

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

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1. Introduction

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 agents' 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 primary focus of this paper. An answer to them matters both for firm outcomes and economic policy. In particular, many proposed policy responses aimed at narrowing the alleged gender gap, which range from disclosure to governance, assume that it reflects a personal bias of the decision maker, such as the CEO, which introduces market frictions. Yet, this fundamental premise is difficult to test because it requires eliciting CEO preferences and making a reliable connection between resource allocations and subsequent outcomes.

This paper makes a step toward addressing both challenges. We study the allocations of capital budgets to male and female division managers at U.S. conglomerates, using hand-collected data on division managers and their characteristics. In this setting, the decision-making authority rests with the CEO (Xuan 2009; Graham, Harvey, and Puri 2015), division managers are peers in the firm hierarchy, and we can observe their annual capital allocations and subsequent outcomes. Because 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 heavily influenced by familial, environmental, and educational factors experienced until early adulthood, a period commonly referred to as formative years (see Epstein and Ward 2011 for a review). In particular, individuals form an outlook on gender roles by observing the responsibilities of their parents and the norms on gender equity in the local community and at school (Mischel 1966; Bandura 1986; Leve and Fagot 1997; Martin et al. 2002, among others).

To study CEOs' formative years, we hand-collect data on the households and communities where CEOs grew up by examining individual census records compiled by the National Archives. These records provide detailed information on each parent's employment, education, income, and other characteristics, as

well as the address of the home where the CEO grew up. To study the role of educational factors, we also construct a novel dataset on CEOs' high schools.

We begin by providing the first descriptive evidence on the family descent of U.S. CEOs. We document that CEOs come from well-to-do families where the father is the primary wage earner, has more education, and earns a higher income than the mother. These within-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. Over two-thirds of CEOs' fathers hold white-collar jobs, and 35% are managers or business owners. The median income of CEOs' fathers is at the 75th national percentile. CEOs' mothers are less likely to work outside their home (21%) than women nationwide (42%). When they do, the median income of CEOs' mothers is at the 57th national percentile. About 14% of CEOs grew up in families with female servants, compared with only 2% nationwide. Finally, CEOs are more likely to attend all-male high schools (16.4%) and all-male colleges (9.9%) compared with other students.

Our first finding is that female division managers obtain about 50–70 basis points less in annual capital expenditures than male managers, an economically important difference of \$14.4 to \$20.2 million per year for the average division. This analysis controls for managers' education, age, experience, performance record, social connections, and external influence, as well as division and firm characteristics.

By exploiting within-firm variation in the decision maker on capital budgets, we find that the gender gap in capital allocations is driven by CEO characteristics. We identify important treatment effects of familial, educational, and environmental factors from CEOs' formative years. Among these factors, the CEO's immediate family has the strongest effects. 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 who have no female children. We show that incorporating the said familial factors helps explain most of the gap in capital allocations.

Educational factors also have important mediating effects. The gender gap in capital budgets is greater for CEOs who attended all-male high schools. Similarly, using variation in the gender composition of U.S. colleges, we find that the gender gap is higher for CEOs who attended same-gender rather than coeducational colleges.

Environmental factors—proxies for gender equity in the county where the CEO grew up—have meaningful independent effects, but are dominated by familial and educational factors. The gap in capital budgets between male and female division managers expands if the CEO grew up in a community with larger differences in labor force participation, education, and income between male and female residents of working age. However, when these factors are included jointly with CEO family characteristics and educational backgrounds, their effect is subsumed by the familial and educational factors.

Taken together, the effect of familial, educational, and environmental factors from CEOs' formative years explains over 70% of the economic gap in capital allocations between male and female managers. As an external validation of the factors extracted from CEOs' formative years, we show that they are significantly correlated with CEO policies on gender issues, such as promotion of women and women contracting, measured by an independent 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, such as industry, business complexity, hierarchy, or geographic location.

We identify two economic mechanisms that contribute to the gender gap in capital budgeting: (i) appointment of male managers to capital-rich divisions (the appointment channel) and (ii) extra capital allocations after the appointment (the capital allocation channel). In the analysis of appointment events of division managers, we find that male managers are assigned to core divisions which are more profitable and which historically receive more capital. To disentangle the capital allocation channel from the appointment channel, we exploit CEO turnovers and focus on 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, expertise, and productivity). We find that a change in the decision maker in the capital budgeting process is associated with a change in capital allocations to male and female division managers predicted by the familial, environmental, and educational factors extracted from the CEO's formative years.

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 29–40% 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 study economic outcomes. We find that the effect of a CEO's gender attitudes on the allocation of investment funds introduces frictions in capital budgeting and weakens the responsiveness of investment to growth opportunities, as measured by the sensitivity of investment to Tobin's Q. These frictions erode corporate performance. Using within-firm variation in CEOs, we show that a given firm achieves weaker operating performance when it is managed by a CEO with less egalitarian gender attitudes, as proxied by formative experiences. For example, an increase of 50 percentiles in the index of the CEO's exposure to gender imbalances within the family is associated with a 3.5% decline in ROA and a 0.07 decline in Tobin's Q. This result is consistent with survey evidence that the CEO's personal attitude to division managers has profound real effects. For example, in a study of financial decision making in 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.

In summary, our evidence suggests that the gender gap in resource allocation is related to the decision maker's gender attitudes, whether conscious or subconscious, and that the origins of such attitudes can be traced to one's formative years. This effect has large implications for capital investment and introduces frictions in financial decisions.

The central contribution of this article 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 during formative years. Our findings contribute to research on (i) the origins of managerial preferences, (ii) the role of gender in financial policies, and (iii) the operation of internal capital markets.

A small number of recent papers underscore the importance of early-life experiences for 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 pursue more conservative corporate policies. Cronqvist and Yu (2017) provide evidence that CEOs who experience the birth of a daughter tend to increase spending

on corporate social responsibility. Yet, despite the importance of early-life experiences for financial decision making, we know little about CEOs' personal backgrounds. Our paper seeks to provide the first systematic evidence on CEOs' family backgrounds, home communities, and early schooling in an effort to achieve a more complete view of their formative years. This approach allows us to study jointly the effects of familial, educational, and environmental factors and compare their relative importance.

Our evidence adds to the literature on gender effects in financial policies. Prior work documents that male agents are responsible for key executive decisions at the overwhelming majority of U.S. firms (e.g., Tate and Yang 2015; Adams and Kirchmaier 2016). In this setting, female agents appear to receive fewer economic resources and promotion opportunities, albeit the reasons for these patterns remain a subject of debate (e.g., see Bertrand 2010 for a recent review). Our paper is one of the first to show that the origins of gender effects in financial decisions are linked to the decision maker's early-life exposure to gender inequality in the family, community, and school. We find that these factors affect both managerial appointments and resource allocations between male and female agents and produce significant real effects.

Finally, we contribute to the literature on internal capital markets. Prior work finds evidence of inefficiencies in capital budgeting at U.S. conglomerates (Servaes 1996; Denis, Denis, and Yost 2002; Ozbas and Scharfstein 2010). Yet, in the analysis of capital allocations, most of this prior work examines corporate divisions without considering the role of their managers. Our paper extends this research by demonstrating that the characteristics of division managers matter for capital allocations and that the effect of division managers' demographics serves as one source of frictions inside conglomerates.

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

2.1. The role of early-life experiences

Prior work in the social sciences demonstrates 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) identify two important patterns. First, an individual's personality traits are most actively shaped early in life, and the rapid formation of such traits plateaus around the age of parenthood. Second, personality traits acquired from early-life experiences predict an individual's behavior several decades later.

Research in financial economics has demonstrated that early-life experiences have a long-lasting effect on sophisticated corporate executives. Prior work has established significant relations between CEOs' formative experiences and their firm's financial policies, such as risk-taking (Graham and Narasimhan 2005), research and development (Benmelech and Frydman 2015), and capital structure (Bernile, Bhagwat, and Rau 2017). The effects of CEOs' formative experiences on financial policies 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 financial economics 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 typical behavior of men and women, as well as male–female interactions, in their immediate surrounding: in their family, community, and school. Empirical work (reviewed below) has documented the importance of such social influences on the development of gender attitudes.

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 traditional roles of men and women in the labor force. As a result, children brought up in families where the father has a significantly higher social status than the mother tend to adopt less egalitarian gender views.

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, among others). Similarly, individuals brought up in families where the mother has less formal education tend to develop less egalitarian gender attitudes (Vanfossen, 1977; Martin et al., 1980; Herzog and Bachman, 1982; Thornton et al., 1983). More generally, research shows that gender attitudes within the home are strongly correlated with labor market outcomes for women, such as labor force participation (Fernández, Fogli and Olivetti 2004) and compensation (Fortin 2005).

Motivated by prior evidence, we introduce two measures of the relative social status of a CEO's parents as a source of variation in the CEO's gender attitudes. The first variable, *Working mother*, is an indicator that equals one if the CEO's mother holds paid employment during the first 18 years of a CEO's life. The second variable, *Parents' education imbalance* is the difference between the number of education years for the CEO's father and the CEO's mother, where higher values indicate families with a higher educational attainment of the father. Variable definitions appear in Appendix A.

Theoretical and empirical research on the role of familial factors also emphasizes the reciprocal effects in parent-child relationships. While parents play a key role in shaping their children's gender attitudes, the birth of a child itself produces meaningful shifts in the gender attitudes of its parents. Research shows theoretically and empirically that the parenting of daughters (rather than sons) shifts an individual's gender attitudes toward more egalitarian views. Warner (1991) contends that an individual's self-interest can be extended to include one's children, and this assumption generates a prediction that having a daughter makes the father more sensitive to gender equality, since it benefits his daughter's career. Cronqvist and Yu (2017) develop a theoretical framework where the CEO internalizes the utility of his children and show analytically that the parenting of a daughter leads the CEO to adopt more egalitarian gender attitudes.

Empirical work has compiled extensive evidence in support of the above predictions. Early studies find that fathers with female children demonstrate more egalitarian gender attitudes (Warner 1991; Warner and Steel 1999). Subsequent work shows that the effect of daughters on gender attitudes is causal and driven entirely by the change in the attitudes of their fathers (Shafer and Malhotra 2011). Most recently, several studies find that parenting daughters affects the gender attitudes of sophisticated and closely-monitored economic agents, such as Congress members (Washington 2008), judges (Glynn and Sen 2015), venture capitalists (Gompers and Wang 2017), and CEOs (Dahl, Dezsó, 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 total number of children. This definition accounts for cross-sectional differences in the number of children across CEOs and focuses on the fraction of daughters following prior work (Washington 2008; Glynn and Sen 2015).

In summary, our set of three familial factors concentrates on arguably the closest personal relationships—those between parents and children—which have been shown to produce strong and monotonic treatment effects on gender attitudes. While there could be other familial effects, such as those of siblings or spouses, their empirical support is less consistent. Thus, our methodological choice is guided by an effort to generate a reliable source of variation in gender attitudes from validated familial factors.

2.3. Community characteristics

The social learning theory postulates that gender attitudes are strongly influenced by the social norms in the community where individuals spend their formative years (e.g., Mischel 1966; Bandura 1977, 1986). In particular, individuals develop gender stereotypes by inferring the relative social status of men and women in the local community, extrapolating from such cues as labor force participation, traditional occupations, and representation in prestigious jobs and positions of authority. These predictions are confirmed in empirical work, which shows that community gender norms have a profound effect on residents' gender attitudes and labor market outcomes for men and women (Alesina, Giuliano, and Nunn 2013).

In a review of 58 empirical studies on the topic, Swim and Sanna (1996) conclude that when men are perceived to have a higher economic status in a society, the identical performance of male and female agents is more likely to be attributed to skill for men and more likely to be attributed to luck for women. These differences in performance attributions increase for professional activities viewed as more masculine, such as corporate management (Heilman, Block, and Martell 1995; Swim and Sanna 1996).

If such a pattern in managerial evaluation extends to our empirical setting, it could represent one mechanism through which a CEO's gender attitudes affect the allocation of resources to male and female division managers. In other words, even if the performance of male and female agents is indistinguishable, the differences in performance attribution may lead to a subconscious perception of a greater skill for male rather than female agents, resulting in larger capital allocations to the former.

As a source of variation in gender attitudes based on social norms, we introduce three measures that capture the relative economic status of men and women in the community where the CEO grew up. These measures exploit both cross-sectional variation (across counties in the U.S.) and time-series variation (across CEOs' age cohorts). The community characteristics capture the differences between local men and women of working age (18-45) along three dimensions: (i) labor force participation, (ii) annual income, and (iii) education. These characteristics are measured for the county where the 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. For a given county-year, the variables are defined as follows. *Labor force participation gender imbalance* is the difference in labor force participation rate between men and women. *Income gender imbalance* is the difference between the average annual income (in thousands of dollars) of men and women. *Education gender imbalance* is the difference between the number of education years for men and women.

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. Bigler and Liben (2006, 2007) show analytically that social factors that foster gender-based segregation, such as single-sex schooling, lead to greater gender stereotyping. Similarly, the contact theory of Allport (1954) predicts that the segregation of groups according to a salient characteristic, such as gender, reinforces in-group biases, while the mixing of the groups produces the opposite effect.

Empirical evidence supports the prediction that single-gender schooling increases gender stereotypes, mostly among males (e.g., Delamont 1990; Brutsaert 2006). Recent work in economics shows that the effect of gender segregation on in-group biases is causal and extends beyond the academic setting (Dahl, Kotsadam, and Rooth 2018).

It is also possible that the choice of attending a single-gender college reflects a pre-existing gender attitude. For example, individuals with stronger gender stereotypes are more likely to self-select into single-gender schools. Both of these scenarios are acceptable for our identification strategy that seeks to elicit a CEO's gender attitudes from early-life experiences.

To measure the effect of education characteristics, we introduce two variables. *High school gender imbalance* 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 female students in the CEO's undergraduate college. Both variables are measured as of the dates of the CEO's attendance.

