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Black-Boxes in Executive Assessment

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BLACK BOXES IN EXECUTIVE ASSESSMENT

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by

Sibel Ozgen Novelli

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To: Dean William Hardin
College of Business

This dissertation, written by Sibel Ozgen Novelli, and entitled Black Boxes in Executive Assessment, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

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DEDICATION

To Sean, mom & dad.

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ABSTRACT OF THE DISSERTATION

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This dissertation examines bias in executive assessment in two studies using field and experimental data. The first study explores bias in promotability inferences, and the second examines biases that may emerge in a post-promotion context. The first essay builds on the gender-based double standards literature. It explores whether the composition of inputs required to be seen as promotable into the upper echelons differs for men and women. Based on an analysis of data from 490 focal executives representing 18 countries, the first essay sheds light on the conditions under which a gender-based double may be observed in promotability into upper echelon positions. The second study builds on the first one and seeks to examine whether algorithmic-decision making can help dismantle biases in organizations. It aims to explore its downstream consequences for executives who are promoted via algorithmic determination vs. human decision-making. Building on a robust phenomenon known as ego-centric advice discounting and research on algorithmic aversion and escalation bias, it examines supervising executives' attitudinal and behavioral responses to algorithmic decision-making in an executive promotion context. In an experimental study of 680 managers in the U.S, findings highlight the non-financial costs of algorithmic decision-making faced by algorithm-promoted executives in an executive promotion context.

TABLE OF CONTENTS

CHAPTER PAGE

LIST OF TABLES

TABLES PAGE

LIST OF FIGURES

FIGURES PAGE

Chapter 1: Gender-Based Double Standards in Executive Promotability

Abstract

Despite robust evidence supporting the existence of a gender-based double standard in managerial settings, how it transpires in the upper echelons of organizations remains unclear. In this study, we explore whether the composition of inputs required to be seen as promotable into the upper echelons differ for men and women, and according to promotion norms across countries. Specifically, we examine how negative cues about four behaviors key to executive work and gender collectively inform gatekeeper perceptions of executive promotability to the top management team, with the gatekeeper being existing top management team members embedded in distinct institutional contexts. Using fuzzy-set Qualitative Comparative Analysis on a sample of 490 executives from 18 countries, we find that in the absence of negative cues regarding executive behaviors, both male and female executives are deemed promotable, and this pattern is evident across institutional contexts. However, a gender-based double standard is evident among candidates exhibiting negative information in particular dimensions of executive work, with men enjoying more lenient consequences, especially when promotion norms are relational. This study advances a more nuanced and contextual understanding of the conditions undergirding double standards in holistic inferences of promotability, and it sheds light on how gatekeeper perceptions of executives may shape upper echelon composition.

Introduction

Despite progress in recent years, women remain underrepresented in senior-level organizational leadership positions, with an estimated 70-75% of senior executive positions held by men globally (Catalyst, 2020; Larcker & Tayan, 2020; McKinsey & Company, 2020). One prominent explanation of impediments to female advancement comes from double standards theory (Foschi, 1996, 2000), which is premised on the idea that women, compared to men, are held to higher standards. The central logic of double standards theory is that decision-makers rely on subtle and pervasive (even if erroneous) status beliefs about the relative performance capacity of men versus women (Correll & Benard, 2006; Foschi, 2000; Stroube, in-press). The resultant expectation disadvantage for women would imply that women need to go to greater lengths to prove their suitability as 'top management material' (Foschi, 2000; Lyness & Heilman, 2006; Ridgeway, 2001). However, although evidence in the broader literature from laboratory research (for a review, see Foschi, Ndobo, & Faure, 2019), as well as field studies (e.g., Botelho & Abraham, 2007), supports the existence of a gender-based double standard, how it transpires in the upper echelons of organizations, is not well understood. Two interrelated features of the existing literature underlie this lacuna.

First, prior research has given little attention to promotion into senior executive positions, while extant executive selection research has largely examined the independent effects of candidate-level inputs. Research on double standards has similarly searched for the existence of differing standards by gender in single dimensions of candidate-level information (Foddy & Smithson, 1989). Examining inputs in these manners is problematic because executive performance is multidimensional (Dye, 1984), and promotability inferences depend on an integration

of multiple inputs by incumbent top managers who serve as the primary gatekeepers for executive positions (Hitt & Barr, 1989; London & Stumpf, 1983). Thus, the composition of the candidate-level inputs that shape inferences of promotability by incumbent senior executives, and how gender informs a differential integration of these inputs, remains unclear in extant literature (Thorngate, Dawes, & Foddy, 2010).

A second central shortcoming of existing research is that it has largely ignored societal context (Ng & Sears, 2017). While the underrepresentation of women in senior executive roles is a global phenomenon, the factors shaping who is seen as upper echelon material may differ substantially across societal contexts. National institutional context shapes societal norms, labor practices, and gender-based attitudes (Foshi, 2000; Biernat & Thompson, 2002), and comparative research on gender representation in upper echelons bears this out (e.g., Terjesen & Singh, 2008). As such, gatekeeper application of gender-based double-standards to executives may differ across societal context, suggesting the need for contextual theorizing and empirical examination. To date, research has leveraged comparative approaches to examine differences in upper echelon composition, but it is unclear how societal context may shape the double standards that condition how male and female executives come to be perceived as promotable to the corporate apex.

To address these shortcomings, this paper explores whether the composition of inputs required to be seen as promotable into the upper echelons differ for men and women, and according to institutional promotion norms across countries. Drawing from literature on the salience of negative information in person perception and evaluation (Baumeister et al., 2001; Fiske, 1980) and gender gap in punishment of negative outcomes (e.g., Brewer et al., 2020; Egan, Matvos, & Seru, 2017), it examines how negative cues regarding four behaviors key to executive work (McCall

& Lombardo, 1983; Van Velsor & Leslie, 1995) and gender collectively inform gatekeeper perceptions of executive promotability to the top management team in distinct institutional contexts, with the gatekeeper being existing top management team members embedded in distinct institutional contexts.

This study adopts an abductive approach[1] and uses fuzzy-set Qualitative Comparative Analysis (fsQCA) on a sample of 490 executives from 18 countries, who received multi-source ratings from 3869 peers and subordinates regarding negative behavioral cues and 521 incumbent senior executives regarding promotability potential to senior-executive roles. The configurational apparatus of fsQCA enables to unpack the holistic nature of gatekeeper inferences, revealing two overarching patterns. First, in the absence of negative information across the four dimensions of executive behaviors, both male and female executives are deemed promotable, and this pattern is evident across institutional contexts. Second, a double standard emerges among executives who exhibit negative behavioral cues, but the nature of the double standard is context dependent. In societal contexts emphasizing merit-based promotion norms, negative information in one dimension tend to be tolerated for men but not for women, unless the information indicates men's difficulty adapting. However, in societal contexts emphasizing relational promotion norms, men with negative cues, even across all four dimensions, are considered promotable. Hence, a gender-based double standard is evident among candidates exhibiting negative information in particular dimensions of executive work, with men enjoying more lenient consequences, especially when promotion norms are relational.

[1] An abductive reasoning approach has been widely adopted by QCA studies and is based on "a continuous dialogue and back- and forth- between theory and empirical data and evidence with the goal of developing a theory that can best explain the phenomenon in question" (Park, Fiss, & El Sawy, 2020, p. 1499).

