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## Women Have to Enter the Leadership Race to Win: Using Random Selection to Increase the Supply of Women into Senior Positions

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September 2015

# **Women Have to Enter the Leadership Race to Win: Using Random Selection to Increase the Supply of Women into Senior Positions**

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## **ABSTRACT**

### **Women Have to Enter the Leadership Race to Win: Using Random Selection to Increase the Supply of Women into Senior Positions**

The supply of women into senior management has changed little despite well-intentioned efforts. We argue that the biggest effect is from supply-side factors that inhibit females' decision to enter competitions: Women are under-confident about winning, men are over-confident; women are more risk averse than men in some settings; and, most importantly, women shy away from competition. In order to change the conditions under which this is the case, this paper proposes a radical idea. It is to use a particular form of random selection of candidates to increase the supply of women into management positions. We argue that selective randomness would encourage women to enter tournaments; offer women 'rejection insurance'; ensure equality over time; raise the standard of candidates; reduce homophily to improve diversity of people and ideas; and lessen 'the chosen one' factor. We also demonstrate, using Jensen's inequality from applied mathematics, that random selection can improve organizational efficiency.

JEL Classification: L2, M1, M5

Keywords: leadership, women, diversity, random selection

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## 1. INTRODUCTION

*“Deloitte names veteran Cathy Engelbert as chief executive officer, making her the first woman to become CEO of a major U.S. accounting and consulting firm.” (www.fortune.com February 9, 2015).*

It is 2015, yet women continue to be underrepresented at the top of all kinds of hierarchies, be it in corporations, the public sector, or in government bodies. The appointment of Engelbert (above) would have gone almost unnoticed in the press except that Deloitte was founded in 1845 in London and opened its New York office in 1880.

The facts about gender gaps with respect to salaries, promotion and positions are well known. However, in educational achievement today there is a reverse gender-gap. In most countries not only are there higher shares of females compared with male graduates, but at school, girls outperform boys in most subjects (Goldin, Katz & Kuziemko 2006; OECD, 2015). The majority of college graduates in OECD countries are now female (Dawson, Kersley & Natella, 2014). In the UK in 2014, 150,000 males graduated from university; the number for females was 200,000<sup>1</sup>. Moreover, in a wide range of settings, girls are more self-disciplined and defer gratification better than boys (Castillo et al., 2011; Duckworth & Seligman, 2006). In general such characteristics are correlated with success in the workplace – but not for women (Segal, 2014).

Despite female gains in education, and females’ favorable non-cognitive characteristics, after a few years in employment women become less visible than men. The higher the level of business leadership, the more it is male-dominated. Only 5 percent of CEO positions in Fortune 1000 companies are held by women (Catalyst, 2014<sup>2</sup>; Dawson, Kersley & Natella, 2014). In OECD countries in 2014, 7.7 percent of employed men had managerial responsibilities, yet only 4.4 percent of employed women. Even in countries considered progressive, for example in Norway, women have much lower promotion rates than men across all ranks (Miller, 2014), after controlling for individual characteristics like age, education, experience, and tenure.<sup>3</sup> According to a business report by the consultants Grant Thornton (2015), women in the US in 2015

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<sup>1</sup> Higher Education Statistics Agency (HESA) for the UK.

<sup>2</sup> See Catalyst at <<http://www.catalyst.org/knowledge/women-ceos-fortune-1000>> for the full list of female CEOs in these groups; accessed June 20, 2014.

<sup>3</sup> For an overview over gender differences in promotion rates see Blau & DeVaro, 2007.

hold 21% of senior management positions; in 2004 the figure was 19%. Thus change remains slow<sup>4</sup>.

These facts are at odds with recent findings that point to the benefits of diversity to companies' bottom line. Some evidence suggests that having a higher percentage of females at the top correlates with higher organizational performance (Dawson, Kersley & Natella, 2014). However, these results do not tell us whether women increase firm performance, or better-performing firms select more women. Evidence from a field study which controlled for endogeneity concluded that female representation in top management improves performance in companies that pursue innovative strategies (Deszö & Ross, 2012). Also, diversity is believed to have a positive impact on performance in turbulent times (Rost & Osterloh, 2010). Laboratory experiments have found that the performance of a group is affected more by the proportion of women rather than by the average or maximum individual intelligence of group members (Woolley et al., 2010; Engel et al., 2014).

These studies on gender and performance may explain the proclamations in favour of diversity emanating from numerous global corporations (e.g. Chevron and Procter & Gamble, see Catalyst 2015). Nevertheless, managerial practices to improve gender diversity appear to be failing. New ideas are apparently needed.

Recent findings in psychology and behavioral economics indicate that females -- even the most competent ones -- tend to shy away from competition. We believe that many women's preference not to compete with men is a key factor that helps explain their absence from senior management. In this paper we suggest a radical idea with a long though little-known tradition that could address this problem – random selection. To encourage women to apply for demanding jobs, we propose that it would be valuable to reduce competition by using random selection from a pre-chosen pool. Crucially, we believe that random selection at the second stage would increase females' willingness to allow their names to go onto the short list at the first stage, and in general improve the efficiency of selection processes.