In summary, our empirical design is grounded in prior evidence on the formation of gender attitudes. It relies on theoretically motivated and empirically validated factors—from childhood through early parenthood—that have been shown to shape gender attitudes. While building on prior work, we also introduce several unique features. First, we provide novel evidence on the family descent of U.S. CEOs and their secondary education, the important formative experiences that have not been explored in prior work. Second, while prior studies have focused on a single formative experience, we provide a comprehensive analysis of familial, communal, and educational factors, and this holistic approach allows us to estimate their joint influence and compare their relative importance. Third, we provide direct evidence on the allocation of resources between male and female managers at some of the most economically important U.S. firms and study both the origins of these patterns and their real consequences.

3. Data 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.

Next, we manually go through each firm's organization structure, as reported in quarterly and annual reports, proxy statements, and information prospectuses, to identify the sample of firms with divisional organization structures where managers oversee specific operating segments. This filter ensures a clean one-to-one match between managers and divisions. Given this sample criterion, we alert the reader that our analysis applies only to firms with such organization structures.

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.

We exclude firms with organization structures that lack a clear correspondence between managers and divisions (396 firms). The excluded firms usually use a functional organization structure where managers are assigned on the basis of their functional roles (e.g., vice president of manufacturing), so that each manager supervises an entire functional area across all divisions. Some of the excluded firms have a geographic organization structure where managers are assigned on the basis of regional markets (e.g., vice president – Northwest), so that each manager oversees a target market across all divisions.

To identify the division manager responsible for each business segment, we read biographical sketches of the firms' executives in annual reports, proxy statements, and management directories. We consider a manager to be in charge of a division if he or she is the highest-level executive directly responsible for the business segment during a given time period.

Next, we collect the starting and ending dates of each division manager's tenure. To obtain them, we supplement corporate disclosure with executive biographies from the Forbes Executive Directory, Reuters, Marquis's Who's Who, and Notable Names Database, as well as firms' press releases which provide appointment dates. 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 differences 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 about five times as likely to occupy as CEO jobs (8.4% of observations).

Finally, we exclude eight firms run by CEOs for whom no information about formative years can be reliably identified. After imposing this filter, we arrive at our main sample of 358 firms. Appendix Table B1, Panel A, shows the sequence of sample selection criteria and provides the number of firms, divisions, and 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 B1, Panel B compares our final sample to the rest of the industrial conglomerates in the S&P 1500 across 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 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 is explained by the fact that larger firms provide more disclosure about their division managers, and hence are less likely to be dropped due to data limitations.

The divisions in our sample are economically important operating units. The average (median) division operates assets with a book value of \$3.1 (\$0.8) billion, produces \$3.2 (\$1.1) billion in sales, and earns a net profit equal to 14.7% (12.8%) of the revenue. The average division obtains \$147.2 million per year in investment funds, an amount equivalent to 5.1% of its book assets.

3.2. CEOs and division managers

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 (obtained from press releases, annual reports, and proxy statements) 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 (both 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). All records in the database are linked to an individual's social security number (observable with the exception of the last four digits) and are assigned a unique ID. We manually verify our matches to LNPR using the combination of an individual's full name and employment record (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 summary statistics for CEOs and division managers. As discussed earlier, all CEOs in our sample are male, and, on average, they are 56 years old. Nearly 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 significantly more diverse. The average manager is 51 years old with 10.8 years of tenure at the firm, and about 8% are female. Compared with CEOs, division managers are more likely to hold graduate degrees (79%), but slightly less likely to hold MBA degrees (39%). Division managers are also significantly less likely to hold external board seats.

3.3. Family descent and formative years

We collect a comprehensive set of characteristics on the immediate family, early education, and local community for the CEOs in our sample. We focus on CEOs because they are the main decision makers in the allocation of capital across divisions. Prior work demonstrates this decision authority both analytically (Rajan, Servaes, and Zingales 2000; Scharfstein and Stein 2000) and empirically (Xuan 2009; Ozbas and Scharfstein 2010; Duchin and Sosyura 2013). Direct survey evidence from CEOs of S&P 500 firms confirms this conclusion and shows that CEOs are unlikely to delegate this decision to other agents (Graham, Harvey, and Puri 2015). Using event shocks to CEOs' lives, Bennedsen, Pérez-González, and Wolfenzon (2017) provide causal evidence that CEOs play a key role in 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 white page directories, and obituaries. We briefly describe these data here and provide more detail in the Internet Appendix. Internet Appendix Figures 1–6 provide examples of individual records retrieved from various data sources.

We follow a three-step algorithm to identify the CEO's household in the federal and state censuses by sequentially checking three types of state records—birth, marriage, and death—for the CEO and his relatives. To ensure a reliable match to the census, we require establishing the CEO's parents and, in some cases, siblings. This criterion nearly eliminates the possibility of a spurious match, because the census record identified in this process contains the unique combination of the CEO's parents and siblings.

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, including education (in years), occupation, employment status, the number of weeks worked during the year, annual income, and place of birth, among others. The census form also provides a number of characteristics for the entire household, including the residential address, home ownership status (rent or own), and the estimated value of the home or monthly rent. Internet Appendix Figures 4 and 5 show blank and completed census forms.

We alert the reader to an important data constraint. Access to census data with personally identifiable information is restricted by the U.S. public law, and the latest state and federal census records with personally identifiable information are available for the years 1945 and 1940, respectively, as well as for any previous years. To overcome this constraint, we complement our census data with additional information from two other digital archives: (i) historical city directories (obtained from the family search service Ancestry.com) and (ii) state death records and obituaries (collected from the digital archive of state records on Ancestry.com and the newspaper archive service 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 obtained from city directories and death and obituary announcements against the information provided in the census and find that the two sources provide very similar information. In particular, city directories show the residential address of the household and the occupation status of each parent, while the obituaries for CEOs' parents (nearly all of them are deceased) give a lot of detail on their education, career, and family.

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 supplement these data with information obtained from LNPR (which lists the members of the CEO's household and provides their age) and obituaries for CEOs' parents (which often list the CEO's children as the surviving family members).

High school and college education

We construct the first dataset of CEO high schools by using the digital archives of high school yearbooks maintained by Ancestry.com and Classmates.com. For each CEO, we confirm the high school

match by the location of the household where the CEO grew up and a visual comparison of the high school photo with publicly available CEO photos. Internet Appendix Figure 7 provides an example. We supplement these resources with data from Boardroom Insiders, CEO biographies, and high school publications that identify notable alumni. When high school information is missing from the above sources, we contact the registrar of the university attended by the CEO and request this information in writing. We record the following characteristics for each CEO's high school: address, gender composition (same-gender or co-educational), religious affiliation (if any), and private/public status. We record this information for the period of the CEO's attendance (ages 14-18), using the history section of the high school's website.

Figure 1 illustrates the geographical distribution of high schools attended by the CEOs. The CEOs in our sample hail from every state in the continental U.S., except for South Dakota. Forty-four high schools graduated more than one CEO-to-be, with New Trier High School in Winnetka, Illinois graduating five.³

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 CEO attendance (ages 18-22). We obtain this information from the U.S. Department of Education.

Community characteristics

We obtain information on gender-related demographic variables in the county where each CEO grew up. We identify the CEO's home county based on the location of his high school and his parents' home address in the census. For each CEO, we collect the following information for his home county from summary census records: (i) the labor force participation rate for adult males and females, (ii) the annual income for employed males and females, (iii) the number of years of education for males and females, and (iv) the unemployment rate for males and females of working age. These data come from the Integrated Public Use Microdata Series (IPUMS)—the anonymized set of household census records (Ruggles et al. 2017). We measure the above community characteristics as of the decennial census year closest to the year when the CEO reaches the age of 18. For example, for a CEO born in 1944 (who reaches the age of 18 in 1962), we use the community characteristics from the 1960 decennial federal census.

³ With the 2016 per capita income of over \$100,000, the village of Winnetka is the wealthiest census-designated place in Illinois and one of the wealthiest in the country.

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

Before proceeding with a formal analysis, we provide descriptive evidence on the family descent of CEOs, their early education, and communities where they grew up.

Table 2, Panel A shows summary statistics for the immediate families of CEOs, focusing on their parents and children. Three conclusions emerge from these 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 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. Over 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 by showing that by 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 home (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' children. The median CEO has 3 children (mean = 2.8), slightly more than the number of children for the average male of the same age (2.0), as expected for wealthy families. These statistics align closely with the data on CEOs' children in Cronqvist and Yu (2017). As expected, the fractions of male and female children in CEOs' own families are approximately equal.

Table 2, Panel B provides summary statistics on CEOs' education. Compared with the general population, CEOs are more likely to attend private high schools and colleges designated solely for men. About one quarter of CEOs attend private high schools, and 16.4% attend all-male high schools. Nearly 49% of CEOs attend private colleges, and 9.9% attend colleges restricted to men at the time of attendance.

Table 2, Panel C shows the characteristics of neighborhoods where the CEOs in our sample grew up. As discussed, these characteristics are measured approximately as of the time when a CEO reaches the age of 18. The data reveal a large difference in the labor force participation 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). For those seeking employment, the average unemployment rate is lower for men (4.8%) than for women (5.5%). Interpreted together, these statistics suggest that CEOs grow up in communities where, at the time of their formative years, males are more likely to hold outside employment, and when they do, they earn higher incomes and face lower unemployment 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 *Working mother*, *Parents' education imbalance*, and *Children's gender imbalance* values in the sample. For the variables where higher values indicate less gender inequity (e.g., *Working mother*), we use the percentile rank of their negative value so that higher index values indicate greater inequity.

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

5.1. Evidence on investment funds

Table 3 provides regression evidence on the allocation of capital to male and female division managers. The unit of observation is a division-year, and the dependent variable is the ratio of division-level capital expenditure (CapEx) to book assets. The main independent variable of interest is the binary indicator *Female division manager*, which tests for the effect of a division manager's gender on the allocation of capital, over and above the effect of other managerial characteristics included as controls. These managerial controls include education, performance record, age, tenure with the firm, busyness (external directorships), and measures of formal and informal influence within the firm—namely, internal board representation and social connections to the CEO, respectively. Other control variables include the characteristics of the division, firm, and CEO that have been shown to affect capital budgeting (e.g., Rajan, Servaes, and Zignales 2000; Ozbas and Scharfstein 2010). All independent variables are measured at the beginning of the year, when capital budgets are set, and are therefore lagged by one year relative to the dependent variable.

Column 1 augments the control variables with year fixed effects, which account for the time trend in the availability of capital and investment opportunities in the economy, as well as market-wide trends toward a greater inclusion of women in management. Column 2 adds industry fixed effects, which capture industry-level investment drivers, such as capital intensity, competition, and technological shocks. Column 3 adds firm fixed effects, which absorb the effect of firm characteristics that remain invariant during our sample period, such as geographic location, industry mix, and diversification. Here and henceforth, standard errors are clustered by firm to allow for firm-level residual dependence in capital allocation decisions.

The results show that female division managers obtain less investment capital. This conclusion holds across all specifications, as indicated by the negative and statistically significant coefficient on the indicator *Female division manager*. The point estimates suggest a sizable economic effect. According to columns 1–3, female managers obtain 50–70 basis points (bps) less in annual capital budgets relative to their male counterparts. Given the average investment for a division of 5.1 percent of book assets (or \$147.2 million) per year, this difference amounts to 9.8%–13.7% of the average investment budget or \$14.4–20.2 million per year. Column 3 shows that this conclusion holds robustly (significant at 1%) when we compare the allocations to male and female managers inside the same firm, focusing only on within-firm variation.

The results from other control variables are consistent with survey evidence that CEOs view division managers as key factors when allocating capital to divisions (Graham, Harvey, and Puri 2015). CEOs allocate greater capital budgets to managers with longer tenures and stronger performance records (trailing division-level profitability). Also, CEOs provide more capital to managers with whom they share social connections via alumni networks, prior employment, or membership in non-profit organizations.

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

Table 4 investigates the role of CEOs' attributes in the allocation of capital to male and female division managers, controlling for the same manager, division, and firm characteristics as in Table 3. The unit of observation is a division-year, and the dependent variable is the ratio of division-level CapEx to book assets. All regressions include year, industry, and firm fixed effects.

Table 4, Panel A tests the relation between CEOs' formative experiences related to gender attitudes and the allocation of capital to female division managers. This analysis augments our baseline specification in Table 3 with measures of CEOs' exposure to gender imbalances and female socialization in the family (columns 1–3), at school (columns 4–5), and in the community (columns 6–8). 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 inequity and low female socialization. The coefficients on the interaction terms between these measures and the indicator *Female division manager* are negative across all specifications and statistically significant in six of the eight columns. Among the three groups of factors, family-related factors have a somewhat higher statistical significance, with the interaction terms being statistically significant at conventional levels for all the family proxies.

The effects of formative experiences are economically important. For example, the point estimate on the main interaction term in column 1 (coefficient = -0.004) indicates that CEOs who grew up in families with a stay-at-home mother allocate 40 bps less in annual CapEx to female division managers than to their male counterparts with similar characteristics at the same firm. Given the average amount of a division's annual investment (5.1% of assets), this estimate amounts to a reduction of 7.8% in the annual CapEx.

Table 4, Panel B investigates the joint effect of gender-related formative experiences acquired in the family (columns 1–2), at school (columns 3–4), and in the community (columns 5–6), focusing on the aggregate indexes for each group of attributes. Each index is constructed 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. The even and odd columns in Panel B 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* \times *CEO index* is negative and statistically significant at conventional levels across all three indexes. These 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. The point estimates suggest significant economic effects. For example, a change of 0.5 (or 50 percentiles) in the community index is 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 unemployment for local residents of working age. According to the point estimate in column 4 on the interaction term *Female division manager* \times *CEO community index* (coefficient = -0.004), CEOs who grew up in communities with more gender inequality (75th percentile) allocate 20 bps less (-0.004*0.5 = 0.20) in annual CapEx to female managers than to their male counterparts, as compared to CEOs who grew up in communities with less gender inequality (25th percentile). For the average division, this difference is equivalent to 3.9% of the annual CapEx or \$5.7 million per year.

Columns 7–8 include all of the 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 capital allocations. For example, when the baseline specification of capital allocations (column 3 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 from -0.007 to -0.002 and becomes statistically indistinguishable from zero (t -statistic = 1.32). This result indicates that the differences in capital budgets between male and female division managers largely disappear at firms run by CEOs with early-life exposure to gender equity and female socialization.

