]					[2.582]	[2.497]
Female division manager	-0.626**	-0.381**					-0.732**	-0.432**
x CEO family index	[2.411]	[2.144]					[2.376]	[2.406]
CEO education index			0.518**	0.229**			0.530**	0.168**
			[2.480]	[2.211]			[2.180]	[2.214]
Female division manager			-0.486**	-0.514**			-0.405**	-0.162**
x CEO education index			[2.438]	[2.136]			[2.553]	[2.457]
CEO community index					0.366*	0.121*	0.378	0.183
					[1.897]	[1.802]	[1.575]	[1.314]
Female division manager					-0.303**	-0.529*	-0.436	-0.138
x CEO community index					[1.987]	[1.681]	[1.368]	[1.448]
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.352	0.601	0.349	0.599	0.348	0.591	0.360	0.612
N_obs	1,363	1,363	1,363	1,363	1,363	1,363	1,363	1,363

Panel B: Pooled Indexes of Gender Imbalance for CEOs born before 1945 with Available Census Data

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female division manager	-0.432*	-0.396*	-0.194*	-0.166**	-0.406**	-0.009*	-0.204	-0.275
	[1.788]	[1.782]	[1.739]	[2.215]	[2.504]	[1.949]	[0.991]	[0.995]
CEO family index	0.329**	0.634***					0.203**	0.527**
	[2.243]	[2.650]					[2.493]	[2.437]
Female division manager	-0.473**	-0.370**					-0.593**	-0.409**
x CEO family index	[2.455]	[2.141]					[2.317]	[2.442]
CEO education index			0.518**	0.204**			0.493**	0.332**
			[2.531]	[2.153]			[2.245]	[2.085]
Female division manager			-0.597**	-0.363**			-0.466***	-0.341**
x CEO education index			[2.468]	[2.214]			[2.599]	[2.361]
CEO community index					0.420*	0.176*	0.379	0.165
					[1.794]	[1.918]	[1.538]	[1.339]
Female division manager					-0.340**	-0.409*	-0.338	-0.084
x CEO community index					[2.050]	[1.868]	[1.244]	[1.415]
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
CEO birth cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.352	0.505	0.347	0.596	0.341	0.597	0.355	0.600
N_obs	1,124	1,124	1,124	1,124	1,124	1,124	1,124	1,124