In the next section of the paper we examine the evidence about why the gender gap increases during the professional life of women. In particular, we consider the reasons why females shy away from competition. Measures to encourage women to enter competitions are analyzed in section 3, where we examine culture change, single-sex

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<sup>4</sup> The representation of black and minority ethnic (BME) employees in leadership and management positions is lower than that of women in both the US and UK (Wyatt & Silvester, 2015).

competition, quotas, rewards for women entering tournaments, and feedback about individual task performance. In sections 4 to 6 we explore the idea of using random selection of candidates from of a pre-selected pool. We discuss the possible advantages for women and also the potential efficiency gains from random selection for organizational performance. Finally, we address the challenges that this type of solution presents. We acknowledge that using random selection in this way may seem unusual, and perhaps even alien, to some. Nevertheless, we suggest this idea for use as a potentially effective institutional tool to obtain gender neutrality in management.

## 2. WHY THE GENDER GAP INCREASES DURING THE LIFETIME OF WOMEN

Several reasons are highlighted in the literature that attempt to explain why women become less visible in the upper echelons. They can be divided into demand-oriented and supply-oriented (e.g. Datta Gupta, Poulsen & Villeval, 2013; Niederle, Segal & Vesterlund, 2013).

Most studies focus on *demand-oriented* causes, in particular direct discrimination of women (e.g. Becker, 1957; Goldin & Rouse, 2000; Eagly, 2007; Beaman et.al., 2009; Bohnet, van Geen & Bazerman, 2012), and also statistical discrimination (Phelps, 1972; Arrow, 1973; Lazear & Rosen, 1990). Demand-side factors are imposed on women externally often because of stereotyping.<sup>5</sup> Women are expected to be less ambitious, less assertive and less self-reliant, but also more caring and communally oriented (e.g. Rudman & Phelan, 2008). In addition, it is assumed that women will face family-work-conflicts.<sup>6</sup> These stereotypes are not congruent with stereotyped leadership roles (Eagly & Karau, 2002). They lead to a “too risky to promote” attitude regardless of whether these expectations are justified or not (Banerji & Greenwald, 2013).

*Supply-side* explanations are more recent additions to the literature. They examine how women impose negative stereotypes on themselves and into their self-identity. This form of adverse self-verification restrains females further; women either

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<sup>5</sup> Stereotypes can be defined as “cognitive structures that contain perceiver’s knowledge, beliefs, and expectancies about some human group (Hamilton & Troler, 1986: 133).

<sup>6</sup> According to Rudman & Phelan (2008) these stereotypes are in flux. They change descriptively little by little. Nevertheless prescriptively they remain intact. Many traits required for leadership still are rated as less desirable for women.

accept a less ambitious career path with lower salaries<sup>7</sup> (Eagly, 1987; Eagly and Karau, 2002) or they deviate from their internalized stereotypes, which may cause psychological “identity costs” (Akerlof & Kranton, 2011). Further penalties exist for those who struggle against female role stereotypes. If women behave “out of role” (Goffman, 1959; Heilman & Okimoto, 2007) then they may be punished by being less-liked in their professional and private life (Phelan, Moss-Racusin & Rudman, 2008).<sup>8</sup> Or, if part of a couple where the wife earns more than her husband, she risks the possibility of marital separation; divorce is higher in couples where women are the main breadwinners (Bertrand, Pan & Kamenica, 2013; Dawson, Kersley & Natella, 2014).

Women who adopt counter-stereotypical behaviour are sometimes accused of lacking social skills. They then suffer professionally when attention is diverted away from functional competence to social skills (Phelan, Moss-Racusin & Rudman, 2008). Further “identity costs” accrue as women try to compensate negative attitudes towards “out of role” behaviour by attempting to display greater sociability in a bid to be liked (Rudman & Phelan, 2008). Women appear to have to choose between career success and social success, and to endure extra pressures that male leaders are not exposed to (Heilman, 2001). These factors explain further why women strive less than men for leadership positions.

Gender stereotypes, be they external or internal, can become “self-fulfilling-prophecies” (Merton, 1948: 195). Stereotype threat is a situational predicament in which people are, or feel themselves to be, at risk of confirming negative stereotypes about their social group (Inzlicht, 2011). The “activation of a self-relevant stereotype leads people to show stereotype-consistent behaviour, thereby perpetuating the stereotypes” (Dar-Nimrod & Heine, 2006:435). The performance of individuals who belong to negatively stereotyped groups is lower (Schmader, Johns & Forbes, 2008).

Ample evidence demonstrates the effect of negative stereotyping on the behaviour of women.<sup>9</sup> For example, girls’ math performances decrease when their gender is made salient (Spencer et al., 1999; Dar-Nimrod & Heine, 2006). The same is true for performance in competitions (Guenther et al., 2010), and for risk-aversion (Booth & Nolen, 2015). Stereotype threat not only leads to poorer task performance, but

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<sup>7</sup> More than 50 percent of male candidates negotiate their salary after the first job offer after graduation, but only ten percent females, see Babcock et al. 2006. (Babcock & Laschever, 2003).

<sup>8</sup> Bowles, Babcock & Lai (2007) show in a laboratory experiment that men dislike women that negotiate for their salary.

<sup>9</sup> The findings on stereotype threat are not undisputed, see Flore & Wicherts, 2015.



also to lower levels of identification and motivation in the given performance domain (Steele, James, & Barnett, 2002). Female stereotypes decrease women's entrepreneurial intentions (Gupta & Bhawe, 2007), leadership aspirations (Davies et al., 2005), interest in mathematics, science, and engineering (Murphy et al., 2007), and their motivation to improve their math ability (Fogliati & Bussey, 2013).