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 economically small and statistically insignificant. This pattern suggests that the gender norms in the community are captured by the gender norms in the family and at local schools. One possible interpretation is that families choose to live in the communities that broadly match their family characteristics and preferences for children’s education.

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, at school, and in the community. The joint effect of these factors explains most of the economic gap in capital allocations between male and female managers.

5.2. Robustness and external validity

This section examines the robustness and external validity of the interpretation that the gender gap in capital budgets is related to CEOs’ gender attitudes.

Table 5, Panel A compares male and female division managers across a broad set of managerial characteristics that could explain the difference in capital budgets, such as the level of education (graduate degree), experience (number of years at the firm), prior performance record (trailing division profitability), busyness (external board seats), social connections to the CEO, and age. We test for the differences between male and female managers along these characteristics in a regression setting with firm fixed effects.

The results show that male and female division managers working in the same conglomerates are statistically indistinguishable across measures of education, experience, and skill. The only difference we can identify (significant at 10%) is that female managers are slightly younger than their male counterparts in the same firm. This difference in age is economically small. According to the point estimate in column 6, female division managers are about one year younger than their male counterparts.

Overall, we do not detect significant economic differences between male and female division managers of the same conglomerates across a broad range of characteristics. Yet, these two groups may differ on important unobservable characteristics relevant for capital budgeting, such as risk aversion, leadership, and execution skills. In Section 6, we study the effect of these unobservable factors.

Table 5, Panel B examines the external validity of our proxies for CEOs' gender attitudes constructed from formative years. We test for correlation between the CEOs' formative experiences and independent assessments of CEOs' gender policies provided 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 a review of pending litigation. Prior research demonstrates that KLD assessment scores provide informed signals about CEO policies on employee relations, diversity, and social responsibility (Chatterji, Levine, and Toffel 2009; Cheng, Hong, and Shue 2016) and that KLD assessment scores align well with 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 B 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 immediate family and home 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 the CEO's gender attitudes, their effect should be stronger for older CEOs who grew up during the times of greater gender disparity and lower female representation in management. This hypothesis is motivated by the evidence that the era when an individual grew up imprints a long-lasting effect of experiences and social norms common for a given age cohort. For example, Malmendier, Tate, and Yan (2011) show that the CEOs who grew up during the Great

Depression are more conservative. In contrast, if the effect of gender on investment is driven by an omitted characteristic of a division or its manager, it is unlikely to be related to the CEO's age cohort.

Table 6 studies the effect of CEO age. We introduce a binary indicator *Old CEO* (which equals one for CEOs older than the sample median age of 56) and interact it with the indexes of CEOs' formative experiences. The dependent variable is the capital allocation to a division, and the main variable of interest is the triple interaction term *Female division manager* \times *CEO index* \times *Old CEO*. Here and henceforth in specifications with triple interactions, we report the main interaction terms of interest: the double interaction terms *Female division manager* \times *CEO index* and the triple interaction terms *Female division manager* \times *CEO index* \times *Old CEO*. 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 older CEOs. This effect is directionally consistent across all measures of CEOs' formative experiences and statistically significant at 10% and 5% for the familial and educational factors, respectively. According to column 1, the effect of the CEO's family factors on capital allocations is about one-third stronger for older CEOs. This estimate is derived by comparing the coefficients on the interaction terms *Female division manager* \times *CEO family index* (coefficient = -0.003) and *Female division manager* \times *CEO family index* \times *Old CEO* (coefficient = -0.001). These results indicate that the gender gap in capital budgeting is significantly related to an observable CEO characteristic expected to affect gender norms in a way consistent with prior research. For example, Newton and Simutin (2014) find that older male CEOs award smaller compensation to female managers than do younger CEOs.

In summary, male and female division managers in the same firm are observationally similar according to measures of education, experience, and past performance. The gender gap in capital budgets is related to proxies for CEOs' gender attitudes derived from formative years. These proxies are strongly correlated with independent assessments of firm policies in promoting female managers and allocating resources to female contractors. The effect of formative experiences is stronger for older CEOs.

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 male managers get extra capital by being appointed to capital-rich divisions. The second channel captures the additional allocations to male managers, while holding constant their assignment to divisions. The section concludes with a discussion of the economic mechanism that links the CEO's gender attitudes with the firm's capital allocation policies.

6.1. *The appointment channel*

Our analysis of the appointment channel examines the relation between division managers' attributes and the characteristics of divisions to which they are appointed. To test this relation, we focus on division-year observations in which the division manager has changed (new appointments) but the CEO has not. The dependent variable is one of the division's characteristics measured in the year immediately preceding the manager's appointment. Division characteristics include CapEx, size, profitability, and the core status within the firm (an indicator equal to one if the division operates in the conglomerate's core industry). As before, we include firm, industry, and year fixed effects and use standard errors clustered by firm.

Columns 1–4 in Table 7, Panel A show that female managers are less likely to be appointed to divisions that historically receive more capital and that this tilt in managerial appointments is related to CEOs' formative experiences shaping gender attitudes. The effect of CEOs' formative years on managerial appointments is captured by the interaction terms of the CEOs' gender imbalance indexes with the indicator *Female division manager*. This interaction term is consistently negative, suggesting that a CEO's exposure to formative experiences linked to less egalitarian gender norms is associated with a lower probability of female appointments to capital-rich divisions. This effect is statistically significant for the CEOs' family and education characteristics (columns 2–3), but insignificant at conventional levels for community factors.

Columns 5–8 in Table 7, Panel A test for similar effects in the appointment of women to larger divisions. The dependent variable in this setting is division size (book assets) in the year preceding the appointment. The evidence on female appointments to larger divisions is statistically weaker. While we observe directionally similar relations that CEOs' exposure to gender inequality during formative years is

negatively associated with the likelihood of appointing female managers to larger divisions, these relations fall short of being statistically significant (t -statistics = 0.58 to 1.11).

Panel B studies the determinants of managerial appointments to more profitable divisions (measured by the ratio of the division's net income to book assets, columns 1–4) and core divisions of the firm (columns 5–8). The evidence suggests that CEOs' exposure to gender imbalances is negatively related to the likelihood of appointing female managers to more profitable divisions and to core divisions of the firm. For both division characteristics, these effects are stronger for CEOs' family and education attributes (columns 2–3 and 6–7), whose interaction terms are significant at least at 10% across all specifications.

Our specification in Table 7 is based on the assumption that the appointments of division managers are based on divisions' historical characteristics. It is also possible that managerial appointments incorporate forward-looking information about divisions. For example, male managers may be appointed to divisions that are expected to receive more capital in the future. In this case, our estimates of the appointment channel likely represent a lower bound for its economic importance.

In summary, the appointment channel is operative in our setting. CEOs with exposure to gender imbalances in their formative years are less likely to appoint female managers to important and capital-rich divisions, as proxied by divisions' profitability, historical capital allocations, and core status within the firm.

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 but the CEO's gender attitudes experience a shock as a result of the CEO turnover.

Table 8, Panel A 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. This specification mitigates the effect of omitted characteristics correlated with a division manager's gender. To the extent that these characteristics—such as intellect, risk aversion, and leadership—remain constant shortly after the CEO turnover, this approach captures the effect of a change in the CEO's gender attitudes while controlling for all time-invariant attributes of division managers. To minimize the 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).

An increase in a CEO's exposure to gender imbalances during formative years is associated with lower capital allocations to female managers. This result is statistically significant for all indexes of gender imbalances at least at 10%, despite the small sample size due to a short window around CEO turnovers. Since the division managers remain unchanged and the new CEO is unlikely to have influenced the appointment of the division managers (which occurred well before the new CEO's arrival), these results indicate that the CEO's gender attitudes affect capital allocation over and above 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 early-life exposure to experiences linked to less egalitarian gender attitudes is associated with lower capital allocations to female managers. Since this research design accounts for the effect of division managers' characteristics which remain constant around CEO changes, it demonstrates that the gender gap in capital allocations is unlikely to be explained by unobservable characteristics of division managers correlated with gender.

6.3. CEO style or endogenous CEO-firm matching?

This subsection discusses the mechanism that underlies the association between the CEO's gender attitudes and the firm's capital budgeting policies. 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 endogenous matching of CEOs to firms and the matching of managers to divisions.

The first issue—simultaneity—refers to the possibility that the firm's policies affects a CEO's gender attitudes. Our research design shuts down this channel by using early-life experiences as a source of variation in CEOs' gender attitudes. Because these experiences long predate the CEO's tenure at the firm, we rely on the component of the CEO's preferences free from the influence of firm policies.

The second issue—omitted variables—may arise because a missing variable could drive the gap in capital allocations between male and female managers, while being correlated with CEOs' characteristics. If so, the correlation between measures of CEOs' preferences and firm outcomes is explained by the endogenous matching between CEOs and firms on some omitted characteristic that drives both CEO selection and firm outcomes. For example, suppose that firms headquartered in more conservative states

tend to have less female-friendly policies, and CEOs with more conservative gender attitudes are more likely to join firms located in conservative states. In this case, the observed correlation between CEOs' gender attitudes and lower capital allocations to female managers would be explained by the endogenous matching of CEOs to firms based on an omitted firm characteristic—namely, geographic location. Similar arguments can be made for the endogenous matching of CEOs to firms based on other characteristics, such as the firm's industry. For example, CEOs with more conservative gender attitudes may choose to join firms in male-dominated industries with greater gender gaps.

We address the omitted variable concern in several ways. First, we include firm fixed effects in all of the main specifications. This approach relies exclusively on within-firm variation in CEOs for identification, while holding constant all time-invariant firm-level factors. 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. Second, we provide evidence from CEO turnovers that demonstrates that a change in the CEO's characteristics produces a significant shift in capital allocations between male and female division managers precisely in the direction predicted by the CEO's formative experiences. The evidence from CEO turnovers sets a high bar for a potential omitted variable. In particular, such a variable has to operate precisely at the time of CEO turnovers, shift the capital allocations to male and female division managers in the ways predicted by CEOs' formative experiences, and be economically unrelated to such formative experiences.

Yet, CEO turnovers are not random events. Instead, boards of directors hire and replace CEOs with an intent to change firm policies. For example, it is possible that the board of directors decides to replace the CEO, at least in part, because of his unsatisfactory gender policies that introduce frictions or increase the likelihood of litigation. In such a case, the board may selectively search for a new CEO with more egalitarian gender views in order to increase gender equity in the firm. This scenario is consistent with our interpretation that the gender gap in resource allocations is related to the CEO's gender attitudes. In other words, in order to change a firm's gender policies, a CEO with stereotypical gender attitudes must be replaced by the one with more egalitarian views.

To refine the interpretation of the evidence and shut down any omitted variables that might be correlated with CEO replacements, our next analysis keeps the CEO constant and exploits a series of shocks

to the gender of division managers induced by their turnover. This test has two advantages. First, isolated turnover events of division managers are relatively routine occurrences, which are unlikely to represent an overall shift in corporate strategy. Second, in contrast to CEO replacements, which are determined by the board, the replacements of division managers are determined by the CEO. Thus, this test allows us to keep constant the endogenous CEO-firm match and separate the role of the CEO from that of the board.

Table 8, Panel B studies how a division's capital allocation changes when a male division manager replaces a female one or vice versa, while the CEO remains constant. This table shows first-difference regressions where the dependent variable is the annual change in the division's CapEx for division-year observations that experience a switch in the division manager's gender. To minimize any changes in the divisions' characteristics, we focus on a short window around the turnover of division managers and compare the last capital allocation to the departing manager (the year before the departure) with the first capital allocation to the arriving manager (the year after the arrival) within the same division.

We find that when a female manager replaces a male one in a given division, it receives less capital if the CEO grew up in an environment with greater gender imbalances. This effect is directionally consistent for all measures of the CEO's formative experiences, as shown by the negative coefficients on the interaction terms $\Delta Female\ division\ manager \times CEO\ indexes$. This result is statistically significant at 5% for the family and education indexes but falls short of significance for the community index (t -statistic = 1.499).

In summary, CEOs' gender attitudes play an important role in the allocation of capital to male and female managers, but this evidence is not causal. Our focus on CEOs' early-life experiences speaks against reverse causality, a scenario in which firm policies affect CEOs' gender attitudes. The evidence from CEO turnovers shows that a change in a CEO's gender attitudes is associated with quick and significant changes in capital allocations to male and female managers, while the characteristics of division managers are unchanged. The evidence from the turnover of division managers shows that CEOs with conservative backgrounds allocate less capital to the same division when a female manager replaces a male one. Since the CEO remains unchanged around the turnover of division managers, this approach allows us to keep constant the CEO-firm match. Overall, our results are more consistent with prior evidence that CEOs' attributes influence firm outcomes (e.g., Bennedsen, Nielsen, Pérez-González, and Wolfenzon 2007; Malmendier and Tate 2008; Cronqvist, Makhija, and Yonker 2012; Jenter and Lewellen 2015).

7. Governance, investment efficiency, and value

This section studies the association between the role of CEOs' formative experiences in capital budgeting and firm outcomes. Our goal is to understand whether the link between the CEO's gender attitudes 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, we study the associations rather seek to provide causal inferences.

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 significant monitoring authority acts as a powerful control mechanism. Adams and Ferreira (2009) find that female directors allocate more effort to monitoring, and their presence increases the CEO's accountability (turnover-performance sensitivity) and the attendance of other directors. Consistent with stronger governance, the appointment of female directors is positively related to audit quality (Lai et al. 2017) and generates positive announcement returns (Campbell and Minguez-Vera 2010; Kang et al. 2010). Adams, Gray, and Nowland (2012) find that the announcement return to the appointment of female directors is 2% higher than for male directors with similar qualifications and experience, and these effects are larger for firms that stand to benefit the most from more equitable gender policies.

Table 9, Panel A studies whether the relation between CEOs' formative experiences and capital allocations to female managers varies in the presence of female leadership on the board of directors. To test this effect, we introduce a binary indicator *Female board chair* and interact it with the indexes of CEOs' formative experiences. The dependent variable is the capital allocation to a division, and the main variable of interest is the triple interaction term *Female division manager* \times *CEO index* \times *Female board chair*. 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. As in prior specifications with triple

interaction terms, we report the coefficients on the main variables of interest and list the unreported variables and their interaction terms in the table legend.

