



# Old glass ceilings are hard to break: Gender usage trends in annual reports<sup>☆</sup>



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## ABSTRACT

We examine gender usage in a sample of 89,195 annual reports filed with the SEC during 1996–2013. We find that, after adjusting for other effects, annual reports by younger firms use proportionally more female-linked words than documents created by older, more mature companies. This finding likely reflects gender-related cultural differences between young and old firms. We also report that gender usage differs dramatically across both industry and market values of equity. Historically male dominated industries and industries that do not sell directly to retail customers have lower ratios of female/male word usage while industries characterized as business-to-consumer have substantially higher relative female counts. Larger companies have higher public accountability and thus, as expected, have annual report language that more frequently uses female titles and personal pronouns.

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## 1. Introduction

In this paper, we examine gender usage trends in annual reports filed with the Securities and Exchange Commission (SEC) by publicly-traded firms. The annual report (also known as Form 10-K) is the central periodic filing through which managers communicate with shareholders. Specifically, we tabulate the number of times the titles *Mr.*, *Ms.*, *Miss*, and *Mrs.*, and personal pronouns *his*, *her*, *he*, and *she* appear in a sample of 89,195 annual reports of publicly-traded companies during the 1996–2013 time period. Starting with the pioneering papers by Tetlock (2007) and Tetlock, Saar-Tsechansky and Macskassy (2008), researchers have tabulated word counts in newspaper articles, earnings conference calls, and annual reports to gauge sentiment or to look for patterns in word usage. Our paper extends the literature's understanding of the changing pattern of gender specific terms appearing in business communications.

Much of the prior literature on gender in the workplace focuses on the wage gap and factors that might explain such differences, beyond simple discrimination.<sup>2</sup> In this empirical paper, we provide a different perspective on the issue of gender at work by examining how gender-related issues might be implicitly revealed in management's communication with shareholders.

We first empirically document trends in usage of gender-related titles and pronouns across annual report filings. As women play an increasingly important role in companies, business documents should show more frequent usage of female titles and pronouns. Most of the documented gender word usage appearing in annual reports relates to descriptions of top managers and directors. Extant literature focused on wages, documents a stagnant period for the gender gap until 1970, substantial convergence through the 1990s, a plateau from 1995 to 2000, and an uptick in the first few years of this decade (e.g., see Mulligan & Rubinstein, 2008 or Borghans, ter Weel, & Weinberg, 2006).

Anecdotally, and consistent with this literature, women are increasingly becoming Chief Executive Officers (CEOs) of the largest and most powerful U.S. publicly-traded companies. For example, currently the CEOs of General Motors (Mary Barra), Hewlett-Packard (Meg Whitman), IBM (Virginia Rometty), Yahoo! (Marissa Mayer), and Pepsi (Indra Nooyi) are all females. However, as noted

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<sup>2</sup> See, for example, Goldin (2014). We will detail the relevant literature in a subsequent section.

by Fortune magazine (June 3, 2014), only 4.8% (24 out of 500) of the Fortune 500 firms are headed by women. So although the number of women CEOs is higher than ever before, the relative percentage of top female managers is significantly lower than the frequency of women in the workforce. We examine how artifacts of these changes are reflected in the communications of managers.

As might be expected, our results document a dramatic increase in relative frequency of female gender terms (*Ms.*, *Mrs.*, *Miss*, *her*, and *she*) in annual reports since 1996.<sup>3</sup> This directly reflects the rise of women managers/directors in publicly-traded firms. However, like the fraction of female CEOs, female terms like *Ms.* and *she* are still significantly less likely to occur in annual reports than words like *Mr.* and *he*. For our sample, we find that in 1996, the average annual report contained only 0.152 counts of the female-related titles and pronouns compared to 0.335 for the average firm in 2013, i.e., there has been a 120% increase in female gender words in annual reports since 1996. Yet, the count of male gender words (e.g., *Mr.* and *he*) is 1.734 in 1996 compared with 2.390 in 2013. Thus, although we expect both counts to increase as an artifact of the increasing size of annual reports documented in Loughran and McDonald (2014), the relative changes are notably different. As with the gender of top managers, publicly-traded companies listed on U.S. stock exchanges disproportionately use male personal pronouns and titles in their business communication documents.