It is not necessary for women to internalize female-inferiority typecasts for negative outcomes to occur. Stereotype threats also arise from the pressure incurred to reject the dominant typecasts (Steele, Spencer & Aronson, 2002). Research suggests that "fighting back" reduces working memory capacity (Schmader & Johns, 2003), induces anxiety and stress (Schmader, Johns & Forbes, 2008), as well as efforts to suppress negative emotions that increase blood pressure and activate the cardiovascular system (Blascovich et al. 2001; Murphy, Steele & Gros, 2007). However, stereotype threats are reduced when people learn about the malleability and controllability of the characteristics at hand (Aronson, Fried & Good, 2002), in particular when they view the origins of those characteristics as experiential or learned instead of innate or genetic (Dar-Nimrod & Heine, 2006).

In recent years an emergent literature from social psychology and behavioral economics has started to address supply-side questions linked to the underrepresentation of women in senior management.<sup>10</sup> These studies examine whether and to what extent gender-specific characteristics are associated with innate characteristics or learned experiences, i.e. are malleable. This work focuses mainly on characteristics other than cognitive skills; research comparing the cognitive performance of men and women has revealed only minor differences (see e.g. Kimura, 2004; Fine, 2010)<sup>11</sup>. Non-cognitive characteristics or preferences appear to explain much about the mechanics behind the leaky pipeline. The most highlighted non-cognitive differences between men and women are aversion to competition, risk aversion, feedback-aversion and low self-confidence. Women's resistance to competition, outlined more fully below, has been studied quite extensively. If women

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<sup>10</sup> In orthodox family economics (e.g. Becker, 1985; Polachek, 1981) men and women have been seen to have the same characteristics and preferences. Due to gender specific division of labour, they differ with respect to relative productivities. As a consequence, for women compared to men it is less useful to invest in education and training. This explanation does not hold today. Women on average invest even more than men in their formal education.

<sup>11</sup> Nevertheless, cognitive stereotypes are lively, see the debate around the former Harvard University President Larry Summers, who suggested that extremes of innate aptitude rather than discrimination are responsible for the failing careers of women in science, see e.g. Barres 2006 .

are less likely to enter competitions, this not only reduces their prevalence in management and other senior positions, but contributes to a large gender-gap (Niederle & Vesterlund, 2007).

### **3. WOMEN AND COMPETITION**

The literature finds that women compete less than men. They more often opt out of competitions or tournaments, even when they are equally or more qualified (Gneezy et al., 2003; Niederle & Vesterlund, 2007; 2010; Niederle, Segal & Vesterlund, 2013; Guenther et al., 2010; Balafoutas & Sutter, 2012; Cadsby, Servatka & Song, 2013). A number of supply-side factors that appear to negatively affect women's decision to enter competitions have been identified.

It has long been recognized that women's networks may be less advantageous to their career development than those of men. Appropriate networks facilitate tournament entry. Men typically develop professional networks that encourage advancement and offer support whilst in the role. Women's network positions typically differ; they contain fewer highly-ranked individuals, and tend to be more emotionally supportive but less instrumental (Brass, 1985; Downey & Lahey, 1988; Ibarra, 1992, 1993).

Recent academic enquiries have focused on women's negative preferences for competition. In a seminal study, Niederle and Vesterlund (2007) asked: "Do women shy away from competition? Do men compete too much?" They address these questions in an experimental setting using the choice between pay for performance versus tournament-based compensation. The authors find that among men and women of equal abilities, men chose tournament-based compensation schemes twice as often as women. Niederle and Vesterlund (2007) summarise four possible explanations from the literature and then present their own findings from the laboratory experiment.

First, men like to compete more than women. This preference may have evolutionary roots linked to breeding (Daly & Wilson, 1983), or it may result instead from historical parenting practices that have generally encouraged competitiveness in boys and more passive behaviour in girls (Ruble, Martin, & Berenbaum, 2006). Years of overt and covert discrimination might predispose women to be psychologically wary.

Second, men tend to exaggerate their abilities, whereas women have less self-confidence, which leads to a “confidence gap” (Lichtenstein, Fischhoff, & Phillips, 1982; Beyer, 1990; Kay & Shipman, 2014). Overconfidence is more pronounced when men undertake tasks that are considered to be masculine (Moore & Small, 2007). If men and women are equally confident it has been found that there are no gender differences in competitive entry. This has been shown in the laboratory (Prize, 2010) as well as in the field (Garrat, Weinberger & Johnson, 2013).

The third explanation Niederle and Vesterlund (2007) identify in the literature is that women are more likely than men to integrate negative feedback into their overall perception of self (feedback aversion). Correspondingly, women are less likely than men to incorporate positive information into their self-perception (Roberts & Nolen-Hoeksema, 1989; 1994; Dweck, 2000). They are prone to attribute their success to luck than to their own performance (Beyer, 1994; Felder et al., 1994). In short, men appear more robust to criticism whilst tending to absorb praise.