Table 9, 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, is consistent across all measures of CEOs' formative experiences. According to column 1, the effect of CEOs' family factors on capital allocations is reduced by 40% 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* \times *CEO family index* (coefficient = -0.005) and *Female division manager* \times *CEO family index* \times *Female board chair* (coefficient = 0.002). The attenuation effects are comparable for CEOs' education and community factors (29% and 33%, respectively), as shown in columns 2–3.

These results are consistent with recent evidence in other settings. Tate and Yang (2015) show that the gender gap in pay between male and female employees shrinks when the same workers move from a male-led to a female-led plant after an exogenous shock. Gompers and Wang (2017) find that the presence of women in a monitoring capacity as senior venture capital partners narrows the gender gap in capital investment and hiring decisions, resulting in better performance outcomes.

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) places the model in a general equilibrium framework and shows that if managerial preferences impose costs on the firm, this behavior will be driven out in perfectly competitive markets.

Empirical work confirms that competition limits inefficient management behavior (Bloom and van Reenen 2007) and improves investment productivity (e.g., Nickell 1996; Aghion et al. 2009). Using a staggered passage of business combination laws, Giroud and Mueller (2010) find that competition cuts managerial slack and serves as an alternative control mechanism when a firm's internal governance is weak.

Table 9, 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* \times *CEO index* \times *HHI* are consistently negative for all measures of formative experiences, suggesting that female managers obtain fewer resources from CEO with conservative gender attitudes when their firms operate in less competitive industries (high HHI). These estimates are significant at 10% for two of the three indexes of CEOs' formative years: family and education.

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 10 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, using industry Q as a proxy for the marginal product of capital in a division. If the gender gap in capital allocations reflects optimal redistributions of capital to its most productive use, it should be associated with higher investment efficiency, as in the models of efficient redistribution across divisions (e.g., Stein 1997). If, on the other hand, the effect of CEOs' gender attitudes reflects personal preferences, it will introduce frictions in the internal capital market 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 10 shows that the effect of CEOs' gender attitudes 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 term 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, but fall short of being statistically significant for community variables. Overall, the evidence in this table suggests that the effect of a division manager's gender on investment allocations introduces frictions in capital budgeting and reduces the sensitivity of investment to its marginal product.

Table 11 tests how the effect of CEOs' gender attitudes on capital investment decisions is associated with three firm outcomes: operating performance, Tobin's Q, and stock returns. In columns 1–3, the dependent variable is firm-level return on assets (ROA). In columns 4–6, the dependent variable is

firm-level Tobin's Q, which approximates the ratio of the firm's market value to its book value. In columns 7–9, the dependent variable is the one-year market-adjusted return on the company's stock. The unit of analysis is a firm-year pair, and all regressions include year and firm fixed effects.

The results in Table 11 indicate that firms led by CEOs who grew up in environments with greater gender imbalances generate weaker performance. Since these regressions include firm fixed effects, this pattern is driven entirely by the variation in CEOs' characteristics for the same firm. In other words, a given firm appears to perform worse when it is managed by a CEO with less egalitarian gender attitudes. These effects are statistically significant at 5% for family-related gender experiences across all specifications and have meaningful economic effects. For example, an increase of 0.5 (equivalent to a move from the 25th to the 75th percentile) in the index of exposure to gender imbalances within the family is associated with a 15 bps (or 3.5%) decline in ROA and a 0.066 decline in Tobin's Q. The effects of education-based experiences are directionally similar, with comparable point estimates. In contrast, the relation between exposure to gender imbalances in the community and firm outcomes is statistically and economically weak, consistent with our prior evidence that the effect of community characteristics is less economically important.

The evidence in Table 11 indicates that the effect of CEOs' gender attitudes on capital budgeting does not appear to be value-improving. This result parallels the evidence in prior work that CEOs' personal attitudes and formative experiences may introduce frictions in important and easy-to-observe corporate policies, such as mergers and acquisitions (Malmendier, Tate, Yan 2011) and capital structure (Cronqvist, Makhija, and Yonker 2012).

In summary, the relation between CEOs' early-life exposure to gender diversity and capital allocations weakens when women are present in the top monitoring role and when industry competition is more intense. The effect of a division manager's gender on capital allocations over and above the effect of economic fundamentals is associated with lower investment efficiency and weaker performance. Overall, CEOs' gender attitudes introduce subjective tilts in investment which do not appear to be value-improving.

8. Conclusion

This article studies the origins and real effects of the gender gap in resource allocations between male and female agents in the internal capital markets of U.S. conglomerates. We find that male managers obtain more investment capital than female managers in the same divisions of the same firm. Our evidence suggests that the gender gap in resource allocations reflects the decision maker's personal gender attitudes, whose origins can be traced to one's formative years. When such personal attitudes influence the allocation of capital over and above the effect of economic factors, they introduce frictions in investment decisions.

Recent work suggests that our findings may extend to other economic settings. In contemporaneous work on venture capital firms, Gompers and Wang (2017) find that a decision maker's parenting of daughters leads to an increased propensity to hire female partners, resulting in better performance outcomes. The authors conclude that a gender bias in venture capital introduces value-reducing frictions even when the decision makers are financial experts with strong performance incentives.

Other evidence suggests that similar effects influence the allocation of resources at the macro level by affecting national legislation and federal courts. Washington (2008) finds that U.S. Congressmen's exposure to gender diversity via parenting daughters increases their propensity to support policies on women's rights. Glynn and Sen (2015) show that Federal Court judges with more daughters are more likely to support women's issues in their case decisions.

Taken together, this evidence underscores the importance of an agent's familial factors for decision-making across a variety of contexts with profound economic implications. In financial economics, we know very little about the personal backgrounds of the key decision makers at U.S. firms. In complement to prior work that has focused on the role of one familial factor, such as parenting daughters, we consider an extended set of formative experiences and evaluate their relative importance. Our paper makes a 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 financial decisions.

References

- Adams, R., Ferreira, D., 2009. Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics* 94, 291–309.
- Adams, R., Gray, S., Nowland, J., 2012. Does gender matter in the boardroom? Evidence from the market reaction to mandatory new director announcements. Working paper.
- Adams, R., Keloharju, M., Knüpfer, S., 2018. Are CEOs born leaders? Lessons from traits of a million individuals. *Journal of Financial Economics*, forthcoming.
- Adams, R., Kirchmaier, T., 2016. Women on boards in finance and STEM industries. *American Economic Review* 106, 277–281.
- Aghion, P., Blundell, R., Griffith, R., Howitt, P., Prantl, S., 2009. The effects of entry on incumbent innovation and productivity. *Review of Economics and Statistics* 91, 20–32.
- Arrow, K., 1973. The theory of discrimination. In *Discrimination in Labor Markets*, edited by Orley Ashenfelter and Albert Rees. Princeton, N.J.: Princeton Univ. Press.
- Alesina A., Giuliano P., Nunn N., 2013. On the origins of gender roles: Women and the plough. *Quarterly Journal of Economics* 128, 469–530.
- Ahern, K., Sosyura, D., 2015. Rumor has it: Sensationalism in financial media. *Review of Financial Studies* 28, 2050–2093.
- Allport, G., 1954. *The Nature of Prejudice*. Reading: Addison-Wesley.
- Bandura, A., 1977. *Social learning theory*. Englewood Cliffs, NJ: PrenticeHall.
- Bandura, A., 1986. *Social foundations of thought and action: A social–cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bennedsen, M., Nielsen, K., Pérez-González, F., Wolfenzon, D., 2007. Inside the family firm: The role of families in succession decisions and performance. *Quarterly Journal of Economics* 122, 647–691.
- Bennedsen, M., Pérez-González, F., Wolfenzon, D., 2017. Do CEOs matter? Evidence from CEO hospitalization events. *Journal of Finance*, forthcoming.
- Bertrand, M., 2010. New perspectives on gender. In: Ashenfelter, O., Layard, R. (Eds.), *Handbook of Labor Economics*, North Holland, Amsterdam, 1545–1592.
- Bigler, R., Liben, L., 2006. A developmental intergroup theory of social stereotypes and prejudice. *Advances in Child Development and Behavior* 34, 39–89.
- Bigler, R., Liben, L., 2007. Developmental intergroup theory: Explaining and reducing children’s stereotyping and prejudice. *Current Directions in Psychological Science* 16, 162–166.
- Becker, G., 1957. *The economics of discrimination*. 2nd ed. Chicago: University of Chicago Press.
- Benmelech, E., Frydman, C., 2015. Military CEOs. *Journal of Financial Economics* 117, 43–59.
- Bernile, G., Bhagwat, V., Rau, R., 2017. What doesn’t kill you will only make you more risk-loving: Early-life disasters and CEO behavior. *Journal of Finance* 72, 167–206.
- Bloom, N., van Reenen, J., 2007. Measuring and explaining management practices across firms and countries. *Quarterly Journal of Economics* 122, 1351–1408.
- Bourlès, R., Cette, G., Lopez, J., Mairesse, J., Nicoletti, G., 2013. Do product market regulations in upstream sectors curb productivity growth? Panel data evidence for OECD countries. *Review of Economics and Statistics* 95, 1750–1768.
- Brutsaert, H., 2006. Gender-role identity and perceived peer group acceptance among early adolescents in Belgian mixed and single-sex schools. *Gender and Education* 18, 635–649.
- Bussey, K., Bandura, A., 1999. Social–cognitive theory of gender development and differentiation. *Psychological Review* 106, 676–713.
- Campbell, K., Minguez-Vera, A., 2010. Female board appointments and firm valuation: Short and long-term effects. *Journal of Management and Governance* 14, 37–59.
- Chatterji, A., Levine, D., Toffel, M., 2009. How well do social ratings actually measure corporate social responsibility? *Journal of Economics & Management Strategy* 18, 125–169.
- Cheng, I., Hong, H., Shue, K., 2016. Do managers do good with other people’s money? Working paper.

- Chetty, R., Friedman, J., Hilger, N., Saez, E., Schanzenbach, D., Yagan, D., 2011. How does your kindergarten classroom affect your earnings? Evidence from Project STAR. *Quarterly Journal of Economics* 126, 1593–1660.
- Chuprinin, O., Sosyura, D., 2018. Family descent as a signal of managerial quality: Evidence from mutual funds. *Review of Financial Studies*, forthcoming.
- Cordua, G., McGraw, K., and Drabman, R., 1979. Doctor or nurse: Children's perception of sex typed occupations. *Child Development* 50, 590–593.
- Cronqvist, H., Makhija, A., Yonker, S., 2012. Behavioral consistency in corporate finance: CEO personal and corporate leverage. *Journal of Financial Economics* 103, 20–40.
- Cronqvist, H., Yu, F., 2017. Shaped by their daughters: Executives, female socialization, and corporate social responsibility. *Journal of Financial Economics* 126, 543–562.
- Dahl, M., Dezsó, C., Ross, D., 2012. Fatherhood and managerial style: How a male CEO's children affect the wages of his employees. *Administrative Science Quarterly* 57, 669–693.
- Dahl, G., Kotsadam, A., Rooth, D., 2018. Does integration change gender attitudes? The effect of randomly assigning women to traditionally male teams. Working paper.
- Delamont, S., 1990. Sex roles and the school, London: Routledge.
- Denis, D., Denis, D., Yost, K. 2002. Global diversification, industrial diversification, and firm value. *Journal of Finance* 57, 1951–1980.
- Di Giuli, A., Kostovetsky, L., 2014. Are red or blue companies more likely to go green? Politics and corporate social responsibility. *Journal of Financial Economics* 111, 158–180.
- Duchin, R., Goldberg, A., Sosyura, D., 2017. Spillovers inside conglomerates: Incentives and capital. *Review of Financial Studies* 30, 1696–1743.
- Duchin, R., Sosyura, D., 2013. Divisional managers and internal capital markets. *Journal of Finance* 68, 387–429.
- Epstein, M., Ward, L., 2011. Exploring parent-adolescent communication about gender: Results from adolescent and emerging adult samples. *Sex Roles* 65, 108–118.
- Fernández, R., Fogli, A., Olivetti, C., 2004. Mothers and sons: Preference formation and female labor force dynamics. *Quarterly Journal of Economics* 119, 1249–1299.
- Fortin, N., 2005. Gender role attitudes and the labor-market outcomes of women across OECD countries. *Oxford Review of Economic Policy* 21, 416–438.
- Giroud, X., Mueller, H., 2010. Does corporate governance matter in competitive industries? *Journal of Financial Economics* 95, 312–331.
- Glynn, A., Sen, M., 2015. Identifying judicial empathy: Does having daughters cause judges to rule for women's issues? *American Journal of Political Science* 59, 37–54.
- Gompers, P., Wang, S., 2017. And the children shall lead: Gender diversity and performance in venture capital. Working paper.
- Gold, D., Andres, D., 1978. Developmental comparisons between ten-year-old children with employed and nonemployed mothers. *Child Development* 49, 75–84.
- Graham, J., Harvey, C., Puri, M., 2013. Managerial attitudes and corporate actions. *Journal of Financial Economics* 109, 103–21.
- Graham, J., Harvey, C., Puri, M. 2015. Capital allocation and delegation of decision-making authority within firms. *Journal of Financial Economics* 115, 449–470.
- Graham, J., Narasimhan, K., 2005, Corporate survival and managerial experiences during the Great Depression. Working paper.
- Halpern, H., Perry-Jenkins, M., 2016. Parents' gender ideology and gendered behavior as predictors of children's gender-role attitudes: A longitudinal exploration. *Sex Roles* 74, 527–542.
- Heilman, M., Block, C., Martell, R., 1995. Sex stereotypes: Do they influence perceptions of managers? *Journal of Social Behavior and Personality* 10, 237–52.
- Herzog, A., Bachman, J., 1982. Sex role attitudes among high school seniors: Views about work and family roles. University of Michigan, Institute for Social Research, Ann Arbor, MI.