This study makes two overarching contributions. First, the study advances a more nuanced and contextual understanding of the conditions undergirding double standards, pinpointing the context-sensitive role of negative information in holistic inferences of promotability. By identifying when a gender-based status premium versus a status discount is given by gatekeepers to men versus women in executive promotability contexts, the study helps advance the literature on the career advancement of men and women executives. Second, it contributes to strategic management research by advancing theory of why the upper echelons of organizations look the way they do (Hambrick, 2007; Pettigrew, 1992). By examining who is seen by gatekeepers as top-management material, the findings shed light on how gatekeeper perceptions of executives (i.e., potential candidates) may shape upper echelon composition – which in turn shape firm-level strategic behavior and performance outcomes (Carpenter, Geletkanycz, & Sanders, 2004; Liu, Fisher, & Chen, 2018).

Because the approach to examining double standards is abductive and leverages configurational analysis, the rest of the paper follows a different order than a deductive study. Consistent with prior research (e.g., Campbell, Sirmon, & Schijven, 2016; Dwivedi, Joshi, & Misangyi, 2018), first a review of theory and research on double-standards and inputs that influence inferences of executive promotability is provided. Subsequently, the paper empirically examines the data using fsQCA (Ragin, 2000) and leverages the findings to elaborate novel theoretical insights regarding the nature of gender-based double standards in promotability into the upper echelons of organizations.

Theoretical Background

Expectation states, status characteristics, and double standards theory

The demand side[2] perspective offers a useful general frame for examining executive upward promotability, as substantial evidence indicates that advancement standards differ for men and women, with a 'pro-male evaluation bias' (Nieva & Gutek, 1980) in hiring, promotion decisions, and rewards (Blau & DeVaro, 2007; Cassidy, DeVaro, & Kauhanen, 2016; Olian, Schwab, & Haberfeld, 1988; Joshi, Son, & Roh, 2015). Despite some progress (Ng et al., 2005), recent meta-analytic evidence indicates that work outcomes continue to be systematically influenced by gender and that even small amounts of bias can lead to significantly inequitable hiring outcomes (Hardy III et al., 2022). Furthermore, differences in promotion potential favoring men persist even in the face of evidence favoring women; women are regularly rated as having lower promotion potential, despite having slightly higher job performance (Roth, Purvis, & Bobko, 2012). In sum, significant evidence points to the fact that women and men face different promotion standards (Jones & Makepeace, 1996; Lazear & Rosen, 1990; Lyness & Heilman, 2006; Olson, & Becker, 1983), suggesting that investigation of the nuances of how and when different standards may be applied to executives by gatekeepers is a critical avenue in understanding the representation

[2] Both *supply* and *demand* side perspectives have been used to explain women's underrepresentation in the organizations (Reskin, 1993). The *supply* side arguments are concerned with factors such as the size of the labor supply and differences in factors such as human capital, labor market qualifications, preferences, choices, and experiences. The *demand* side explanations, in contrast, focus on the preferences, biases, and actions of gatekeepers (Bills, Di Stasio, & Gërxhani, 2017). Evidence suggests that women, despite having equivalent human capital and job performance, do not receive similar opportunities as men due to demand side barrier (Bigelow, Lundmark, McLean Parks, & Wuebker, 2014; Stroh, Brett, & Reilly, 1992). While both are likely to interact (Brands & Fernandez-Mateo, 2017), the current study primarily relies on a demand-side perspective to explain double standards that can arise during evaluative processes (Stroube, in-press).

of females – particularly in senior executive roles where they tend to be the least represented.

One well-documented theoretical approach to explain the application of different standards is expectation states theory, which concerns the development of power and prestige hierarchies within groups (Berger, Fisek, Norman, & Zelditch Jr, 1977). Its subtheory, status characteristics theory, examines status differences among social groups (Berger, Cohen, & Zelditch Jr, 1972; Berger et al., 1977), where the status of a group can be loosely defined as its "prestige, value, relative position, or social worth." (Thorngate, Dawes, & Foddy, 2009; p. 49). In this theoretical formulation, a status characteristic refers to a social attribute that confers differential prestige (a higher and a lower status position) that shapes inferences about the expected performance of group members (Berger, Rosenholtz, & Zelditch Jr, 1980; Thorngate, Dawes, & Foddy, 2009). These inferences are called *expectation states*.

According to this perspective, widely shared cultural beliefs associate greater social significance and general competence with the higher status category than the lower status category (Ridgeway, 2001). Thus, possessing a characteristic that a society collectively sees as lower status results in lower expectations of performance and potential by evaluators (Ridgeway, 2001, Stroube, in-press). Gender, as a diffuse status characteristic, exists in many countries and gender-based status beliefs often act as a powerful barrier to women's advancement (Ridgeway, 2001) as they form the basis of a double standard.

The notion of double standards (Foschi & Foddy, 1988) is an extension of status characteristics theory and has a well-established theoretical and empirical foundation (see Foschi, Ndobo, & Faure, 2019 for a review). According to double

standards theory[3], different performance expectations result in the application of different standards to higher- and lower-status members - *lenient* and *strict* respectively (Foschi & Foddy, 1988). Because gender-related status beliefs associate higher status and competence with men than with women (Foschi, 1996; Ridgeway, 2001; Ridgeway & Smith-Lovin, 1999) and because higher-status individuals are already presumed to be competent, their performance and competence are judged more leniently and with less scrutiny (Correll & Ridgeway, 2006; Foschi, 1996). Because the performance of lower-status individuals is more critically scrutinized, women, in contrast, are held to a stricter standard (Foddy & Smithson, 1999) to be judged as *equally* competent as men (Correll & Ridgeway, 2006).

Gender as input for executive promotability and double standards

The application of gender-based status beliefs in promotability inferences is relevant to understanding the underrepresentation of women in executive roles for several reasons. First, the majority of senior executive positions globally are filled through internal promotions rather than external hires ("CEO Success Study", 2019; DeVaro, 2016; Kauhanen & Napari, 2012). Incumbent gatekeeper perceptions often constitute a key mechanism for determining promotability to senior executive positions (De Pater, Van Vianen, Bechtoldt, & Klehe, 2009) as gatekeepers subjectively define the qualities and credentials required to attain executive positions. Thus, whether a candidate holds promise or not (Merton, 1973; Reskin & Padavic, 1988) is gauged in accordance with gatekeepers' normative expectations and standards (Dwivedi, Joshi, & Misangyi, 2018), which can be influenced by

[3] A mirrored formulation is the "shifting standards" model (Biernat & Kobrynowicz, 1997), which predicts that men need to do less to confirm their competence. In terms of confirming incompetence, women are granted less latitude than men before lack of ability is inferred. Put differently, men need to provide more evidence to confirm their incompetence (Biernat, Fuegen, & Kobrynowicz, 2010).

unconscious cognitive biases such as double standards (Stainback, Tomaskovic-Devey, & Skaggs, 2010).

Second, while gender-based schemas and preferences affect decision makers at all levels, they are likely to be particularly salient in executive ascendance (Heilman, 2001) because a) criteria for effective performance in more senior leadership roles are often subjective and not clearly defined (i.e., schemas help fill in missing or ambiguous information to reduce uncertainty, (Bartol, 1978; Salancik & Pfeffer, 1978), b) senior executives as gatekeepers are often freer from scrutiny in selection decisions (Powell, 1999) and typically fail (or are reluctant) to use validated selection procedures which are designed to simultaneously increase accuracy and reduce bias (Sessa, 2001), c) gender homogeneity in top management can facilitate the use of such schemas (Goodman, Fields, & Blum, 2003; Treviño et al., 2018) as gatekeepers may rely on proxies or signals such as perceived similarity as another way to reduce uncertainty (Kanter, 1977; Powell, 1999).