The final suggestion by Niederle and Vesterlund is that women are more risk averse than men (e.g. Schubert, et al., 1999; Eckel & Grossman, 2002; Dohmen, et al. 2011). The findings about risk aversion are somewhat mixed. On balance, although the literature is a large one, the evidence suggests that women appear to make less risky choices in certain situations, for example when making financial investments (Barber & Odean, 2001; Charness & Gneezy, 2012). However, this higher degree in risk aversion is reduced as women become more experienced (Dwyer, Gilkeson & List, 2002) and become exposed to single-sex women environments (Booth & Nolen, 2015).

Results from Niederle and Vesterlund’s (2007) own laboratory experiment show that the tournament-entry gap between males and females is mainly driven by women’s preference not to compete, and also lower levels of self-confidence. They conclude that gender differences in feedback aversion as well as in risk aversion play a limited role explaining the gap in tournament entry.<sup>12</sup>

As a consequence of these findings, research has turned to the questions of why women are competition-shy and lacking in self-confidence, and, in particular, the extent to which these differences are innate or learned. It may be that competitiveness is a result of both nature and nurture. There is a small amount of evidence that nature, e.g. in the form of hormones or age, may play a role; but there is currently no consensus (for

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<sup>12</sup> For a summary of the research see also Byrnes, Miller, & Schafer, 1999; Niederle & Vesterlund, 2011.

an overview, see Niederle & Vesterlund, 2011: 624). However, the influence of nurture or learning has fairly strong support. In particular, female aversion to competition has been found to be lessened when women are not negatively stereotyped. (e.g. Booth & Nolen, 2012).

#### **4. HOW TO MITIGATE WOMEN'S AVERSION TO COMPETE**

The findings of Niederle & Vesterlund (2007) have led others to examine why women have an aversion to compete, and how their antipathy towards tournaments might be reduced. Given that men and women have similar cognitive abilities and levels of education, the gender gap in competitiveness stands out as a possible major explanation for the gap in career success. High-ability women under-enter competitions whereas low-ability men over-enter. The reasons why women are loathe to compete seem to be both cultural and institutional.

Cultural factors have been examined in an interesting field experiment by Gneezy, Leonhard & List (2008). They find that in a patriarchal society – the Maasai in Tanzania – the preferences of women to enter competitions are low. However, in a matrilineal society – the Khasi in India – women's tendency to compete is higher even than men. In a study of Swedish school children, Dreber, von Essen and Ranehill (2009) find that boys and girls are equally likely to enter competitions, an outcome the authors attribute to the egalitarian nature of Swedish society.<sup>13</sup>

Institutional factors are manifold. First, stereotype threats are moderated or disappear when women compete against women, when competition concerns typical female tasks, or when the task is framed gender-neutral (Booth & Nolen, 2012). This was shown in laboratory experiments (Guenther et al., 2010; Shurchkov, 2012) as well as in a natural field experiment (Flory, Leibrand & List, 2015). These studies demonstrate that women improve their performance when they compete in all-female groups compared to mixed-sex groups (Gneezy, Niederle & Rustichini, 2003). Fryer and

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<sup>13</sup> A field experiment of Hoffman, Gneezy and List (2010) suggests that culture has an impact not only on gender gaps in (non-cognitive) preferences, but in cognitive capabilities. Spatial ability differences, which represent the most persistent gender differences in the cognitive literature, are found to be shaped by culture. In India the tribes of Karbi and Kasi have a similar genetic background. The Karbi is a patrilineal society. The Kasi is a matrilineal society. The gender gap in spatial abilities, measured by time to solve a puzzle, exists in the patrilineal society, but it disappears in the matrilineal society.

Levitt (2010) find that in Middle Eastern countries with same-sex schooling there is no gender gap in math. Also, having a female math or science teacher seems to improve the math and science performances of girls, particularly those who are gifted (Dee, 2007; Carell, Page & West, 2010; Niederle & Vesterlund, 2010).

While culture-specific preferences are not easy to change, and single-sex competition is not usually feasible in the workplace, other institutional alterations can be made to reduce stereotyping. A second set of measures open to institutions is to incorporate affirmative action policies or quotas. Increasing the number of same-sex competitors by a system of quota raises both the flow of women and their chances of winning. Quotas may encourage women to enter tournaments, but they may also cause some concern about being labelled as “token women”. In two laboratory experiments, quotas were used and the effects on men and women then observed. In the first, Niederle, Segal & Vesterlund (2014) engaged men and women in a numbers-based tournament. The “affirmative action” tournament ensured that for every two winners at least one winner was a woman. The participants had to choose between a piece-rate scheme and a tournament scheme. While in the standard situation only 29 percent of women chose the tournament, in the affirmative action situation 64 percent of women entered it, but there were fewer men. The percentage of men in the affirmative action condition was lower compared to other settings. Interestingly, the most-qualified contenders won under a quota. In other words, quotas did not produce less-qualified candidates. On the contrary, it encouraged the highest-performing women to enter the competition. Balafoutas & Sutter (2012) confirm these findings and add that the preferential treatment of women, for example the inclusion of a gender specific bonus, also has a positive impact on women’s decision to compete. In addition they find that cooperation in teams after the competition does not seem to suffer as a result of affirmative action.

It remains an open question whether in the field the effect of encouraging talented women to participate in tournaments by quotas will outweigh the detrimental effect associated with being labelled a token. Also, affirmative action may be perceived as unfair “reverse discrimination” by men, and may crowd out high-performing men from competing.