- Huston, A., Alvarez, M., 1990. The socialization context of gender role development in early adolescence. In R. Montemayor, G. R. Adams, and T. P. Gullotta (Eds.), *From childhood to adolescence: A transitional period?* (pp. 156–179). Newbury Park, CA: Sage.
- Jenter, D., Lewellen, K., 2015. CEO preferences and acquisitions. *Journal of Finance* 70, 2813–2852.
- Kang, E., Ding, D., Chareonwong, C., 2010. Investor reaction to women directors. *Journal of Business Research* 63, 888–894.
- Kaplan, S., Sorensen, M., 2017. Are CEOs different? Characteristics of top managers. Working paper.
- Lai, K., Srinidhi, B., Gul, F., Tsui, J., 2017. Board gender diversity, auditor fees, and auditor choice. *Contemporary Accounting Research* 34, 1681–1714.
- Leve, L., Fagot, B., 1997. Gender-role socialization and discipline processes in one- and two-parent families. *Sex Roles* 36, 1–21.
- Lerner, J., 1994. Maternal employment and children's socioemotional development. In J. V. Lerner (Ed.), *Working women and their families* (pp. 54–86). Thousand Oaks, CA: Sage.
- Levy, G., 1989. Relations among aspects of children's social environments, gender schematization, gender role knowledge, and flexibility. *Sex Roles* 21, 803–823.
- Liu, C., Yermack, D., 2012. Where are the shareholders' mansions? CEOs' home purchases, stock sales, and subsequent company performance. In Boubaker, Nguyen and Nguyen (Eds.). *Corporate governance: Recent developments and new trends*, Springer-Verlag.
- Malmendier, U., Tate, G., 2008. Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics* 89, 20–43.
- Malmendier, U., Tate, G., Yan, J., 2011. Overconfidence and early-life experiences: The effect of managerial traits on corporate financial policies. *Journal of Finance* 66, 1687–1733.
- Martin C., Ruble, D. Szkrybalo, J., 2002. Cognitive theories of early gender development. *Psychological Bulletin* 128, 903–933.
- Martin, P., Withersosmond, M., Hesselbart, S., Wood, M., 1980. The significance of gender as a social and demographic correlate of sex role attitudes. *Sociological Focus* 13, 383–396.
- Mason, K., Czajka, J., Arber, S., 1976. Change in U.S. women's sex-role attitudes, 1964–1974. *American Sociological Review* 41, 573–596.
- McCrae, R., Costa, P., 1994. The stability of personality: Observations and evaluations. *Current Directions in Psychological Science* 3, 173–175.
- Mischel, W., 1966. A social-learning view of sex differences in behavior. In: Maccoby E.E., Ed. *The development of sex differences*. Stanford University Press, Stanford, 57–81.
- Newton, D., Simutin, M., 2014. Of age, sex, and money: Insights from corporate officer compensation on the wage inequality between genders. *Management Science* 61, 2355–2375.
- Nickell, S., 1996. Competition and corporate performance. *Journal of Political Economy* 104, 724–746.
- Ozbas, O., Scharfstein, D., 2010. Evidence on the dark side of internal capital markets. *Review of Financial Studies* 23, 581–599.
- Pool, V., Stoffman, N., Yonker, S., 2012. No place like home: Familiarity in mutual fund manager portfolio choice. *Review of Financial Studies* 25, 2563–2599.
- Rajan, R., Servaes, H., Zingales, L., 2000. The cost of diversity: The diversification discount and inefficient investment. *Journal of Finance* 55, 35–80.
- Roberts, B., DelVecchio, W., 2000. The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin* 126, 3–25.
- Ruggles, S., Genadek, K., Goeken, R., Grover, J., Sobek, M., 2017. *Integrated Public Use Microdata Series: Version 7*. Minneapolis, MN: University of Minnesota, 2017.
- Scharfstein, D., Stein, J., 2000. The dark side of internal capital markets: Division rent-seeking and inefficient investment. *Journal of Finance* 55, 2537–2564.
- Shafer, E., Malhotra, N., 2011. The effect of a child's sex on support for traditional gender roles. *Social Forces* 90, 209–222.
- Shin, H., Stulz, R. 1998. Are internal capital markets efficient? *Quarterly Journal of Economics* 113, 531–52.

- Servaes, H., 1996. The value of diversification during the conglomerate merger wave. *Journal of Finance* 51, 1201–1225.
- Stein, J. 1997. Internal capital markets and the competition for corporate resources. *Journal of Finance* 52, 111–133.
- Swim, J., Sanna, L., 1996. He's skilled, she's lucky: A meta-analysis of observer's attributions for women's and men's successes and failures. *Personality & Social Psychology Bulletin* 22, 507–19.
- Tate, G., Yang, L., 2015. Female leadership and gender equity: Evidence from plant closure. *Journal of Financial Economics* 117, 77–97.
- Thornton, A., Alwin, D., Camburn, D. 1983. Causes and consequences of sex-role attitudes and attitude change. *American Sociological Review* 48, 211–227.
- Vanfossen, B., 1977. Sexual stratification and sex role socialization. *Journal of Marriage and the Family* 39, 563–574.
- Warner, R., 1991. Does the sex of your children matter? Support for feminism among women and men in the United States and Canada. *Journal of Marriage and the Family* 53, 1051–1056.
- Warner, R., Steel, B., 1999. Child rearing as a mechanism for social change: The relationship of child gender to parents' commitment to gender equity. *Gender and Society* 13, 503–517.
- Washington, E., 2008. Female socialization: How daughters affect their legislator fathers' voting on women's issues. *American Economic Review* 98, 311–332.
- Weinraub, M., Clemens, L., Sockloff, A., Ethridge, R., Gracely, E., and Myers, B., 1984. The development of sex role stereotypes in the third year: Relationships to gender labeling, gender identity, sex-typed toy preferences, and family characteristics. *Child Development* 55, 1493–1503.
- Xuan, Y., 2009. Empire-building or bridge-building? Evidence from new CEOs' internal capital allocation decisions. *Review of Financial Studies* 22, 4919–4948.
- Yermack, D., 2014. Tailspotting: Identifying and profiting from CEO vacation trips. *Journal of Financial Economics* 113, 252–269.

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

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

HHI = 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) at the beginning of the year.

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).

Number of divisions = The number of the conglomerate's business segments reported on Compustat.

A.2. Divisions

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

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

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

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

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.

A.3. CEOs

Age = Manager's age in years.

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

Graduate degree indicator = 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 based on nonprofits, education, and prior employment.

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

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

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

MBA indicator = 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. 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 profitability of divisions run by the manager in previous years.

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*.

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

Working mother = An indicator equal to 1 if the CEO's mother worked outside the house and 0 otherwise.

Mother income = The annual income in dollars of the CEO's mother.

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

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 the number of children.

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.

Fraction of females in student body = The average ratio of female 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 (1960 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 (1960 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 gap between employed males and females = The difference between *Income for employed males* and *Income for employed females*.

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*.

Unemployment rate, males = The unemployment rate 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.

Unemployment rate, females = The unemployment rate 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.

Employment gender imbalance = The difference between *Unemployment rate, males* and *Unemployment rate, females*.

A.6.4. Gender imbalance indexes

Family gender imbalance index = The average between the percentile rankings of each CEO's *Working mother* (the percentile ranking is computed for the negative of this variable), *Parents' education imbalance*, and *Children's gender imbalance* values in the sample, scaled to lie between 0 and 1. The aggregation of the percentile rankings is done such that greater values of the index indicate exposure to more gender inequity.

Education gender imbalance index = The average between the percentile rankings of each CEO's *All-male high school indicator* and *Fraction of females in student body* (the percentile ranking is computed for the negative of this variable) values in the sample, scaled to lie between 0 and 1. 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.

Community gender imbalance index = The average between the percentile rankings of each CEO's *Labor force participation gender imbalance*, *Income gap between employed males and females*, and *Education gender imbalance* values in the sample, scaled to lie between 0 and 1. The aggregation of the percentile rankings is done such that greater values of the index indicate exposure to more gender inequity.

Gender imbalance index = The arithmetic average of each CEOs' three indexes: *Family gender imbalance index*, *Education gender imbalance index*, and *Community gender imbalance index*.

Appendix B: Sample Construction and Characteristics

This appendix lists our sample selection criteria and compares our sample to the rest of conglomerates in the S&P 1500.

APPENDIX TABLE B.1
Sample Construction and Characteristics

This table describes the construction of the main sample, which 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. The sample period is from January 2000 to December 2008. Panel A shows sample selection criteria and provides the number of firms screened out by each sample filter. Panel B compares the characteristics of firms in the main sample with the characteristics of all other industrial conglomerates in the S&P 1500 index that are excluded by sample filters. The values reported are time-series averages over the sample period. In Panel B, statistical significance levels for the test of the difference in means are indicated as follows: *=10%, **=5%, ***=1%.

Panel A: Sample Construction

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

Panel B: Comparison of Sample Characteristics

Variable	Our sample	Other S&P 1500 conglomerates	Difference	t-statistic
Earnings per share (EPS)	1.764	1.728	0.036	0.335
Stock return	0.069	0.058	0.011	0.892
Cash holdings	0.108	0.108	0.001	0.182
Profitability	0.044	0.042	0.002	0.390
Capital expenditures	0.041	0.040	0.001	1.108
Market-to-book	1.854	1.820	0.034	1.182
Size (log assets)	8.605	8.260	0.345***	7.041

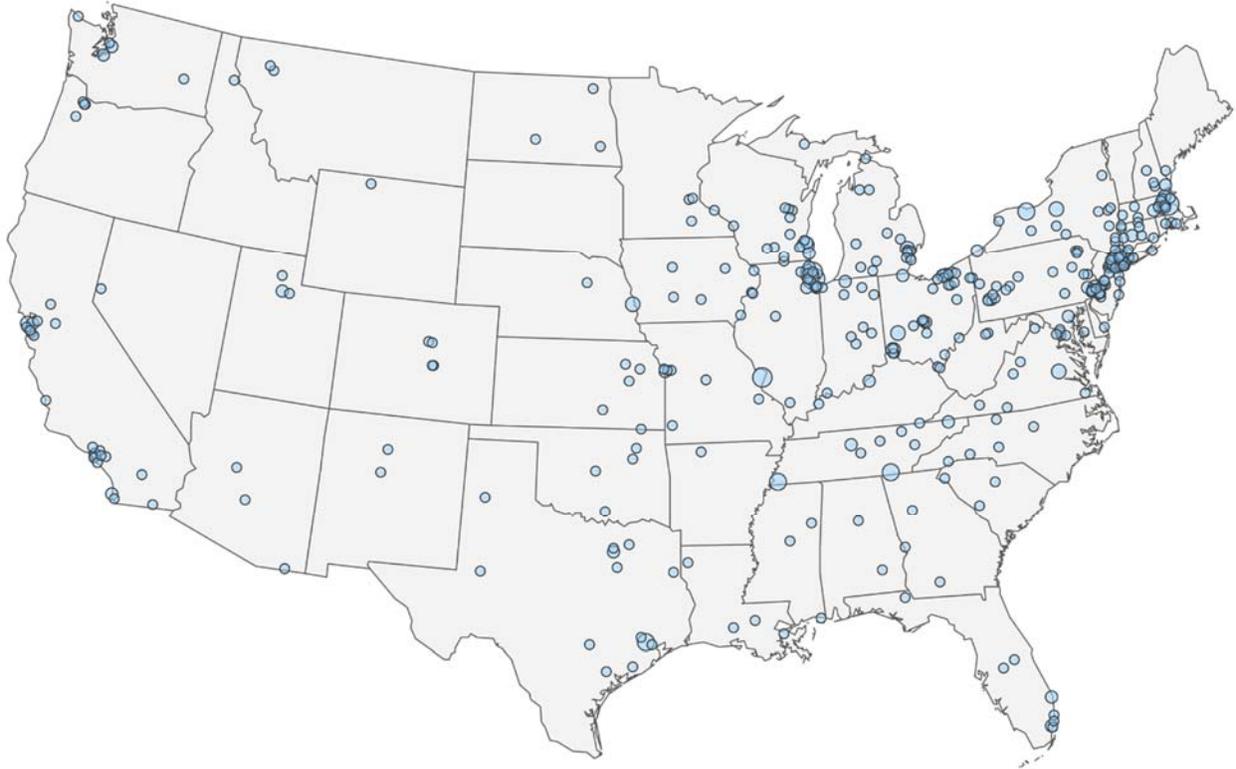


Figure 1
CEOs' home communities

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.

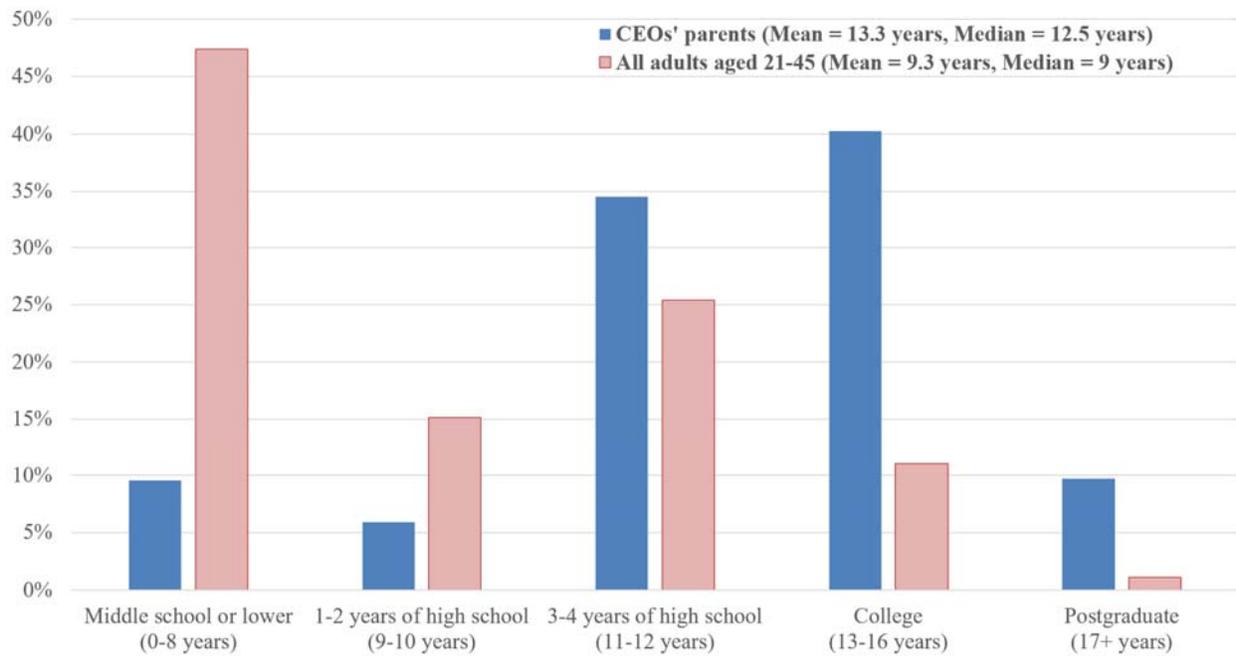


Figure 2
Education attainment of CEOs' parents and the general population

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.