Inputs for promotability inferences: Negative behavioral cues

To examine whether the composition of inputs required for the inference of promotability into the upper echelons differ based on gender, this study primarily draws from literature on negative-positive information asymmetry (Baumeister et al., 2001; Fiske, 1980; Skowronski & Carlston, 1989) and maintain that negative cues are particularly relevant to executive promotability inferences. That is because differentiating executives based on positive information can be challenging; having strong credentials and prior work experience is quite common and generally expected in the executive labor market. Eager to work hard and win, these individuals have typically selected themselves into and survived multiple sequential promotional tournaments (Rosen, 1986; 1988). As a result, the field of candidates is not only of

high quality but also increasingly homogenous (Chan, 1996; Gabaix & Landier, 2008; Thomas & Rich, 2004), making differentiation based on positive information a challenge.

Furthermore, research on the positive-negative asymmetry effect (Baumeister et al., 2001) demonstrates that negative information attracts more attention and is distinctively more informative and useful to evaluators than positive information (Fiske, 1980; Hamilton & Huffman, 1971; Ito, Larsen, Smith, & Cacioppo, 1998; Pratto & John, 1991) and influences performance evaluation (Kaplan, Petersen, & Samuels, 2018). Additionally, given underlying tendencies toward risk aversion in senior executive selection, evaluators can exhibit conservative bias and "weigh negative information too heavily (or positive information not heavily enough) when forming evaluative judgments and decisions" (Motowidlo, 1986, p. 9). Thus, negative information is likely to be salient, perceived as of high utility, and weighted heavily in the context of promotion and selection into executive positions.

Beyond the presumed general relevance and effects of negative information to raters in promotion evaluation, there is likely a gender gap in outcomes associated with negative information. Indeed, emerging evidence suggests that women receive more harsh criticism and less favorable rewards in response to errors and outcomes of similar severity (Brewer et al., 2020; Sarsons, 2017). For example, women who display anger are conferred lower status than angry men (Brescoll & Uhlmann, 2008), and female CEOs who talk disproportionately longer than others are seen as less competent and less suitable for leadership than male CEOs who talk for the same amount of time (Brescoll, 2011).

Together, this paper asserts that negative cues – information that potentially inhibits movement into higher-ranking positions (Lombardo, Ruderman, &

McCauley, 1988) – may be particularly relevant to understanding perceptions of executive promotability and possible gender-based double standards in gatekeeper inferences, both due to the salience of negative information and due to the higher penalty incurred by females in comparison to men who engage in similar ineffective behaviors (Bono et al., 2017).

Given the evidence for the particular relevance of negative information, this study utilizes a framework of negative cues from the 'derailment' literature (Leslie & Van Velsor, 1996; Lombardo, Ruderman, & McCauley, 1988; McCall & Lombardo, 1983). Derailers are broadly defined as behavioral tendencies (or as we term them, negative cues) that can prevent executives from being successful. This paper draws from one of the dominant frameworks for conceptualizing derailers (Van Velsor & Leslie, 1995) and focuses on four behavioral dimensions[4] that include having problems with *interpersonal relationships*, *building a team*, *adaptability*, and *meeting business objectives*.

The *interpersonal relationships* dimension captures behaviors associated with difficulties in developing effective working relationships and involves behaviors that include being arrogant, cold, aloof, authoritarian, and insensitive to others. The *building a team* dimension concerns behaviors such as failing to staff effectively, difficulty in forming and leading teams, and difficulty in handling conflicts among team members. The *adaptability* dimension includes difficulties with learning and growing, including behaviors such as failing to adapt effectively to working for a boss with a different style or inability to adopt an organization's culture. The *meeting*

[4] The multisource instrument measures five dimensions of negative cues (i.e., derailers). The fifth one is omitted as it is conceptually similar to the construct of promotability. Example items used in the fifth dimension include "*Is not ready for more responsibility.*" "*A promotion would cause him or her to go beyond their current level of competence*.

business objectives dimension includes behaviors that indicate difficulties in following up on promises and getting things done.

Modeling gender-based double standards: A configurational fuzzy-set approach

This study relies on a configurational perspective to examine whether the composition of inputs required for the inference of promotability differ based on gender and across institutional contexts. This approach is well-suited to examine holistic cognitive inferences of gatekeepers (e.g., Campbell, Sirmon, & Schijven, 2016; Hitt & Barr, 1989) as well as double-standards in gatekeeper inferences (Foddy & Smithson, 1989). From an inference perspective, a configurational approach is consistent with the literature on impression formation and with the theory of information integration, which suggest that decision-makers process and integrate cues in a configural manner, and into a single judgment, "depending on some unique way on the interrelation and configuration of array of information" (Anderson, 1972, p. 93). Put differently, individuals form impressions of *one* whole person by integrating different pieces of information in a configural manner (Asch, 1946), rather than isolating the independent effects of different pieces of information. Not surprisingly then, managerial impression formation has been shown to be configural (Jago, 1978), including in the evaluation of applicants for managerial positions and promotion (Hitt, & Barr, 1989; London & Stumpf, 1983). In this sense, a configurational approach permits an examination of how different (negative) cues function together to form configurations of gatekeeper inference of executive promotability. Put differently, the approach allows to model double standards in the multi-dimensional case in instances which the standard (i.e., inferences) involves more than one performance domain – in which case, "a double standard……refers to the application of different combination rules, depending on the status characteristic

of the performers" (Foddy & Smithson, 1989, p. 83). Thus, the configurational approach is a fruitful avenue to examine the operation of gender-based double standards in the composition of inputs required for the inference of promotability across institutional contexts.

It is important to explore the nature of double-standards across institutional contexts because the status value of gender, as an input for promotability inference, can vary across institutional environments. Promotion decisions are embedded in institutional environments that differ markedly from each other and organizational actors are often constrained and guided by the norms and practices in their institutional context (DiMaggio & Powell 1983, Meyer & Rowan 1977). By providing formal and informal rules about appropriate and desirable conduct, institutions shape a firm's use of human resource practices (e.g., Bloom & Van Reenen, 2010) and can shape gatekeepers' propensity to make gender-based selection and promotion decisions (Perry, Davis-Blake, Kulik, 1994). Prior research on the role of context, for instance, suggests that labor market norms related to hiring decisions are consequential to the career trajectories of female managers (Siegel, Pyun, & Cheon, 2019).

Specifically, this study explores how national institutional context surrounding promotion norms may differentially shape negative cue compositions that result in perceptions of candidate promotability into the upper echelon across countries for male vs. female executives (Elson, 1999). Institutional differences in the degree to which merit (vs. relational ties) is rewarded and emphasized in hiring decisions (Van de Vliert, 2011) may provide a contingency to the nature of double standards in executive promotability considerations. Because the term meritocracy represents "a social system in which merit or talent is the basis for sorting people into positions"

(Scully, 1997: 413), in contexts where promotion norms are based on merit, the distribution of organizational rewards should depend less on individual characteristics such as gender (Amis, Mair, & Munir, 2020; Farber & Sherry, 1995; Thorngate, Dawes, & Foddy, 2010). Hence, a stronger emphasis on merit-based promotion may negate or constrain gatekeepers' tendency to consider criteria related to gender, reducing the application of gender-based double standards in promotability evaluations. Thus, cross-country variability in meritocratic promotion norms can shed light on whether the application of gender-based double-standards to women executives differ across country-level institutional contexts.