A third institutional practice that has been shown to motivate women into competitions is the reward system. Petrie & Segal (2014) show that if rewards are

sufficiently large then women not only will compete but they will also win as much as men. This measure could be expensive for companies. It may also fail to change women's general preferences and instead merely impose a different prize for men and women. However, given that men are currently paid on average more than women, this option may equalize pay. Alternatively, unequal incentives may further increase stereotyping of women.

A fourth possible measure which avoids these problems is to give subjects information about the performance of their competitors in previous tournaments. In the study of Niederle & Vesterlund (2007), among other studies mentioned, participants in laboratory experiments knew only how they performed when they made their decision to enter a tournament. In many field contexts, however, individuals have some information about the performance of others. In two laboratory experiments it has been shown that giving subjects information about the best performances in their group in previous competitions considerably reduces the gender gap in tournament entry (Ertac & Szentes, 2011; Wozniak, Harbaugh & Mayr, 2014). However, in real life, performance evaluations of individuals are very imprecise and can be influenced by stereotypes (e.g. Latham et al., 2005).

A fifth possible mechanism to motivate women to enter contests and raise self-confidence would be to reduce competition among a pre-selected pool of candidates. Team designs are such a measure. Instead of individuals contesting, teams can compete. In teams, the measurement of individual performance is reduced. This might explain why the gender gap in tournament entry is decreased by about two-thirds when participants are in teams (Dargnies, 2009; Healy & Pate, 2011; for an overview see Niederle & Vesterlund, 2011). However, in laboratory experiments there is evidence that high-performing and low-performing women compete equally with men in team settings, whereas the high-performing men are less likely to join team tournaments. As a consequence, the quality of the pool of entrants into tournaments is negatively affected by the behaviour of men (Dargnies, 2009). Minimizing the gender gap comes at a price -- the reduced quality of the male pool of entrants.

How else then might gender differences be neutralized in tournament entry? Niederle & Vesterlund (2011) ponder the question of whether competition is desirable in the first place. Competing can be detrimental in cooperative settings and negatively affect contributions to collective goods. To combine the positive effects of lowering

competition, and avoid the crowding out of high-performing men, in this paper we suggest utilizing a radical yet (long ago) traditional institutional arrangement, *the random selection of candidates out of a pre-selected pool*.

## 5. AN INTRODUCTION TO RANDOM SELECTION

Random selection is rarely featured as a decision-making mechanism in business processes or the management literature (for an exception, see Zeitoun, Osterloh & Frey, 2014). We are proposing that it should be used as a tool to select managers and mid-tier leaders out of a pre-selected pool. The key idea is that women may be more likely to enter the pool of candidates because random selection suppresses competition. Identity costs -- for example being disliked, or being punished by candidates who were not selected -- are avoided, and non-winners in random selection do not lose face.

Random selection has a long, but perhaps not well-known, history. It was first used as a political mechanism by the Athenians and Venetians over two and a half thousand years ago (Buchstein, 2010; Buchstein & Jörke, 2007; Frey & Steiner, 2014; Zeitoun, Osterloh & Frey, 2014). Although its use has greatly declined, some institutions still use randomness; for example the Coptic Pope is selected randomly out of three candidates (Boochs, 2009), the Amish choose their leaders by random selection, and it is commonly used as a mechanism to select juries or decide tiebreaks in national and local elections (Zeitoun, Osterloh & Frey, 2014). Possibly the most conspicuous use of random selection, one that reaches into the living rooms of millions of people around the world every week, is through lotteries<sup>14</sup>. The general public in many nations appear to trust lotteries and liberally invest large amounts of money in them. This is despite a general perception that random decision-making is irrational and arbitrary compared to other decision mechanisms like voting, decisions by public authorities, or the price system (Frey & Pommerehne, 1990).

Frey and Steiner (2014) and Zeitoun, Osterloh, and Frey (2014) summarise the strengths and weaknesses of using random mechanisms in social and political settings, on corporate boards, and elsewhere. First, and of most relevance to this paper, random decisions produce representativeness in the population (McCormick, 2006). This is the reason why it is used in national surveys. Groups, based on gender or ethnicity, are

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<sup>14</sup> The UK's Premium Bonds also use a lottery system.

represented according to their significance in the general population, avoiding discrimination (Frey & Steiner, 2014).

Second, random processes prevent an illegitimate influence on decisions by interest groups. These may include “old boys networks” or through corruption (Hayek, 1979). Once the short list is decided, there is little sense spending time or money trying to influence a random process.

Third, selecting people randomly gives a chance to groups that otherwise have no voice and thus enables neglected aspects, ideas and perspectives.<sup>15</sup> It is a way to protect against homophily and it encourages new talent into the pool – such as individuals who may be less inclined to enter competitions or elections because of low confidence or risk aversion (Beckmann & Menkhoff, 2008; Buchstein, 2009; Zeitoun, Osterloh, and Frey, 2014). A diverse talent pool will generate diversity of ideas and decisions, allowing creativity to surface (Fishkin & Farrar, 2005; Jeppesen & Lakhani, 2010); and it facilitates a “focused naïveté: a useful ignorance of prevailing assumptions and theories” (Gieryn & Hirsh, 1984: 91). It may also lead to a ‘balanced portfolio’ by spreading risks as different kinds of people (and personalities) will be randomly selected (Zeitoun, Osterloh & Frey, 2014). These aspects of random selection seem particularly pertinent to knowledge-intensive firms.