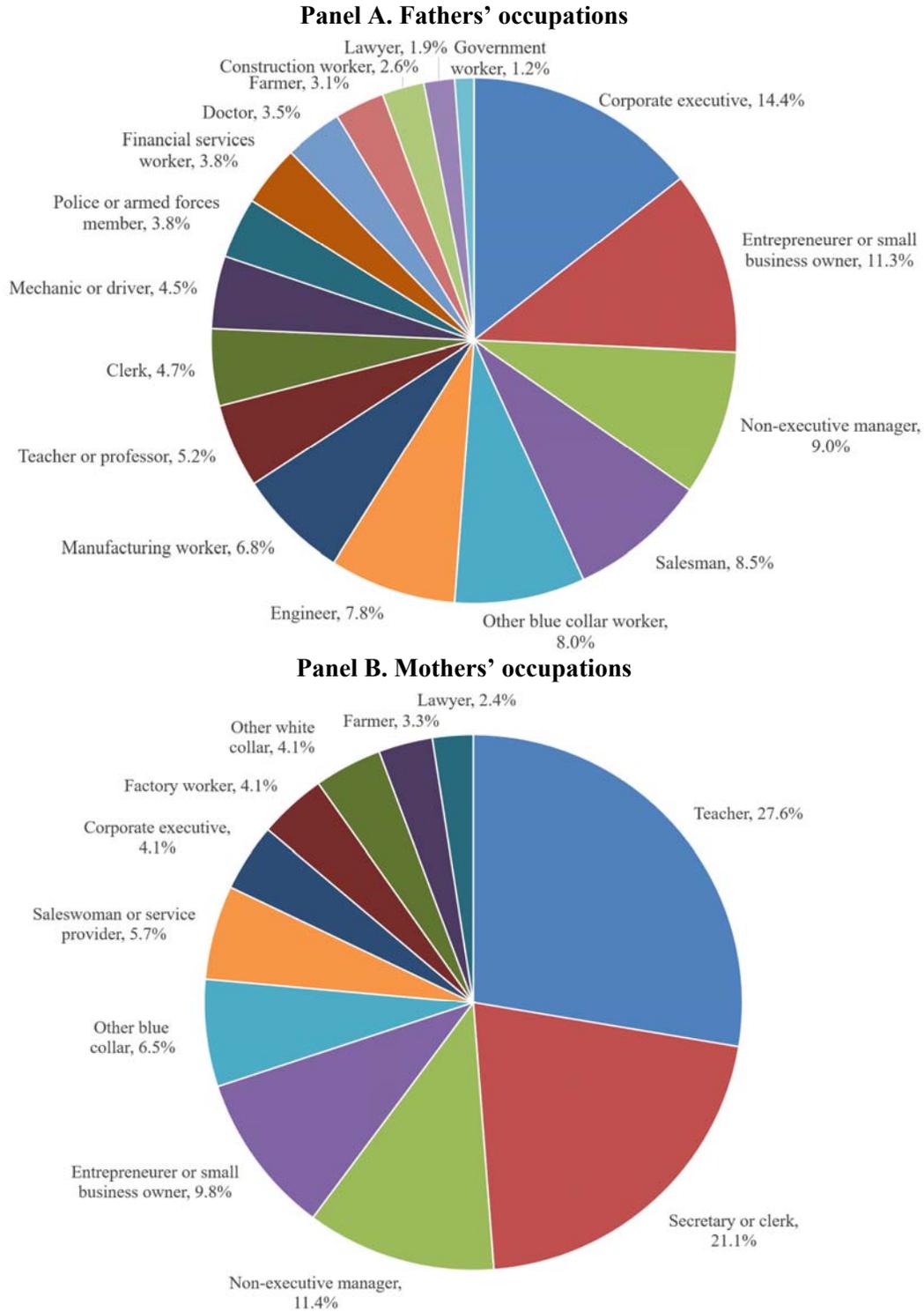


Figure 3
Professional occupations of CEOs' parents

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.

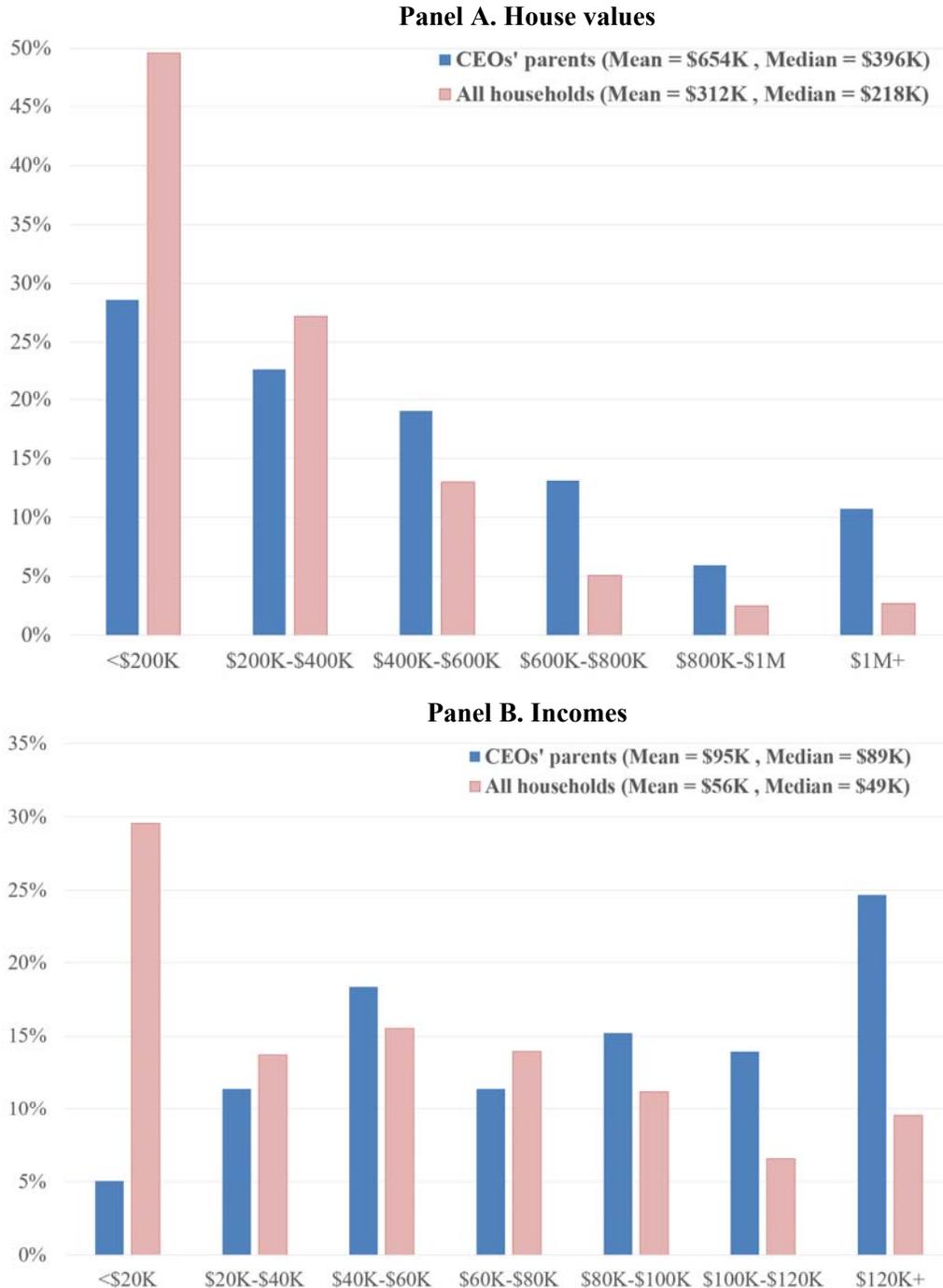


Figure 4
House values and incomes of CEOs' parents and the general population

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.

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 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
Firms					
Market value, \$ mil.	14,914	1,203	3,474	11,064	38,867
Book assets, \$ mil.	13,548	1,545	3,626	10,480	50,751
Sales, \$ mil.	7,988	1,461	3,448	8,871	10,377
Capital expenditure, \$ mil.	487.3	44.90	123.4	360.0	1,294
Capital expenditure/assets	0.042	0.022	0.033	0.051	0.033
Number of divisions	3.100	2.000	3.000	4.000	1.284
Earnings per share (EPS), \$	1.663	0.612	1.591	2.879	3.231
Return on assets (ROA)	0.043	0.020	0.053	0.087	0.113
Tobin's Q	1.858	1.273	1.598	2.105	0.913
Industry Herfindahl-Hirschman index (HHI)	0.221	0.157	0.193	0.251	0.152
Divisions					
Book assets, \$ mil.	3,198	284.0	856.0	2,440	14,939
Sales, \$ mil.	3,176	382.2	1,117	2,952	6,963
Capital expenditure, \$ mil.	147.2	7.991	31.20	100.0	588.5
Capital expenditure/assets	0.051	0.019	0.037	0.064	0.056
Profitability	0.147	0.070	0.128	0.206	0.163
Industry Tobin's Q	1.593	1.245	1.480	1.845	0.475
Core division indicator	0.545	0.000	1.000	1.000	0.498

Panel B: CEOs, Directors, and Division Managers

Variable	Mean	25th percentile	Median	75th percentile	Standard deviation
CEOs					
Age	55.91	51.00	56.00	60.00	6.510
Male indicator	1.000	1.000	1.000	1.000	0.000
Tenure with the firm	14.53	5.099	11.61	18.08	10.84
Graduate degree indicator	0.617	0.000	1.000	1.000	0.486
MBA indicator	0.413	0.000	0.000	1.000	0.492
External board seats	2.172	1.000	2.000	3.000	1.268
Directors					
Board size	9.663	8.000	10.00	11.00	2.919
Number of female directors	1.267	1.000	1.000	2.000	0.934
Fraction of female directors	0.123	0.077	0.111	0.182	0.090
Female board chair indicator	0.084	0.000	0.000	0.000	0.277
Division managers					
Age	50.57	48.00	50.36	54.00	5.544
Male indicator	0.924	1.000	1.000	1.000	0.265
Tenure with the firm	10.78	3.000	8.000	16.00	9.754
Graduate degree indicator	0.787	1.000	1.000	1.000	0.410
MBA indicator	0.390	0.000	0.000	1.000	0.487
External board seats	0.216	0.000	0.000	0.000	0.412
Social connections to CEO	0.005	-0.158	0.000	0.138	0.337
Performance record (division profitability)	0.151	0.070	0.127	0.205	0.265

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)	13.544	12.000	14.000	16.000	3.250
Father attended college, indicator	0.559	0.000	1.000	1.000	0.497
Mother education (years)	12.945	12.000	12.000	16.000	2.641
Mother attended college, indicator	0.431	0.000	0.000	1.000	0.496
Father white-collar job, indicator	0.711	0.000	1.000	1.000	0.454
Working mother, indicator	0.211	0.000	0.000	0.000	0.408
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
Children					
Number of children	2.784	2.000	2.000	3.000	1.345
Number of sons	1.339	1.000	1.000	2.000	1.112
Number of daughters	1.298	1.000	1.000	2.000	1.057
Children's gender imbalance	0.041	-1.000	0.000	1.000	1.845

Panel B: Education Characteristics

Variable	Mean	25th percentile	Median	75th percentile	Standard deviation
High school					
Private indicator	0.254	0.000	0.000	1.000	0.436
All-male indicator	0.164	0.000	0.000	0.000	0.371
Religious indicator	0.182	0.000	0.000	0.000	0.386
University					
Private indicator	0.488	0.000	0.000	1.000	0.500
All-male indicator	0.099	0.000	0.000	0.000	0.298
Fraction of females in the student body	0.346	0.280	0.381	0.444	0.163

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 gap between employed males and females	30,253	13,564	29,380	38,951	22,539
Male education (years)	11.307	10.592	11.373	12.130	1.328
Female education (years)	11.139	10.615	11.266	11.795	1.087
Education gender imbalance	0.168	0.025	0.241	0.379	0.356
Unemployment rate, males	0.048	0.028	0.039	0.061	0.029
Unemployment rate, females	0.055	0.039	0.054	0.066	0.024
Employment gender imbalance	-0.007	-0.018	-0.009	0.005	0.020