Due to limited theory in the literature regarding the nature of double standards in executive promotion, there are no a priori hypotheses regarding the specific nature of double standards that can emerge in promotability inferences of gatekeepers. Instead, using an abductive approach and the framework of conditions as outlined above, this study empirically explores the nature of gender-based double standards in the context of promotability to top executive positions across institutional contexts as a basis for subsequently elaborating theoretical insights.

Method

Sample and Data

Data were collected by a not-for-profit global leadership development organization as part of participant involvement in an executive leadership development program offered at eight locations[5] between 2010 and 2016. Focal executives were in positions just below the executive suite, were operating in their home countries, and the sample spanned 18 countries and included the: Australia,

[5] Executive programs were offered in U.S., Canada, Belgium, Australia, Portugal, China, Saudi Arabia, and Singapore.

Belgium, Brazil, Canada, China, Germany, India, Indonesia, Japan, Malaysia, Mexico, Netherlands, New Zealand, Saudi Arabia, Singapore, Thailand, United Kingdom, United States. Sample sizes across countries ranged from 9 (Belgium) to 79 (USA), with an average of 27 executives (*SD* = 17.58). The 490 executives represented 256 different organizations. Across the 18 countries, the median number of firms represented per country was 12 (range 2-70). Mean age was 44.25 years (*SD* = 6.30), 70.4% were male, and 85.1% of them had at least a Bachelor's degree. As described below, a multi-source data pertaining to 490 focal executives from both gatekeepers (upper echelon supervisors) (N = 521) as well as peers and subordinates (N = 3869) were used.

Measurement and Calibration

Measurement and calibration of the outcome: Executive promotability

The focal executives' supervisor provided promotability ratings as part of the *Benchmarks for Managers* assessment (Center for Creative Leadership, 2010). Raters were told that their promotability ratings were being collected for research purposes only and would not be shared with the focal executive. The confidential nature of promotability assessment alleviates concerns of rating inflation and leniency (Jawahar & Williams, 1997). A single item[6] was used to assess promotability "*How effectively would this person handle being promoted one or more levels*?" and was measured on a 5-point Likert-type scale from 1 (*Among the worst*) *to* 3 (*Adequately*) to 5 (*Among the best*). We calibrated set membership for promotability using the following thresholds: executives who were viewed by their supervisors as "among the best" (5)

[6] Single-item measures have long been used in human resource management for hiring and promotion and are considered suitable to capture constructs that are unidimensional, sufficiently narrow, and clear to respondents (Wanous & Hudy, 2001) – such as is the case with promotability. a recent large-scale evidenced based study, providing evidence that organizational constructs can be *reliably* and *validly* assessed by single-item measures (Matthews, Pineault, Hong, 2022, emphasis in original).

were coded as *fully in* the set of executive promotability, those viewed as "among the worst" (1) were coded as *fully out* of the set of executive promotability and the *crossover point* was set at the anchor point "adequately" (3).

Measurement and calibration of negative cues

To capture negative information on executives, a well-established set of four derailers from the *Benchmarks for Managers assessment*[7] were utilized (Center for Creative Leadership, 2010). The focal executives were rated by a total of 3869 peers and subordinates (M = 7.90; SD = 3.05) and were assessed using a 5-point Likert-type agreement scale (1 = *Strongly disagree*, 3 = *Hard to decide*, and 5 = *Strongly agree*). Lower scores (scores closer to ''1'' in magnitude) indicated that executives were less likely to display the ineffective behaviors in question. To aggregate peer and subordinate ratings for each focal executive, intraclass correlation coefficients were computed (Bliese, 2000), ICC (1) and ICC (2), which were comparable to values obtained in prior studies (e.g., Gentry & Shanock, 2008) and are reported below. The mean negative cues scores obtained in this study are similar to those obtained in other studies (Bono et al., 2017; Meade, Pappalardo, Braddy, & Fleenor, 2020). The calibration of negative cues relies on different thresholds because scores higher than 2.5 are considered potential problem areas for executives (*Leading Managers 360* assessment). Thus, to calibrate negative cues, the scores 3.0 or higher were coded as *fully in* the set of the presence of a negative cue. Scores of 2.0 were set as the *cross-over* point and scores of 1.0 were coded as *fully out* of the set of presence of a negative cue.

[7] Because of the proprietary nature of the assessment, only representative survey items are presented here. More information can be found here (https://www.ccl.org/lead-it-yourself-solutions/benchmarks-360-assessment-suite/)

Negative Cue Dimension 1: Problems with Interpersonal Relationships. This dimension was assessed using eight items (α[8] = 0.93) such as "*Is arrogant.*" The ICC(1) was 0.24 (F = 3.48, $p < 0.01$) and ICC(2) was 0.71, indicating the appropriateness of aggregation.

Negative Cue Dimension 2: Difficulty Building a Team. This dimension was captured using seven items ($\alpha = 0.92$) such as "*Is not good at building a team*." The ICC(1) was 0.18 (F = 2.62, $p < 0.01$) and ICC(2) was 0.62, indicating the appropriateness of aggregation.

Negative Cue Dimension 3: Difficulty Adapting. This dimension was measured using ten items ($\alpha = 0.91$) such as "*Is not adaptable to many different types of people.*" The ICC(1) was 0.17 (F = 2.62, $p < 0.01$) and ICC(2) was 0.62, indicating the appropriateness of aggregation.

Negative Cue Dimension 4: Failure to Meet Business Objectives. This dimension was captured using six items ($\alpha = 0.89$). Sample items include "*Has difficulty meeting the expectations of his/her current position.*" The ICC(1) was 0.16 (F = 2.51, $p < 0.01$) and ICC(2) was 0.60, indicating the appropriateness of aggregation.

Measurement and calibration of the institutional context: Merit-based promotion

Merit-based promotion data were obtained from the annual Global Competitiveness Reports (GCR) published by the World Economic Forum, using the "reliance on professional management" item (Schwab, 2010). The merit-based promotion was measured using a multi-country survey of business executives from

[8] Scale reliabilities were computed using others' ratings of negative cues and the full sample was used after aggregation to the focal executive level.

nationally representative firms in more than 100 countries. The fact that evaluations were collected from top-level executives rather than citizens highlight the fact that such ratings reflect practices within firms and executive circles rather than generalized beliefs or values of the population (Van de Vliert, 2011). This item measures the degree (7-point Likert-type scale) to which senior management positions in a country are held by individuals who are professional managers chosen for merit and qualifications (rating 7) versus by individuals who are chosen without regard to merit due to personal connections to relatives or friends (rating 1). In order to establish the inclusion thresholds, I extracted scores for all the countries included in the annual GCSs reports from the 2010 – 2016 period. The sample-based threshold is based on 916 country-year merit-based scores.