Fourth, random selection promotes stability and continuity of representation. Each group has the chance of being chosen in the future. This aspect played an important role in classical Athens and in the medieval Italian city-states. It had a pacifying impact in times of great political conflict. Today, in knowledge-intensive firms, random selection could be used to encourage representation: In organizations where the core workers are experts and professionals, it is common to find an unwillingness to take up management and leadership positions (Empson & Langley, 2015). An option to include candidates through a random process may motivate reluctant managers into the pool.

Fifth, and importantly, random selection implies that the “losers” of the selection process do not lose face, inducing more well-reputed individuals to stand for an office. This experience occurred in the 18<sup>th</sup> century at the University of Basel, which appointed professors by lot among the top three candidates (Stolz, 1986: 670). In our context, women who win the lottery will not be exposed to negative stereotypes that may be

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<sup>15</sup> This is the main advantage over the establishment of quotas which can only be set if the corresponding dimensions (e.g. gender or nationality) are determined, see Frey & Steiner 2014.



associated with them outperforming men. Again, this may foster a more diverse applicant pool.

Random selection also has potential disadvantages. The first and most common argument against it is that it does not discriminate between able and not so able people. Randomly selected individuals -- a critic can argue -- may lack the necessary skills to do their job. This is the reason why random selection is usually complemented by a prior screening process to filter out people who do not fit the necessary criteria.

A second disadvantage may reside in the belief of some that random selection is “irrational” or “arbitrary”. However, the literature on selection processes that focus on (past or potential) performance suggests that this view is at best incomplete. So-called “rational” selection processes are themselves prone to many weaknesses: for example, biases and prejudices of the appraisers (e.g. Latham et al., 2005), the Peter Principle <sup>16</sup> (e.g. Lazear, 2001), and the performance paradox (e.g. Meyer & Gupta 1994).<sup>17</sup> Evidence suggests that some alleged “rational” evaluation processes are in fact subject to randomness, e.g. the selection of award-winners in musical competitions (see Ginsburgh & Weyers, 2014), winners in wine contests (Hodgson, 2009) and in other circumstances (Kahnemann, 2011). As soon as these “rational” processes are shown to be factually irrational, perceptions of fairness suffer greatly which is not the case with openly random processes.

As a consequence, random processing, which includes screening to filter out inappropriate candidates, can in principle be used in many settings to correct and improve different kinds of procedures.<sup>18</sup> Zeitoun, Osterloh and Frey (2014) propose developing a corporate governance model using random selection procedures to appoint stakeholder representatives to corporate boards. Pluchino, Rapisarda and Garofalo (2011) suggest using partial random selection as a promotion strategy that protects against the Peter Principle. Finally, Ginsburg and Weyers (2014) recommend its use in the selection of artists from a limited number of short-listed candidates.

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<sup>16</sup> The Peter Principle is the selection of a candidate for a position based on the candidate's performance in their current role rather than on their abilities that might be relevant to the intended role.

<sup>17</sup> The performance paradox characterizes the effect that all kinds of performance indicators after some time lose their ability to discriminate between good and bad performance, due to goal displacement, gaming, and lock-in effects. For the analysis of performance paradoxes in research see Osterloh & Frey, 2014 and Frost & Brockmann, 2015.

<sup>18</sup> Empirically it has been shown that to filter out the “bad apples” is more reliable than to filter-in the excellent ones, e.g. in scholarly performance, see Chicchetti 1991.

We suggest here that random selection should be used to appoint middle managers from among pre-chosen candidates, to encourage women to enter competitions, thereby raising the female talent pool. The next section outlines how the procedure would work.

## **6. RANDOM SELECTION AS A SUPPLY-SIDE TOOL**

We focus on the use of random selection into mid-level management positions, although, arguably, the mechanism may be efficient for selection into other leadership roles also. For this approach to work, an important requirement is the organization's commitment to adopt randomness as a management tool for selection over a significant period. It will only be possible to observe whether equity has been inculcated -- because women have been encouraged to throw their hat into the ring -- after some time. Repetition of the practice over time will also facilitate measurement of performance on both individuals and the firm. Ideally, the procedure should be used across the organisation to place people into a range of middle-ranking positions.

### ***6.1 Entry to the short list***

Random selection at the second stage would, we argue, encourage women to allow their names to go onto the short list at the first stage. There are two possible ways to compose the candidate pool. The *first approach* is random selection from a short list involving conventional procedures where there may not initially be an equal number of men and women. Conventional procedures mean that the position might be advertised internally, or a committee might choose male and female candidates, or managers might 'tap the shoulders' of potential contenders and encourage them to consider the position. Out of this pool, a random selection of the chosen candidate would eventually be made.

The *second approach* requires a pool that, by design, is made up from the start with the same number of men and women. In this case, a quota would be needed. This approach incorporates a combination of demand-oriented measures (quota) and supply oriented measures (random selection) in order to mitigate gender gaps. Quotas are put in place by some governments or voluntarily adopted when other forms of encouragement or self-regulation have failed to alter gender or ethnic distributions

(Krook, 2005; Dahlerup, 2006).<sup>19</sup> Quotas seem empirically to work; they change the gender landscape by raising the profile of women, and, concomitantly, increase female representation in the public and commercial sectors, without negatively affecting productivity (Jones, 2004; Chattopadhyay & Duflo, 2004; Powley, 2007; Balafoutas & Sutter, 2012; Niederle, Segal & Vesterlund, 2014; Beaman et al., 2009, 2012).