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

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. 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. 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)
Female division manager	-0.005** [2.218]	-0.005*** [3.463]	-0.007*** [3.709]
Division manager controls			
External board seats	-0.003 [0.904]	-0.003 [0.913]	-0.006* [1.830]
Graduate degree	0.001 [0.136]	0.001 [0.272]	0.002 [0.661]
Tenure	0.005*** [2.617]	0.004* [1.889]	0.002 [0.799]
Performance record	0.004** [2.229]	0.002* [1.749]	0.004** [2.160]
Social connections to CEO	0.009*** [2.911]	0.012*** [2.853]	0.011*** [2.892]
Board member	0.004 [1.205]	0.002 [0.637]	0.001 [0.105]
Age	0.001 [1.090]	0.001 [0.040]	0.001 [1.005]
Division controls			
Industry Tobin's Q	0.006*** [3.901]	0.006*** [3.984]	0.007*** [3.262]
Profitability	0.042*** [7.320]	0.040*** [7.357]	0.025*** [4.144]
Size (log assets)	-0.001* [1.694]	-0.002*** [4.408]	-0.002 [1.554]
Core division	0.003* [1.654]	0.001 [0.247]	-0.001 [0.536]
Firm controls			
Return on assets (ROA)	-0.012 [0.770]	-0.015 [1.009]	-0.020 [1.330]
Earnings per share (EPS)	0.001*** [2.902]	0.001*** [2.671]	0.001** [2.293]
Size (log assets)	-0.001 [0.909]	-0.002** [2.338]	-0.007* [1.734]
Number of divisions	-0.002** [2.414]	-0.002** [2.314]	-0.001 [0.514]
Tobin's Q	0.007*** [5.266]	0.008*** [5.602]	0.009*** [4.185]
CEO controls			
Age	-0.010 [1.229]	-0.013 [1.593]	-0.016* [1.732]
External board seats	-0.002** [2.514]	-0.001 [1.547]	0.001 [0.074]
Graduate degree	-0.004* [1.934]	-0.002 [1.313]	0.003 [0.816]
Tenure with the firm	0.008*** [7.921]	0.007*** [7.030]	0.001 [0.972]
Log network size	0.002* [1.677]	0.002* [1.757]	0.005*** [2.765]
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	No	Yes	Yes
Firm fixed effects	No	No	Yes
R ²	0.062	0.294	0.575
N obs	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. 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 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	Working mother	Parents education imbalance	Children's gender imbalance	High school gender imbalance	University gender imbalance	Labor force participation gender imbalance	Income gender imbalance	Education gender imbalance
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female division manager	-0.003 [1.461]	-0.004** [2.268]	-0.003 [1.445]	-0.004** [2.283]	-0.006** [2.361]	-0.004** [2.089]	-0.003 [1.572]	-0.004** [2.298]
CEO gender imbalance	0.002* [1.931]	0.003** [2.096]	0.004** [2.143]	0.003** [1.995]	0.005** [2.087]	0.002** [2.063]	0.003** [2.241]	0.001** [2.075]
Female division manager x CEO gender imbalance	-0.004** [2.106]	-0.002* [1.831]	-0.004** [2.074]	-0.005** [2.146]	-0.003 [1.492]	-0.002 [1.546]	-0.001** [2.197]	-0.002* [1.859]
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	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.579	0.573	0.582	0.580	0.579	0.574	0.580	0.576
N_obs	3,904	3,904	3,904	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	-0.002 [1.582]	-0.003 [1.473]	-0.002* [1.769]	-0.003* [1.819]	-0.004** [2.114]	-0.004** [2.072]	-0.002 [1.547]	-0.002 [1.320]
CEO family index	0.003** [2.368]	0.004** [2.296]					0.003** [2.574]	0.004** [2.418]
Female division manager x CEO family index	-0.005** [2.215]	-0.004** [2.163]					-0.004** [2.307]	-0.004** [2.226]
CEO education index			0.004** [2.187]	0.003** [2.049]			0.003** [2.017]	0.003* [1.903]
Female division manager x CEO education index			-0.006** [2.409]	-0.004** [2.303]			-0.004** [2.352]	-0.004** [2.447]
CEO community index					0.006* [1.766]	0.004* [1.883]	0.002 [1.395]	0.003 [1.461]
Female division manager x CEO community index					-0.005* [1.837]	-0.004* [1.735]	-0.002 [1.573]	-0.001 [1.466]
Controls	Yes							
Year fixed effects	Yes							
Industry fixed effects	Yes							
Firm fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
R ²	0.336	0.584	0.329	0.580	0.327	0.578	0.346	0.592
N_obs	3,904	3,904	3,904	3,904	3,904	3,904	3,904	3,904

TABLE 5
Division Managers' Attributes and Firms' Social Ratings

This tables compares the characteristics of male and female division managers (Panel A) and tests the external validity of our proxies for CEOs' gender attitudes (Panel B). In Panel A, the dependent variable is one of division managers' characteristics. In this panel, all regressions include year, industry, and firm fixed effects. Panel B shows correlations between CEOs' exposure to gender imbalances during formative years and external assessments of their firms' policies toward women. In Panel B, 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. In Panel B, all regressions control for the firm and CEO characteristics listed in Table 3, and include year and industry fixed effects. 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: Comparisons of Male and Female Division Managers

division manager attribute	Busy manager (external board seats)	Graduate degree	Ln(1+Tenure)	Performance record	Social connections to CEO	Ln(Age)
Model	(1)	(2)	(3)	(4)	(5)	(6)
Female division manager	-0.006 [0.119]	0.037 [0.610]	-0.106 [0.958]	-0.025 [1.420]	-0.049 [1.419]	-0.031* [1.937]
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
R ²	0.534	0.378	0.433	0.220	0.859	0.348
N_obs	3,904	3,904	3,904	3,904	3,904	3,904

Panel B: CEO Background and Firm Polices toward Women

Dependent variable	Promotion of women and minorities			Outstanding work/life benefits			Women & Minority contracting		
	Family	Education	Community	Family	Education	Community	Family	Education	Community
CEO imbalance index	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CEO imbalance index	-0.372*** [2.766]	-0.084 [1.069]	-0.102** [2.131]	-0.323** [2.420]	-0.141 [1.163]	-0.154** [2.087]	-0.212** [2.010]	-0.154* [1.767]	-0.078** [2.460]
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
R ²	0.200	0.203	0.208	0.181	0.159	0.163	0.129	0.139	0.136
N_obs	1,186	1,186	1,186	1,186	1,186	1,186	1,186	1,186	1,186

TABLE 6
CEO Age

This table studies how the relation between CEOs' formative experiences and capital allocations to male and female managers varies with CEO age. The dependent variable is the ratio of division-level capital expenditure to book assets. The regression models enrich the baseline specification (Table 4, Panel B) with the variable *Old CEO* and its interaction terms. *Old CEO* is a binary indicator that equals one if the CEO's age is above the sample median (age 56). CEO age is computed based on the birth year reported in Lexis Nexis Public Records. 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 Old CEO*. Unreported coefficients include *CEO imbalance indexes*, *Female division manager*, *Old CEO*, and the double interaction terms *CEO index x Old CEO*. 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, and 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%.

Model	(1)	(2)	(3)
Female division manager x CEO family index	-0.003** [2.118]		
Female division manager x CEO family index x Old CEO	-0.001* [1.857]		
Female division manager x CEO education index		-0.002** [2.281]	
Female division manager x CEO education index x Old CEO		-0.001* [1.894]	
Female division manager x CEO community index			-0.003 [1.348]
Female division manager x CEO community index x Old CEO			-0.001 [1.215]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
R ²	0.586	0.583	0.581
N_obs	3,904	3,904	3,904

TABLE 7

The Appointment of Male and Female Managers to Divisions

This table studies how CEO characteristics are associated with the appointment of male and female managers to divisions. The dependent variable is the characteristic of a division to which a particular manager is assigned at the time of turnover. The characteristics of divisions are measured in the year immediately preceding the year of division managers' appointments. In Panel A, divisions' characteristics include *CapEx*, measured by the ratio of division-level capital expenditure to book assets (columns 1–4) and *Size*, measured by the natural logarithm of book assets (columns 5–8). In Panel B, divisions' characteristics include *Profitability*, measured by the ratio of the division's operating profit to its book assets (columns 1–4), and 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 (columns 5–8). 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, and firm fixed effects. 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%.

Panel A: Capital investment and division size

Dependent variable	Division characteristics in the year preceding division manager's appointment							
	Division CapEx				Division size			
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female division manager	-0.005 [0.270]	-0.002 [1.321]	-0.002 [0.054]	-0.006 [1.202]	-0.165 [1.133]	-0.157 [1.057]	-0.147 [1.010]	-0.188 [1.147]
CEO family index		-0.004 [0.819]				0.131 [1.035]		
Female division manager x CEO family index		-0.002** [2.282]				-0.049 [0.578]		
CEO education index			-0.006 [0.795]				0.159 [1.238]	
Female division manager x CEO education index			-0.002* [1.900]				-0.041 [1.106]	
CEO community index				-0.005 [0.965]				0.126 [1.196]
Female division manager x CEO community index				-0.003 [1.483]				-0.031 [0.950]
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	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.586	0.630	0.625	0.616	0.842	0.861	0.870	0.855
N_obs	494	494	494	494	494	494	494	494

Panel B: Profitability and core division

Dependent variable	Division characteristics in the year preceding division manager's appointment							
	Division profitability				Core division indicator			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female division manager	-0.094 [0.886]	-0.059 [0.516]	-0.072 [0.545]	-0.052 [0.491]	-0.114 [0.672]	-0.098 [0.543]	-0.087 [0.561]	-0.056 [0.585]
CEO family index		-0.073 [0.232]				0.063 [1.411]		
Female division manager x CEO family index		-0.047* [1.828]				-0.083* [1.747]		
CEO education index			-0.062 [0.128]				0.062 [1.491]	
Female division manager x CEO education index			-0.054* [1.908]				-0.074* [1.699]	
CEO community index				-0.087 [0.148]				0.048 [0.598]
Female division manager x CEO community index				-0.067 [1.578]				-0.032 [1.206]
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	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.570	0.602	0.604	0.600	0.688	0.717	0.714	0.722
N_obs	494	494	494	494	494	494	494	494

TABLE 8
Turnover of CEOs and Division Managers

This table studies the turnover of CEOs and division managers. Panel A 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 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. Panel B studies how changes in the gender of division managers at the time of division managers' turnover affect the allocation of capital to their divisions, while holding constant the appointment of the CEO. It presents estimates from first-difference regressions, in which the dependent variable is the change in the ratio of division-level capital expenditure to book assets between the first capital allocation to the arriving manager (the year after the arrival) and the last capital allocation to the departing manager (the year immediately preceding the departure). This analysis is restricted to division-year observations where the division manager has changed from the previous year but the CEO has not changed. Since Panel B focuses on division-year observations where the CEO has remained unchanged, the time-invariant variables *CEO indexes* in this panel are absorbed by firm fixed effects. Control variables include the 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%.

Panel A: Turnover of CEOs

Dependent variable	ΔCapEx			
Model	(1)	(2)	(3)	(4)
Female division manager	-0.010 [0.627]	0.005 [0.805]	-0.004 [0.674]	0.001 [0.417]
ΔCEO family index		0.013* [1.753]		
Female division manager x ΔCEO family index		-0.023* [1.883]		
ΔCEO education index			0.017** [2.148]	
Female division manager x ΔCEO education index			-0.028** [2.267]	
ΔCEO community index				0.015* [1.680]
Female division manager x ΔCEO community index				-0.023** [1.994]
Controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
R ²	0.742	0.753	0.757	0.755
N_obs	512	512	512	512

Panel B: Turnover of Division Managers

Dependent variable	ΔCapEx			
Model	(1)	(2)	(3)	(4)
ΔFemale division manager	-0.014 [0.011]	-0.006 [0.010]	-0.007 [0.009]	-0.006 [0.010]
ΔFemale division manager x CEO family index		-0.018** [2.140]		
ΔFemale division manager x CEO education index			-0.024** [2.263]	
ΔFemale division manager x CEO community index				-0.017 [1.499]
Controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
R ²	0.682	0.696	0.699	0.691
N_obs	571	571	571	571

TABLE 9
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. 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). Unreported coefficients include *CEO indexes*, *Female division manager*, *Female board chair* and the double interaction terms *CEO index x Female board chair* (Panel A) or *HHI* and the double interaction terms *CEO index 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, and 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: Female Chair of the Board of Directors

Model	(1)	(2)	(3)
Female division manager x CEO family index	-0.005** [2.243]		
Female division manager x CEO family index x Female board chair	0.002* [1.858]		
Female division manager x CEO education index		-0.007** [2.538]	
Female division manager x CEO education index x Female board chair		0.002* [1.907]	
Female division manager x CEO community index			-0.006** [1.984]
Female division manager x CEO community index x Female board chair			0.002** [2.052]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
R ²	0.579	0.584	0.574
N_obs	3,904	3,904	3,904

Panel B: Product Market Competition

Model	(1)	(2)	(3)
Female division manager x CEO family index	-0.003** [2.153]		
Female division manager x CEO family index x HHI	-0.007* [1.902]		
Female division manager x CEO education index		-0.003** [2.319]	
Female division manager x CEO education index x HHI		-0.006* [1.833]	
Female division manager x CEO community index			-0.002* [1.751]
Female division manager x CEO community index x HHI			-0.005 [1.449]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
R ²	0.585	0.582	0.577
N_obs	3,904	3,904	3,904

TABLE 10
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 single-segment firms in the division's industry. The dependent variable is the ratio of division-level capital expenditure to book assets. 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, and 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%.

Index type	Family	Education	Community
Model	(1)	(2)	(3)
CEO imbalance index	-0.036** [2.051]	-0.014* [1.759]	-0.028* [1.855]
Tobin's Q	0.010** [2.355]	0.008** [2.229]	0.007** [2.148]
CEO imbalance index x Tobin's Q	-0.006* [1.860]	-0.004* [1.735]	-0.005 [1.364]
Controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes
R ²	0.571	0.566	0.562
N_obs	3,904	3,904	3,904

TABLE 11
Firm Outcomes

This table studies how the CEO's early-life exposure to gender inequity is associated with firm outcomes. The table presents estimates from panel regressions, in which the dependent variable is one of the measures of firm outcomes. In columns 1–3, the dependent variable is the return on assets, *ROA*, defined as the ratio of net income to book assets at the beginning of the year. In columns 4–6, the dependent variable is *Tobin's Q*, defined as the ratio of the market value of equity plus book value of debt to book value of assets. In columns 7–9, the dependent variable is *Stock return*, defined as the annual return on the firm's stock. All dependent variables are measured over the year immediately following the year over which the CEO imbalance index is measured. Variable definitions appear in Appendix A. All regressions include year and 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%.

Performance measure	ROA			Tobin's Q			Stock returns		
Index type	Family	Education	Community	Family	Education	Community	Family	Education	Community
Model number	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CEO imbalance index	-0.003** [2.408]	-0.002* [1.833]	0.006 [0.568]	-0.132** [2.309]	-0.119* [1.855]	-0.081* [1.720]	-0.012** [2.264]	-0.015** [2.325]	-0.001 [1.253]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.458	0.476	0.471	0.792	0.795	0.791	0.398	0.402	0.400
N_obs	1,259	1,259	1,259	1,259	1,259	1,259	1,259	1,259	1,259

Internet Appendix: Data Collection and CEO Records

This appendix discusses the data collection process and provides examples of CEO records.