To calibrate merit-based promotion variable, the highest average country score (i.e., New Zealand, score = 6.31) was used for full inclusion in the merit-based country category. I used 50th *percentile* scores (score = 4.30) as the cutoff to be *fully out* of the set of countries that has institutions with merit-based promotion and used the 75th *percentile* (score = 4.90) as the *cross-over* point in the analyses.

Analytical Approach

A fuzzy-set qualitative comparative analysis (fsQCA) analytic approach (Ragin, 2000) was used to explore whether the composition of inputs required to be seen as promotable into the upper echelons differ for men and women and based on institutional promotion norms. Based on Boolean and fuzzy algebra, fsQCA is grounded in set-theory and uses subset connections to examine the associations between conditions. In fsQCA, data for each condition are transformed into calibrated set membership scores. The *calibration* allows cases to have varying degrees of membership in a given set, ranging between "0" and "1". The anchor point "1" is used

to present cases that are *fully in* a particular set, whereas "0" reflects the cases that are *fully out* of the set (i.e., non-membership), and "0.5" represents the *cross-over point*, which reflects the point of maximum ambiguity in a given set (i.e., neither in nor out)[9]. I present measurement, calibration thresholds, descriptive statistics, and correlations in Table 1.

I employed the QCA program in R to conduct all set calibrations (Duşa & Thiem, 2014) and used the truth table algorithm available in the fs/QCA 3.0 program for Mac (Ragin & Davey, 2014) to identify sufficient configurations of negative cues, gender, and institutional context for executive promotability. The truth table displays the "property space" - a table of logically possible combinations of conditions. For a k number of causal conditions under consideration, the truth table has 2^k logically possible combinations. In the current examination, the Boolean property space consisted of 64 logically possible combinations (i.e., 2^6, number of conditions examined = 6).

During the fsQCA analysis, the truth table is minimized based on two criteria: a) frequency cutoff - that is, the minimum number of cases required in a given configuration and b) the consistency cutoff – that is, the minimum level of consistency required for a solution to be deemed acceptable. Establishing an appropriate frequency cutoff depends on the number of cases included in the analysis. Given the size of the sample and consistent with recommendations for large-N QCA studies (Greckhamer, Misangyi, & Fiss, 2013), I used a frequency threshold of six, which still enabled to retain at least 84 percent of the cases included in the analyses.

[9] Because cases with condition values of 0.50 are dropped from the analyses, we coded those cases as 0.501.

Consistency reflects the degree to which membership in a given empirically observed configuration is associated with the outcome of interest (Fiss, 2011). For instance, a consistency score of 1.0 would reflect a perfect subset relationship. A low consistency score, on the other hand, would suggest a given configuration is not reliably related to the outcome. Similar to prior studies (e.g., Campbell, Sirmon, & Schijven, 2016), I used a consistency threshold of 0.80. I incorporated the proportional reduction in inconsistency (PRI) consistency (Schneider & Wagemann, 2012) into the analyses to address any paradoxical cases that may contribute to both an outcome and its negation (Schneider & Wagemann, 2012). I used 0.70 as the minimum PRI consistency score, similar to past research (Greckhamer et al., 2018; Pahl-Wostl & Knieper, 2014).

--Insert Table 1 here-

Results

Sufficient Configurations of Executive Promotability into the Upper Echelons

Table 1 presents descriptive statistics and correlations. Table 2 displays the findings of the sufficiency analysis, and each column illustrates configurations of conditions (i.e., gender, negative cue dimensions, and institutional context) associated with gatekeeper appraisal of executive promotability. For the configurations with established consistency, the coverage value indicates the empirical importance of a given configuration in explaining the outcome of interest. Overall solution coverage explains how much of the outcome is captured by the entire solution term (i.e., all configurations). Raw coverage represents how much of the outcome is covered by each configuration (Schneider & Wagemann, 2012). Unique coverage, on the other hand, denotes how much of the outcome is covered only by a specific configuration.

Findings suggest that five configurations combined account for more than 80 percent of the membership in the executive promotability outcome and that all five configurations have substantial raw coverage values, ranging between 0.37 (C5) and 0.72 (C1) and unique coverage values ranging between 0.01 (C2, C3, and C4) and 0.22 (C1). The consistency of the first four configurations is higher than the last configuration (Configuration 5), suggesting that Configuration 5's relation with the outcome is relatively less reliable but still reliable enough by analytical standards in management research. The coverage values obtained in the study are comparable to other studies (e.g., Campbell, Sirmon, & Schijven, 2016; Dwivedi, Joshi, & Misangyi, 2018). These statistics suggest that the model explains the vast majority of membership in the outcome condition – executive promotability.

In reporting the findings, the intermediate solution is presented (e.g., Dwivedi, Joshi, & Misangyi, 2018), and for the purposes of transparency, both core and contributing conditions are presented in the solution tables (Fiss, 2011). Because prior studies suggest that the presence of negative cues should be negatively associated with executive promotion and selection (Van Velsor & Leslie, 1995), I selected easy counterfactuals such that the absence of the negative information should be associated with executive promotability.

--Insert Table 2 here--

Configuration 1 – which is the only configuration that applies to both men and women, suggests that the absence of negative cues in all four dimensions is associated with promotability into the upper echelons regardless of institutional context and executive gender. Configurations 2, 3, 4, and 5 specify gender-specific configurations - sufficient configurations associated with the promotability of male executives.

Configurations 2 to 4 apply to all institutional contexts, whereas Configuration 5 is concerned with institutional contexts emphasizing relational promotion norms.

At a broad level, Configurations 2 through 4, which apply only to men and across all institutional contexts, suggest that men are considered promotable into top management roles when they exhibit a negative cue in one dimension except for the *adaptability* dimension. More specifically, Configuration 2 indicates that the set of inputs indicating the absence of negative cues about *building a team*, *adapting*, and *meeting business objectives* is sufficient for male executives to be deemed promotable across institutional environments – regardless of their standing on the *interpersonal relationships* dimension. Configuration 3 suggests the absence of negative cues about *interpersonal relationships*, *adapting*, and *meeting business objectives* is sufficient for male executives to be considered promotable regardless of their standing on *building a team dimension*. Configuration 4 suggests male executives are viewed as promotable in the absence of negative cues about *interpersonal relationships*, *building a team*, and *adapting*, regardless of their standing on *meeting business objectives*. Configuration 5 reveals the context-dependent nature of double standards and suggests male executives embedded in societal contexts emphasizing relational promotion norms are seen as promotable regardless of the presence and the combination of negative cues. Configuration 5 embraces 37 percent of executives viewed as promotable.

Supplementary Analysis: Addressing the role of positive signals

The theoretical arguments developed in this paper suggested that negative information would be associated with executives' promotability into upper echelons positions. However, findings in Table 2 do not directly speak to the role of positive signals. To address the role positive signals, a supplementary analysis was performed

by integrating one aspect of positive signals – i.e., perceived overall effectiveness[10]. Findings illustrated in Table 3 suggest that presence of positive signal may be a necessary but not sufficient condition for promotability into upper echelons – that having positive signal alone in this case did not emerge as a sufficient for promotability into upper echelons for women executives. The finding that focal executives' perceived effectiveness may be a necessary, but not sufficient, condition for UE promotability runs counter to the widely held assumption[11] that "more is better" for individuals and labor market outcomes. This finding advances the literature on executive careers by shifting the focus away from sole reliance on positive signals.