Irrespective of which method of selection is chosen, candidates who enter the pool should be approximately equal in their rank or position in the organisation and have equal approximate ability. This would help to ensure against potential ‘glass cliff’ scenarios (Ryan & Haslam, 2005), where women are inappropriately picked for a task and therefore fail -- a situation that increases negative stereotyping. The level of management knowledge and experience may vary between candidates, but this is not uncommon in any promotion. Inevitably, contestants’ personalities will differ. However, importantly, applicants should have extensive knowledge of the core business of the organisation (Goodall, 2011; Goodall & Baker, 2014).

## ***6.2 Randomly selecting into the post***

Once the short list has been finalized – whether by conventional methods of selection or through a quota system that guarantees gender equality – the random selection of the candidate can occur. Under the conventional method, a stratified sampling (Mueller, Tollison, & Willett, 1972) takes place. Male and female candidates receive a predetermined chance according to their numbers in the pre-selected pool. Under the quota approach, men and women have the same chance of being selected. Both approaches are designed to encourage women to throw their hat into the ring without crowding-out high-performing men by “reverse discrimination.” Trust is an extremely important factor to ensure. Therefore, the process needs to be regulated and should perhaps happen in a public or semi-public setting.

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<sup>19</sup> A recent high-profile example is the requirement for all boards of public companies in Norway to include at least 40% women. The German Parliament has also recently decided to introduce a 30% quota in the boards of big public companies. An attempt by the UK government to impose a voluntary obligation of 25% female board membership on all public companies by 2015 looks like it may just meet its target (Sealy, Turner & Vinnicombe, 2013).

## **7. THE BENEFITS OF RANDOM SELECTION TO DIVERSITY AND ORGANIZATIONAL PERFORMANCE**

In this section we will summarise potentially important advantages of employing random selection in organizations in addition to the advantages discussed above.

### ***7.1 Random selection offers ‘rejection insurance’***

The literature suggests that women fear being punished by competing with men (Phelan, Moss-Racusin & Rudman, 2008) since “...being competitive in “male settings” for women still includes a negative stigma of being bitchy” (Guenther et al. 2010: 400). Moreover, they are more risk averse than men in certain circumstances (Barber & Odean, 2001; Charness & Gneezy, 2012). Women lack confidence compared with men (Lichtenstein, Fischhoff, and Phillips, 1982; Beyers, 1990; Niederle & Vesterlund, 2007; Kay & Shipman, 2014) and they are also more likely to suffer psychologically from failure or rejection (e.g. Steele, Spencer & Aronson, 2002). Opting to compete for management and leadership positions requires both self-confidence and confidence in the system to run fair tournaments.

Random selection acts as ‘rejection insurance’ against these factors – and does so in two key ways. First, it protects against any personal pressures a woman may be subjected to; for example, husbands or partners might welcome their wives’ success with less negative feelings when randomly selected. Women might, early on, anticipate such reactions and therefore be more enthusiastic about entering the initial pool.

Second, if a candidate loses, he or she cannot ‘blame themselves’ for not winning, thus reducing the likelihood of internalizing failure into one’s self-perception. Throwing a dice makes the process balanced and open, and, therefore, not susceptible to undue influence through networks and interest groups, homophily or corruption, which will allow the process to induce greater trust. .

### ***7.2 Random selection reduces ‘the chosen one’ factor***

If random selection offers rejection insurance to protect women against internalizing failure, it also protects against the possibility of men to overly internalize

the positive influence of winning. Overconfidence in men is well documented (Lichtenstein, Fischhoff & Phillips, 1982; Beyer, 1990; Kay & Shipman, 2014) and it can be more pronounced when men undertake tasks that are considered to be masculine (Moore & Small, 2004); arguably men may consider leadership as such a task. The characteristic of 'hubris' is sometimes associated with organizational leaders (Hayward & Hambrick, 1997; Hiller & Hambrick, 2005). Individuals who regularly win tournaments may start to believe that they are 'the chosen one'. Serial winners may overly-attribute their success to personal talent and under-represent the role of chance. An over confidence in one's ability could result in homogeneity of ideas and decision-making, because too much weight is placed on one's own opinions and less on others. This may be further enforced by hiring the fabled 'yes men' into the team.

The contrasting characteristic of 'humility' is viewed as being desirable in managers and leaders (Sally, 2002; Van Buren & Safferstone, 2009; Goodall & Pogrebna, 2014). Choosing managers by random selection will likely protect against 'the chosen one' factor and may engender greater humility and collegiality because of the greater weight placed on chance.

### ***7.3 Random selection can improve organizational performance - an application of Jensen's Inequality<sup>20</sup>***

There is another, although little-known, argument for random selection. A conceptual idea originating from the Danish mathematician Johan Jensen helps us understand how the random selection of managers (of either sex) may also contribute to organizational performance. Known as 'Jensen's Inequality<sup>21</sup>' (Jensen, 1906), this mathematical idea describes the fact that randomness can be desirable when performance is described by an upward-sloping curve that is steadily accelerating (that is, convex from below). This is because a random mixture of very high and very low values will then average out to be fairly high.