1. Identifying CEOs' family descent

We begin by obtaining CEO names and age from the Execucomp database. We fill in all missing observation by consulting SEC filings of the firms, which report CEO age in DEF 14A and other forms. The age allows us to estimate CEO birth year, which we use alongside his name to identify the executive in the Lexis Nexis Public Records database (LNPR). We are able to locate all CEOs in our sample in the database, and verify the accuracy of the match by ensuring that the person's employer, work email address, and occupation correspond to the firm that the CEO headed. As a useful additional check, we compare the zip codes of the CEOs' home addresses in LNPR against zip codes disclosed by the CEOs when they made political contributions. Many CEOs make personal political donations, and this data is publicly available (e.g., via city-data.com).

For each CEO, we collect from LNPR the full name including the middle name, month and year of birth, and the state issuing the social security number. LNPR also provides a list of "potential relatives", including parents and children, which serve as an additional lead to determine members of their families. Armed with this information, we follow the multi-step process described in Chuprinin and Sosyura (2018) to identify a CEO's family in the census.

In the first step, we use the CEO's name, date of birth, and the state issuing the social security number to search for the birth record of the CEO on the genealogy research service ancestry.com. The availability of birth records and the level of information available in them differ across states and over time. Internet Appendix Figure 1 offers an example of the birth certificate of one of the CEOs in our sample. It identifies both parents, their ages, employment, and residence, all of which we record.

If we are unable to identify CEOs' parents from the birth records, we move to the second step, searching ancestry.com for marriage records of the CEO. Internet Appendix Figure 2 shows an example of such record for one of the CEOs in our sample. Availability of these also varies by state and over time, and when we cannot locate them, we turn to newspapers.com, a service that contains copies of thousands of publications, including small local newspapers. We search this service for marriage announcements, which in the vast majority of the cases contain information on the parents of the CEO. Internet Appendix Figure A3 provides an illustration of one such announcement.

For CEOs for whom the first two steps do not identify the parents, we turn to death records and obituaries, available through ancestry.com, legacy.com, and newspapers.com. Obituaries often provide detailed information on parents, children, and extended family members. Lastly, we search CEO biographies, interviews, and records publicly available on the internet to identify parents of those CEOs for whom birth, marriage, and death records did not yield any information on parents.

Using names and ages of the parents, we search for their records in the federal decennial census forms and the state census forms. These can be accessed for free at familysearch.org and archives.gov, and with subscription at ancestry.com. The sources differ in the census vintages they cover and in outcomes of the optical character recognition. In some cases, particularly when the handwriting of the census taker is hard to read, the searchable text of the same census form may be somewhat different on the websites.

Census forms offer a wealth of information. We show a blank form in Internet Appendix Figure 4 and a completed form for the family of one of the CEOs in the sample in Internet Appendix Figure 5. In addition to giving the family composition, the form allows us to determine the address of the household, the value of the house or the rent paid, as well as parents' age, education, employment, and income.

When we are unable to find CEOs' parents in the census, we again turn to searching for their obituaries. Parents of most CEOs are deceased, and we are able to locate obituaries for most parents. In addition to identifying family members, obituaries also provide education and employment of the parents, and often mention the place of residence of parents during various stages of their lives, all of which we record. Internet Appendix Figure 6 shows an obituary for a CEO's father.

2. Examples of data records.

8827

1. PLACE OF BIRTH
STATE OF TEXAS

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

COUNTY OF Travis

CITY OR PRECINCT NO. Austin

GIVE STREET AND NUMBER OR NAME OF INSTITUTION

2. FULL NAME OF CHILD ROBERT LYNN WALTRIP

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 MOTHER

8. FULL NAME Robert Elsmere Waltrip 14. FULL MAIDEN NAME Wanda Ivey Abbett

SOCIAL SECURITY NUMBER 15. POSTOFFICE ADDRESS Houston, Texas

9. POSTOFFICE ADDRESS Houston, Texas

10. COLOR OR RACE White 11. AGE 32 (YEARS) 16. COLOR OR RACE White 17. AGE 27 (YEARS)

12. BIRTHPLACE (STATE OR COUNTRY) Oakwood, Texas 18. BIRTHPLACE (STATE OR COUNTRY) McMahon, Texas

13A. TRADE, PROFESSION OR KIND OF WORK DONE Funeral director 19A. TRADE, PROFESSION OR KIND OF WORK DONE Housewife

13B. INDUSTRY OR BUSINESS IN WHICH ENGAGED Funeral home owner 19B. INDUSTRY OR BUSINESS IN WHICH ENGAGED

20. NUMBER OF CHILDREN BORN TO THIS MOTHER INCLUDING THIS BIRTH 21. NUMBER OF CHILDREN BORN TO THIS MOTHER AND NOW LIVING

SIGNATURE OF INFORMANT R. E. Waltrip ADDRESS OF INFORMANT Houston, Texas

22. MEDICAL ATTENDANCE

I HEREBY CERTIFY ~~that I am~~ to THE BIRTH OF THIS CHILD ~~born~~ BORN ALIVE AT _____ M. ON THE ABOVE DATE.

AND THE PROPHYLACTIC USED TO PREVENT OPHTHALMIA NEONATORUM WAS _____

DATE 194 SIGNATURE R. W. Waltrip ~~John~~ POSTOFFICE ADDRESS Houston TEXAS

23. FILE NUMBER FILE DATE SIGNATURE OF STATE REGISTRAR POSTOFFICE ADDRESS

June 27 1944 V. A. Shivers M. D. Austin TEXAS

NOTE THE INFORMATION CALLED FOR ON THE REVERSE SIDE

Internet Appendix Figure 1
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.

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 return them to the clerk for the Bureau of Vital Statistics. The copy with the license on the back is for the clerk.

13440
A-COPY

CITY City of Richmond CERTIFICATE OF MARRIAGE
 COUNTY OF _____ COMMONWEALTH OF VIRGINIA
 FULL NAME OF GROOM Norman Allen Scher CLERK'S NO. _____

PRESENT NAME OF BRIDE Joyce Ann Slavin 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 <u>Law Student</u>		INDUSTRY OR BUSINESS _____		OCCUPATION <u>None</u>		INDUSTRY OR BUSINESS _____	
BIRTHPLACE <u>Richmond, Va</u>				BIRTHPLACE <u>Richmond, Va</u>			
FATHER'S FULL NAME <u>Charles Scher</u>				FATHER'S FULL NAME <u>Cyrus L. Slavin</u>			
MOTHER'S MAIDEN NAME <u>Sonia Goldstein</u>				MOTHER'S MAIDEN NAME <u>Ethel Shull</u>			
RESIDENCE: CITY OR COUNTY MAILING ADDRESS <u>Charlottesville, Va</u> ²⁰³				RESIDENCE: CITY OR COUNTY MAILING ADDRESS <u>3211 Monument Ave</u> ²²²			
Proposed Date of Marriage <u>June 11, 1961</u>				Proposed Place of Marriage <u>Richmond, Va</u>			

Given under my hand this 9th day of June, 1961
[Signature], Clerk of Hustings Court.

222

CERTIFICATE OF DATE AND PLACE OF MARRIAGE

I, Jacob Milgrom, a Kabbi of the Jewish 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 1951, which authorizes me to celebrate the rites of marriage in the Commonwealth of Virginia.

Given under my hand this 13 day of June, 1961.
 Address of celebrant 4114 Casyton Ave [Signature]
 (Person who performs ceremony sign here.)

10

Internet Appendix Figure 2
 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.

MISS JOAN ABBOTT BECOMES FIANCEE

Alumna of Rosemont College
Will Be Married to John V.
Faraci, Former Officer

Special to THE NEW YORK TIMES.

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

Internet Appendix Figure 3

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.

STATE		1940 Federal Census										ENUMERATION DISTRICT NO.			SHEET NO.					
COUNTY												SUPERVISOR'S DISTRICT NO.								
TOWNSHIP OR OTHER DIVISION OF COUNTY												ENUMERATED BY ME ON _____, 1940								
INCORPORATED PLACE												_____ , ENUMERATOR								
WARD OF CITY		BLOCK NO.			UNINCORPORATED PLACE			INSTITUTION												
Line No.	LOCAT-ION	HOUSEHOLD DATA				NAME	RELATION	PERSONAL DESCRIPTION		EDUCATION		PLACE OF BIRTH		CITI-ZEN-SHIP	RESIDENCE, APRIL 1, 1935					
	Street, Avenue, road, etc.	House Number	No. of Household in order of visitation	Home owned (O) or rented (R)	Value of home or Monthly rental if rented.			Farm? (Yes or No)	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.	Sex	Color or Race	Age at Last Birthday	Marital Status		Attended school or college at any time since March 1, 1940?	Highest grade of school completed	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.	City, town, or village having 2,600 or more inhabitants If less, enter "R."	County	State (or Territory or foreign country)
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 col. 21 & 22)		For persons answering "No" to questions 21-24.		If at private or nonemergency Govt. work. "Yes" in col. 21	If seeking work or assigned to public emergency work. "Yes" in col. 22 or 23	OCCUPATION, INDUSTRY, AND CLASS OF WORKER				INCOME IN 1939 (12 months ending Dec. 31, 1939.)							
			Was this person SEEKING WORK? (Y or N)	If not seeking work, did he HAVE A JOB, business, etc.? (Y or N)	Indicate whether engaged in home household (H), in school (S), unable to work (U), or other (O).	CODE			Number of hours worked during week of March 24-30, 1940.	Duration of unemployment up to March 30, 1940 – in weeks.	OCCUPATION	INDUSTRY	Class of Worker	CODE (leave blank)	Number of weeks worked in 1939 (Equivalent full-time weeks)	Amount of money, wages or salary received (including commissions)	Did this person receive income of \$50 or more from sources other than money wages or salary (Y or N)	Number of Farm Schedule		
1.																				
2.																				
3.																				
4.																				
5.																				
6.																				
7.																				

Internet Appendix Figure 4
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.

MONDAY, SEPTEMBER 29, 1997
THE COURIER-NEWS

OBITUARIES

John E. McGinn, commercial artist

BERNARDS — John E. McGinn, 85, died Sunday (Sept. 28, 1997) at Morristown Memorial Hospital in Morristown.

Born in New York City, he lived in Flemington before moving to the Basking Ridge section of Bernards.

Mr. McGinn was a commercial artist and was an art editor for *Jewelers Circular Keystone Magazine*.

He also worked as a commercial artist at the *New York Daily News* from 1964 to 1977.

Upon his retirement, he worked part-time with *Newsweek Magazine* in Livingston for 2 years.

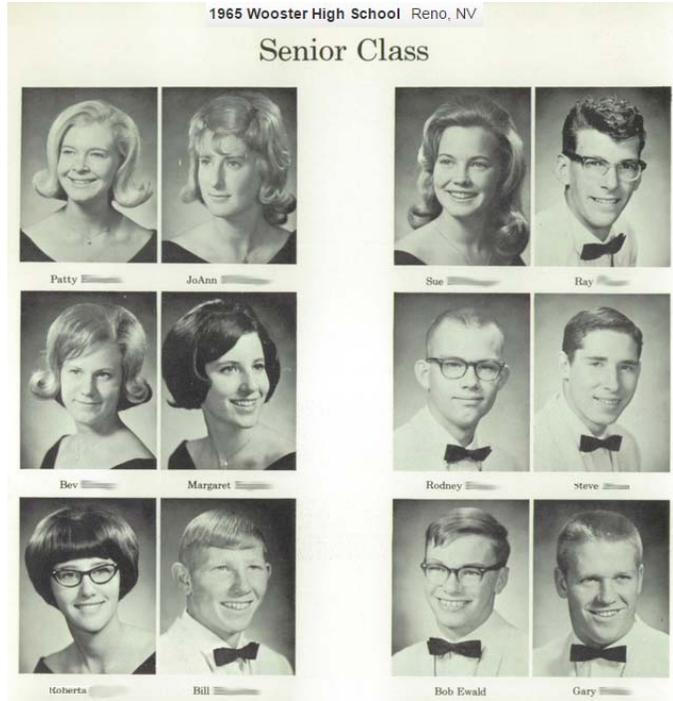
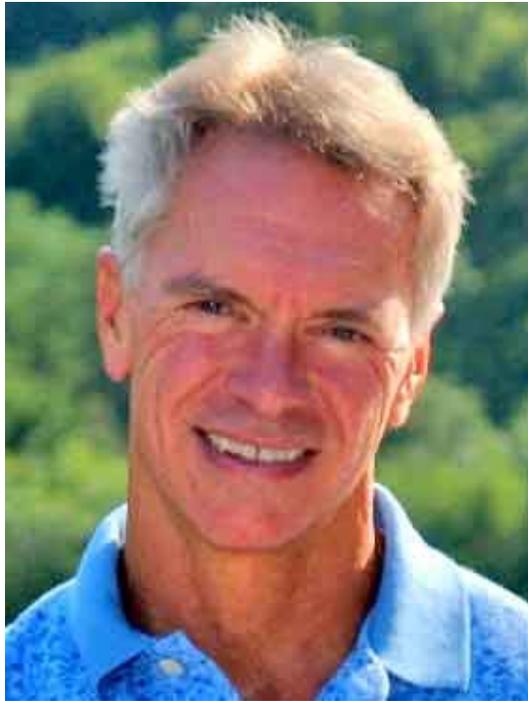
Surviving are his wife of 60 years, Lillian Patricia Waters McGinn; two sons, Richard McGinn of Bernardsville and Robert McGinn of Palo Alto, Calif.; and two grandchildren.

A funeral Mass will be held 10 a.m. Wednesday at the Church of St. James in Basking Ridge.

Visitation will be held Tuesday from 2 to 4 and 7 to 9 p.m. at Gallaway and Crane Funeral Home in Basking Ridge.

Internet Appendix Figure 6 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 September 29, 1997 issue of *The Courier-News* of Bridgewater, New Jersey.



Internet Appendix Figure 7

Example of using yearbooks to identify high schools attended by CEOs

This figure shows in the left panel the photograph of Robert H. Ewald, CEO of Silicon Graphics (source: <http://lonerganpartners.com/placement/silicon-graphics/bo-ewald>). Scans of yearbooks available from classmates.com allow identifying him as a 1965 graduate of Wooster High School in Reno, Nevada. His high school photograph is the third in the bottom row of the image in the right panel.