Interpreting the configurational patterns and double standards in the composition of inputs

The findings suggest several important nuances regarding gender-based double standards in senior executive promotability. Based on this data, I find that a gender-based double standard *may not* emerge in two situations: a specific composition of inputs (i.e., the condition of no negative cues of a candidate – whereby both men and women are seen as promotable) and a specific input – absence of negative cues in adaptability). Further, the is some evidence for general limits in the double standard; negative cues are tolerated to some extent for male executives. Third, the double-standard in tolerance for negative cues is context-dependent; in societal contexts emphasizing merit-based promotion norms, negative cues in one

[10] It is important to highlight here that positive signals do not represent the reverse of negative signals. The positive signal used in this study represents another variable and captures the overall perceptions of focal executives' effectiveness in their organization and in their work.

[11] That "the possession of incremental levels of skill, experience, and access to information is always beneficial to the individual and ultimately the firm" (Khanna, Jones, & Boivie, 2014). See also Wechtler, Lee, Heyden, Felps, & Lee, 2021.

domain are tolerated for men but not for women, unless the information indicates men's difficulty adapting. However, in societal contexts emphasizing relational promotion norms, men with negative information, even across all four domains, are considered promotable. Hence, a gender-based double standard is evident among candidates exhibiting negative cues, with men enjoying more lenient consequences, especially when promotion norms are relational.

No double standard. Findings in Configuration 1, as reported in Table 2, indicate that the empirically dominant way of being seen as promotable into the upper echelons of organizations, as evaluated by the incumbent gatekeepers, consists of having no negative cues. This configuration is unconstrained by both gender and institutional promotion norms – that is, both male and female executives who are free of negative cues are deemed promotable across institutional context. This finding is important as it suggests that the dominant pathway to an inference of executive promotability is when a candidate possesses no negative signals. This finding can be interpreted in light of research on *uniform congruent* signals (Drover, Wood, & Corbett, 2018; Jacquart & Antonakis, 2015) such that the absence of any negative signals may provide a uniform and congruent perspective about executive performance, in which case gender may not provide a status (dis)advantage, and thus, may not matter for promotability into upper echelons. Such an interpretation would be aligned with evidence that diagnostic, rather than ambiguous, individuating information can counteract stereotypes (Koch, D'Mello, & Sackett, 2015) and with evidence that average performances maximize double standards (Foschi, Ndobo, & Faure, 2019). Thus, the gender-inclusive finding suggests that the absence of negative signals may shield women from a potential double standard in accessing the highest power positions in organizations points to a condition under which gates to the top

may be open to both male and female executives across countries. This is a high bar for both men and women. The findings also highlight a specific negative cue dimension where a gender-based double standard may not emerge in merit-based contexts; in the presence of problems in the dimension of *adaptability*. A cross-comparison of Configurations 1 to 4 shows that the absence of negative cues about adaptability constitutes a component of the majority of executive promotability inferences. Items included in this dimension tap into problems in both *personal adaptability* (e.g., not being adaptable to different people, resisting learning from mistakes, not using feedback) and *adaptability to the organization and management culture* (e.g., being unprofessional about disagreement with upper management, not adapting to the culture of the organization, not resolving conflict with a boss). Personal adaptability is important because a lack of responsiveness to corrective feedback and adaptability may signal that problematic issues are likely to persist over time and may not be easily remedied before they become major problems (Jundt, Shoss, & Huang, 2015). Adaptation to the organization and upper management is also important because scholars have previously noted that displaying fit with incumbent top executives and organizational culture constitutes an important success criterion for executives (Sessa, Kaiser, Taylor, & Campbell, 1998) such that the perceived fit, rather than job qualifications, may matter more in senior promotion decisions (Goodman, Fields, & Blum, 2003). Findings with respect to managing up add nuance to research on gendered social influence. Earlier evidence suggests that women are confined more in their use of influence tactics (Smith et al., 2013) and are rewarded less for engaging in social influence tactics (Westphal & Stern, 2007). Findings suggest that gender may not confer an advantage when there are problems around fit and adaptability. Not having problems in *adaptability* by itself was not sufficient to be

seen as promotable, which is aligned with Ferris, Buckley, and Allen's (1992) contention that adaptation to the needs, flow, and upper management of organizations is necessary but insufficient for promotion.

Limited double standards. While having no negative cues is associated with promotability inferences for both male and female executives, limited deviations from this condition are associated with the inference of male executives' promotability (Configurations 2, 3, and 4). The finding that women have a much narrower (or no) range to exhibit negative signals and still be seen as promotable contributes to the emerging literature on the gender punishment differential related to negative work events (Brewer et al., 2020; Sarsons, 2017), and is consistent with the idea that there is a much narrower pathway to for female leaders. According to the "think-manager think-male" bias (Schein et al., 1996), men are often seen as leaders; thus, there needs to be considerably higher level of disconfirming evidence against their promotion. For women, the default assumption is less fitness for such roles, and so any piece of negative information may be carefully scrutinized and may be used to confirm the impression of non-promotability. The finding that men may substitute any one of the three negative cues for another, except for cues about *adaptability*, also provides a more nuanced understanding about the nature of double standards.

Context-dependent double standards. Findings in Configuration 5 suggest that the tolerance for negative cues for men can be context-dependent with more leeway for men in institutional environments with relational promotion norms. This configuration suggests that being a male is associated with executive promotability, regardless of the presence or absence of negative cues examined in this study. This configuration is a rather niche promotability inference, as it has lower raw coverage and lower consistency compared to the other four configurations, suggesting that it is

less systematically associated with executive promotability compared to other configurations in the sample.

Intersectionality of negative cue dimensions for executive promotability. The intersectionality of negative cues appears to be differentially diagnostic for the promotability of women and men. For instance, negative signals in the domain of relationships (i.e., *interpersonal relationships* and *building teams*) appear to be more diagnostic for the promotability of female rather than male executives, which is likely due to gender-stereotypical expectations about appropriate signals for women vs. men. Because women are stereotypically seen as kind, modest, helpful, sympathetic, and concerned about others (Heilman, 2001), exhibiting arrogance, aloofness, emotional volatility, and insensitivity to others in work relationships violates the prescriptive feminine stereotype of niceness (Rudman, 1998) and thus can be more damaging to women than to men (Bono et al., 2017).

Similarly, negative signals in *meeting business objectives* appear to be more diagnostic for the advancement of female rather than male executives. The stereotypical expectations of what it takes to succeed in top-level and executive positions are largely tied to agentic qualities, and women are often thought to lack such agentic attributes (e.g., Schein et al., 1996). Negative signals in business objectives may confirm this stereotypical expectation, casting doubt on the suitability of female executives as future strategic leaders of the organization. Thus, the finding that promotable female executives do not display negative cues in the results-driven dimension (meeting business objectives) nor the dimensions that signal problems in 'getting along', is consistent with the idea that women tend to incur social and economic penalties (sometimes described as backlash) for exhibiting agentic qualities (Dwivedi, Misangyi, & Joshi, 2021; Heilman, Wallen, Fuchs, & Tamkins, 2004) and

need to ‘walk a delicate tight-rope’ (Rudman & Glick, 2001), balancing being nice and competent.

Discussion

Who comes to be viewed as ‘upper echelon material’? This paper explored the nature of double standards in gatekeeper inferences of senior executive promotability based on composition of inputs; negative cue configurations, gender, and institutional context. The findings reveal along what dimensions, and in which contexts, executive gender confers a status advantage in promotability to the upper echelons for men and a disadvantage for women.