In our setting, the potential relevance of Jensen's Inequality can be illustrated numerically. Imagine a world in which there are three kinds of leader or manager candidates. They come in three qualities: 'poor', 'good' and 'outstanding'. Assume that a selection panel can always identify the good safe candidate, but that it is hard for the

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<sup>20</sup> Thanks to Andrew Oswald for this suggestion.

<sup>21</sup> Jensen's inequality means that a chord always lies above a convex curve.

panel to distinguish between poor and outstanding (both may tend to look risky, ex ante). Thus, the safe outcome for the organisation can always be achieved by the unadventurous strategy of selecting the middle-quality manager, namely the one here described as good.

How, then, could an organization do better than merely selecting the safe manager each time?

Imagine that the choice among the three candidates is done by random draw. Assume for the argument here -- in fact Jensen's inequality is more general but we wish here only to convey the idea -- that a poor manager will lead to the organization making \$2 million revenue, and the good one will ensure the organization makes \$3 million, while the outstanding one will lead to the organization making for itself \$5 million in revenue. Then, necessarily under random selection, one third of the time the manager will turn out to be poor. That means, under random selection of leaders, that one third of the time the organization will generate \$2 million revenue. One third of the time the manager will be good, thus leading to \$3 million, and one third of the time the candidate will be outstanding and will generate \$5 million revenue. On average therefore it is straightforward to see that the organisation will produce revenue of more than the \$3 million that is always garnered by taking the safe option. This happens because the organisation gets an even spread of candidates through time. Put arithmetically, the calculation is simply that  $(2 + 3 + 5) / 3 = 3.3$ . In this setting, therefore, where the success of the organisation depends in an accelerating way on the quality of managers, random selection produces on average a better organizational result than continually picking the safe candidate.

In some instances, it is empirically plausible to think that outstanding managers do produce these accelerating effects, because they can have special multiplying effects on the success of organisations. In such situations, getting a superb manager, even occasionally, can be disproportionately important to the organisation. Random selection is then optimal because the occasional 'error' (appointing a weak manager) is more than outweighed by the occasional superb appointment of a manager who takes risks and earns large rewards for the organization.

## 8. DISCUSSION AND CONCLUSION

The tide has not turned for women in leadership. It might be argued that numbers are still inexcusably low. For women to become leaders, they must first become middle managers. Firms committed to diversity could choose to use affirmative action as a demand-side tool to ensure women are placed into management positions. However, this has associated costs. Women are made to feel that they acquired the job merely because of their gender, and men view it as unfair “reverse discrimination”, or another form of overt interest-group influence. Moreover, high-performing men may be crowded-out. Thus affirmative action may result in the persistence of women’s negative (self-)stereotyping with the attendant “identity costs”.

Although there is evidence that quotas work (and they may yet be necessary), it takes time for them to be fully accepted. When quota regulations were introduced to promote female leaders in India, women’s leadership effectiveness was acknowledged by the voting population more quickly (Beman et al., 2012) than the electorate’s general attitude of distaste for the idea of women leaders; this remained unaffected for much longer (Beaman et al., 2009: 1500).

In this paper we opt for the introduction of supply-side measures to encourage women into management. We acknowledge that gender gaps are based on the dissimilar preferences of men and women, the most important being their different inclinations to enter competitions. Unlike men, women have an aversion to compete in mixed sex-groups. With this in mind we propose a new solution based on the use of random selection among a pool of pre-chosen candidates. We argue that random selection will encourage women to throw their hat into the management ring because it avoids competition within the ring. Crucially, we believe that random selection at the second stage would increase females’ willingness to allow their names to go onto the short list at the first stage. As a consequence, it mitigates the “identity costs” of women falling “out of role” and offers “rejection insurance” against failure to be selected.

Choosing candidates fairly through random selection also levels the gender field by reducing the influence of male networks that often support men into and during promotion. It also protects against the propensity for managers to feel that they are “the chosen one”, thus encouraging greater humility and collegiality. We also explain that the purported disadvantage of random selection -- of not identifying the most appropriate

person – needs to be balanced by considerations that “rational” selection processes are flawed, and also that, under certain conditions, random selection can contribute in the long run to organizational performance. This latter point can be captured using a conceptual application of “Jensen’s Inequality”.

This paper has limitations that offer opportunities for future research. First, there is apparently no empirical evidence on the effects of random selection in the field of gender policy. Such evidence is by necessity restricted because the application of random selection in this field is a novel idea. Future endeavors may apply various methodologies to gather empirical evidence, starting with laboratory experiments and vignette studies, and continuing to in-depth case studies of real-world implementations.

Second, although random selection of management candidates represents a generic concept, its adoption needs to take into account the cultural subtleties in different countries (zeitoun, Osterloh & Frey, 2014). For instance, random selection procedures are likely to be accepted more readily in cultures that emphasize equality of opportunities. Where cultural beliefs associate random selection with “irrationality”, it may be helpful to emphasize the instrumental benefits of random selection procedures, especially when compared to conventional selection procedures that are often only partially “rational”.

Although the suggestion made in this paper may seem unconventional, we believe that the time is ripe for radical endeavors. It is clear that the gender gap is proving difficult to close. We hope our innovation is viewed as an opportunity.



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