We also consider the ratio of female/male titles and pronouns across industries and relative to the market capitalization of firms. We find pronounced industry differences that closely align with a firm's proximity to the ultimate individual consumer. Industries that directly sell products and services to consumers, like Publishing, Banking, Personal Services, Apparel, Healthcare, Pharmaceutical, and Retail have significantly higher usage of female gender terms than industries that do not directly interact with retail customers. Industries with low female-to-male ratios include Agriculture, Electrical Equipment, Textiles, Aircraft, Fabricated Products, Coal, and Oil. Since women historically are not the primary purchasers of Boeing aircraft or products from Arch Coal, it is expected that these industries would have relatively fewer female gender terms. Lower historical top management employment of women by aircraft production and rural coal companies is reflected in the low value female/male ratio for these particular industries.

Our paper also finds that firms with larger market values of equity have significantly higher values of the female/male ratio. Larger firms obviously have higher public profiles. That is, more attention is placed by investors and the media on large, well-known firms like Bank of America, Microsoft, Johnson & Johnson, Genentech, and lululemon athletica (a yoga clothing retailer). Hence, one would expect larger firms to more frequently use female titles and pronouns in their primary written communication with investors and Wall Street analysts.

After adjusting for industry effects, time effects, and firm size, there is little reason to expect gender usage to vary as a function of a firm's age, unless older firms are slower to respond to cultural changes. In managers' communications, we observe that older firms have significantly lower usage of female titles and pronouns. These rhetorical artifacts likely represent a corporate culture established in a period of gender inequality, and underscore that culture is slow to change. Viewing the firm through the lens of management's writing provides a different and complementary perspective to those studies whose focus has been on wage differentials.

<sup>3</sup> Note that, as documented in Loughran and McDonald (2014), the size of annual report filings has increased substantially over the 1996–2013 period. Thus we expect the absolute counts to increase over time. Our discussion and subsequent tests focus on the relative comparisons of the gender-related words.

## 2. Literature review

Most studies on gender in the workplace focus on participation rates and wage differences. Goldin (2006, p. 1) labels female involvement in the economy as “the most significant change in the labor markets during the past century.” Goldin divides the changes into phases, with the final “revolutionary” phase beginning in the mid-1970s. The revolutionary period is broadly defined by women now participating in the workplace because work is part of their fundamental identity, with their focus shifting from jobs to careers. Cultural shifts are difficult to precisely measure, but much research in the area has focused on gender differences in performance and even more so on what Goldin (2014, p. 1093) labels as a “summary statistic for gender differences”—wages. When focusing on the gender gap in wages, the crux of the issue is to separate out those effects that—although possibly an artifact of discrimination by society at a broader level—logically map to differences in wages.

For example, in earlier periods when females were just beginning to broadly enter the work force, their experience was less than their male counterparts. Thus it was not a condemnation of business that wages might be accordingly differentiated. Similarly, in earlier periods, men were more likely to have higher levels of education, once again justifying their higher wages. Goldin (2014) argues that a grand convergence has occurred in the wage gap as these structural artifacts have all but disappeared. However, she goes on to emphasize that the ultimate assimilation of gender differences cannot occur as long as there are temporal inflexibilities—long hours and particular hours—within the workplace.

The wage gap is a strong reflection of gender issues in employment and has been studied extensively in Goldin's body of work along with many others (see, for example, Blau & Kahn, 2000, 2006, 2013, or Niederle & Vesterlund, 2007). Newton and Simutin (2014) consider another perspective on the gender pay gap. They examine the role of age and gender of the CEO. Using a large sample of publicly-traded firms with available COMPUSTAT Execucomp data, Newton and Simutin (2014) report that older, male CEOs significantly undercompensate women executives relative to male workers at the same firm. They believe that older top managers were raised in a culture where paying females less than males (for the same work) was considered socially acceptable.

Another view on females in the labor force is provided by Ahern and Dittmar (2012) who consider the role of females on corporate boards by examining the impact of a 2003 Norwegian law mandating female board representation. The law required that publicly traded firms have women account for at least 40% of their board of directors. At the time of law's passage, only 9% of Norwegian directors were female. As might be expected given the dramatic quota requirement, Ahern and Dittmar (2012) document a significantly negative stock market reaction to the initial announcement of the law. Interestingly, Norwegian companies with female directors did not experience much of a decline at the announcement. However, Norwegian companies with zero women directors had a –3.5% decline in their market values as of the quota's announcement.

The authors found that the quota directly caused Norwegian boards to become younger and less experienced. Given the limited pool of Norwegian women with high levels of managerial experience at the time of the law's passage, it is not completely surprising that companies were forced to appoint directors with significantly less business experience than their existing male directors. What is more controversial in their findings is the subsequent decline in both Tobin's  $Q$  ((Total assets – common equity + market value)/Total assets) and operating performance of Norwegian companies following the quota. The firm shareholders had to directly endure the costs of the quota law. The paper notes that their results

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