Theoretical Contributions

This study makes a number of contributions. First, the adoption of a configurational approach helps elucidate the interdependencies among executive status characteristics (i.e., gender), negative information dimensions, and institutional environment in relation to double standards in gatekeeper inference of executive promotability. As such, this work contributes to a richer understanding of how gender double standards actually operate in the executive context across organizations and settings (Botelho & Abraham, 2017). While some prior evidence suggests that men, as the higher-status actors, face less stringent standards of promotion than women (Hardy III et al., 2022, Roth, Purvis, & Bobko, 2012), the findings add nuance to this literature. The findings indicate gender may not matter for executive promotability when negative signals are absent, but may matter in the presence of negative signals. By outlining the boundary conditions for the linkage between gender-as-status and executive promotability, the findings extend the current understanding of gender differences in entry barriers into upper echelons and respond to calls for interactional research that “is needed to examine the combined influence of various forces on the

status of women in management" (Powell, 1999; p. 344). The finding that men have more leeway in exhibiting negative signals and still 'being seen as promotable' also contributes to emerging research on the gender gap in outcomes of negative work events (Egan, Matvos, & Seru, 2017). This research suggests that women, compared to men, receive more harsh criticism and less favorable rewards in response to violations, errors, and outcomes of similar severity (Brewer et al., 2020; Kennedy, McDonnell, & Stephens, 2016; Montgomery & Cowen, 2020; Sarsons, 2017).

Second, the study advances knowledge about the necessary and sufficient configurations of promotability. One of the important theoretical contributions of this study is to suggest that positive information may be a necessary but not sufficient condition for executive promotability into upper echelons. While much research on gender differences has focused on whether women are "outdoing men" in terms of achievements, qualifications, and experiences, the findings of this study, instead, suggest that negative signals can be a decisive factor in promotability into upper echelons. This is an important deviation from extant research, which has focused on average and net effects. Thus, this study contributes to an understanding that criteria other than average levels of performance may be important drivers of promotion decisions (Alessandri et al., 2021).

Third, the study helps provide a contextual understanding of gender differences in outcomes examining executive promotability across institutional contexts (Joshi, Son, & Roh, 2015). Although scholars have underscored the need for a better understanding of how promotability evaluations and biases diverge and converge across different country contexts (Auster & Prasad, 2016), there has been scarce cross-cultural research on women's status in management and barriers to their advancement (Powell, 1999), and essentially none at the senior executive level. The

findings paint an interesting picture: merit-based promotion systems (and gender-egalitarian approaches) seem to have blocked gender-based double standards for women executives without negative cues but have not yet substantially buffered against a potential double standard that may emerge in the presence of negative information. This latter finding contributes to the literature addressing the limits of institutional pressures in eradicating gender inequalities (e.g., Bonet, Cappelli, & Hamori, 2020) and to the literature on the persistence of gender-based differences in meritocratic industries (Treviño et al., 2018) and in organizations despite the implementation of merit-based programs and policies (Castilla & Benard, 2010; Castilla, 2012; Yang & Aldrich, 2014). The study is also informative as it offers a rare multi-country field examination of double standards in a diverse executive sample.

This study contributes to upper echelons and executive selection in important ways by shedding light on *why the upper echelons look the way they do* (Hambrick, 2007; Pettigrew, 1992). This is an important contribution because despite the substantial and growing literature on the influence of executives (Liu, Fisher, & Chen, 2018), top management team composition on firms, and despite a general understanding that certain individuals reach top-level positions (Mumford et al., 2000; Zaccaro, Green, Dubrow, & Kolze, 2018), there has been limited understanding about *who* is promoted to top executive positions and who is not promoted (Powell, 1999). Existing lines of research start with the senior executives already in place. The study advances knowledge in this domain by unpacking *who* gets to be seen as top management material by providing insights into the workings of gatekeeper inference formation via a configurational theory and analysis, complementing recent research into board appointment processes (Guldiken et al., 2019) and the non-CEO executive labor market (e.g., Boivie et al., 2016). The configurational approach further

complements and advances current knowledge about executive selection, which previously relied on the independent effects of attributes. While instructive, such an approach is limited in its ability to account for the configurational nature of judgment and person perception.

Another important contribution is further establishing the relevance of negative cues as part of executive promotional processes. Based on the presumed challenge of differentiating between high-caliber individuals, the salience of negative information in person perception (Fiske, 1980), and the predilection of risk aversion by gatekeepers in selecting for senior executives where a 'mistake' is more costly than a 'success', this work suggests that additional attention needs to be paid to negative information in evaluating executives and executive promotability. Building on Jacquart and Antonakis (2015), this work represents an important step towards a more holistic understanding of gatekeeping processes at the top of organizations and contribute, more broadly, to emerging research on negative information and information congruence within management studies (e.g., Stern, Dukerich, & Zajac, 2014).

Practical Implications

Findings have implications for diversity at the top, for organizational decision-makers, and for executives vying for top positions. First, selection and promotion decisions are the central basis for forming the cadre of senior executives who control the fate of organizations. In addition to implications for performance (Hoobler, Masterson, Nkomo, & Michel, 2018; Jeong & Harrison, 2016) and important factors such as an organization's access to capital and capital markets (Groysberg & Connolly, 2015), the promotion of women into senior roles signals to other females about the desirability of their human capital within an organization, and signals the

extent to which merit-based rewards remain ritualistic and ceremonial vs performance-based (Meyer & Rowan, 1977; Amis, Mair, & Munir, 2020).

By filtering in men, but not women, who possess a limited set of negative cues, gatekeeping processes may be restricting the pool of available female candidates at each level, including at senior executive levels. The fact that women who have progressed to within reach of senior executive levels are still being filtered out, in systematic ways that differ from men, is a significant cause for note and concern. To the extent that a relatively smaller pool of female executives becomes available in each successive round, and to the extent only women with no negative behavioral cues are granted access, men's monopoly of executive positions is likely to persist.

Second, findings have implications for organizational decision-makers. How executives make selection decisions has been often overlooked, despite the significant role they play in shaping the quality of the talent pipeline. Senior leaders often lack relevant knowledge and training to avoid common pitfalls of preventable personalized biases, or are resistant to implementing such procedures (Charan, 2016; Nyberg, Cragun, & Schepker, 2021). Failure to attempt systemic mitigation of such biases is particularly important, not just because it generally violates principles of fairness in organizational systems but also because the majority of the gatekeepers are men, who are at an increased likelihood of exhibiting pro-male bias and succumbing to gender stereotypes (Foschi, Lai, & Sigerson, 1994; Bowen, Swim, & Jacobs, 2000; Koenig, Eagly, Mitchell, & Ristikari, 2011; Schein, Mueller, Lituchy, & Liu, 1996 – thus exacerbating the process of homosocial reproduction. One implication for senior executives is that, when thinking about promotability and when making promotion decisions, they should consider whether they might be discounting a female candidate

differently than a male candidate and attempt to apply the same standards and/or give the benefit of the doubt similarly to men and women (Castilla & Ranganathan, 2020).

Another implication of the findings is that the average woman who passes through is of higher quality than the average male, and more imperfect men pass through the boundaries of upper echelons. The finding that having problems in meeting business objectives did not disqualify men in the context of promotability to upper echelons is surprising as it suggests men may have a pass not only in relationship dimensions but also in business results. This is perhaps why scholars have lamented that there appears to be a preponderance of incompetent male (but not female) leaders (Chamorro-Premuzic, 2013). While the results do not holistically speak to competence, they do provide evidence for this general possibility.

Third, the use of differential standards in entry to upper echelons can have negative downstream consequences for the effort, motivation and output of executives vying for top positions. That is because promotion decisions send institutional signals about the types of individuals who get promoted, and social comparisons to those who got promoted can impact individuals (Fliessbach et al., 2007). Women who may have similar qualifications but are not promoted may reduce their efforts, knowing that they have low probabilities of promotion (Barnes, Johnson, & Burch, 2015). Furthermore, women may prematurely steer away from executive positions (Fernandez-Mateo & Fernandez, 2016) not because of lack of skills or ambition but because of the perceived futility of vying for top positions while facing subtle and relatively persistent biases. On the other hand, men as the “unrivaled stars” may also have reduced incentives to exert additional effort (Berger, Klassen, Libby, & Webb, 2013), knowing that their probability of promotion is higher.

Limitations and Future Research

This study is not without limitations. First, a limited number of negative behavioral cue was examined. While a substantial coverage value was obtained in the analyses, other executive characteristics and behaviors, including positive cues, might be relevant in the context of promotability. Additionally, although the measure of negative cues was derived from multiple peer and subordinate raters, it may not be possible to know whether inferences are anchored in past negative signals or differentially change based on gender (Heilman, Manzi, & Caleo, 2019).

In conclusion, findings from this study suggest that the nature of double standards can be complex and depend on the combination of negative signals, executive gender, as well as the institutional contexts in which promotion decisions are being made. Further understanding the nuances of how, where, and when a double-standard exists will help to more effectively produce viable and targeted solutions aimed at ensuring full utilization of the talents and human capital of both women and men.

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Table 1 Fuzzy-set membership calibrations, descriptive statistics, and correlations

	Fuzzy Set Calibrations										
	Fully in	***Crossover***	***Fully out***	***M***	***SD***	**1**	**2**	**3**	**4**	**5**	**6**
1. Problems with Interpersonal Relationships	"3" = Hard to decide	"2" = Tend to disagree	"1" = Strongly disagree	1.79	0.50	(.93)					
2. Difficulty Building a Team	"3" = Hard to decide	"2" = Tend to disagree	"1" = Strongly disagree	1.85	0.44	.75**	(.92)				
3. Difficulty in Adapting	"3" = Hard to decide	"2" = Tend to disagree	"1" = Strongly disagree	1.76	0.40	.84**	.85**	(.91)			
4. Failure to Meet Business Objectives	"3" = Hard to decide	"2" = Tend to disagree	"1" = Strongly disagree	1.80	0.42	.70**	.79**	.82**	(.89)		
5. Merit -Based Promotion	6.31 *highest country score*	4.90 75 *percentile score*	4.30 50 *percentile* score	5.31	0.60	.01	.07	.05	-.13**		
6. Gender	1 (female)		0 (male)	0.30	0.46	-.05	-.10*	-.08	-.06	.07	
7.Promotability Evaluations	"5" = Among the best	"3" = Adequately	"1" = Among the worst	3.36	0.86	-.16**	-.23**	-.27**	-.26**	-.06	.01

Notes: Descriptive statistics and correlation tables are based on uncalibrated (raw) data at the executive level (N=490). Alpha reliabilities for the four negative cues dimension are presented along the diagonal in parentheses.
* < .05. ** < .01

Table 2 Sufficient configurations for promotability into the upper echelons

	Solutions [a]				
	1	**2**	**3**	**4**	**5**
Negative Cue Dimensions					
Problems with Interpersonal Relationships	⊗		⊗	⊗	
Difficulty Building a Team	⊗	⊗		⊗	
Difficulty in Adapting	⊗	⊗	⊗	⊗	
Failure to Meet Business Objectives	⊗	⊗	⊗		
Female		⊗	⊗	⊗	⊗
Institutional Context: Merit-Based Promotion					⊗
Unique Coverage	.22	.01	.01	.01	.05
Raw Coverage	.72	.52	.51	.51	.37
Consistency	.85	.85	.83	.84	.76
Overall Solution Consistency		**.77**			
Overall Solution Coverage		**.83**			

Note: Based on intermediate solution. Crossed circles ("⊗") indicate the absence of a condition and blank spaces indicate a condition may be present or absent. Larger circles point to core conditions.

Table 3 Supplementary analysis using positive signal

	Solutions [a]			
	1	**2**	**3**	**4**
Negative Cue Dimensions				
Problems with Interpersonal Relationships	⊗			●
Difficulty Building a Team	⊗		⊗	
Difficulty in Changing or Adapting	⊗	⊗	⊗	
Failure to Meet Business Objectives	⊗	⊗		
Women		⊗	⊗	⊗
Positive Signal	●	●	●	●
Unique Coverage	.22	.01	.01	.07
Raw Coverage	.72	.55	.54	.35
Consistency	.85	.83	.83	.87
Overall Solution Consistency			**.81**	
Overall Solution Coverage			**.86**	

Chapter 2: Algorithm-Based Promotion Decisions and Post-Selection Scrutiny

Abstract

The introduction of advanced technologies such as artificial intelligence and machine learning holds the promise of making better, less biased personnel decisions. However, extant research has primarily focused on prediction bias and whether algorithms can successfully reduce bias during selection. Much less research has focused on biases that may arise post-promotion. Drawing on a robust phenomenon known as advice discounting and research on algorithmic aversion and escalation bias, this paper seeks to understand supervising executives' attitudinal and behavioral responses to algorithmic decision-making in an executive promotion context. It examines whether algorithm-promoted executives receive more scrutiny and less support from supervising executives (i.e., SVP) compared to executives promoted by human decision-makers, especially if they are not the candidate that supervisors recommended. In an experimental study of 680 managers in the U.S, findings provide some evidence that algorithm-promoted executives are given less non-financial support (i.e., lunch time with the SVP), but no less financial support, compared to executives promoted by human decision-makers. Findings did not provide evidence for post-promotion scrutiny of executives promoted via algorithmic vs. human decision-making. Whether supervisors' promotion recommendation was implemented or not did not influence the subsequent scrutiny and support received by promoted executives. Findings advance limited research on executives' responses to new technology adoption, particularly in an executive promotion context.

Introduction

The introduction of advanced digital technologies such as artificial intelligence and machine learning has changed the nature of work in various jobs and occupations. For instance, within the context of personnel management, these tools have been increasingly able to perform functions such as recruitment, performance management, and training advice (Baum & Haveman, 2020; Garg et al., 2022; Gloor et al., 2020; Harms & Han, 2019; Parent-Rocheleau & Parker, 2022; Tambe, Cappelli, & Yakubovich, 2019) and have been gaining increasing traction as means to make fairer decisions. In fact, it has been argued that these technological advancements can make personnel decisions "*more systematic by reducing the likelihood of recruiters' biases or applicants' influence tactics*" (Sajjadiani et al., 2019, p. 15, emphasis added). In this regard, recent research provides evidence that machine learning algorithms can help organizations select better boards of directors (Erel et al., 2021).

While extant research has provided some understanding that algorithms can reduce bias and lead to better decision-making (e.g., Cowgill et al., 2020; Erel et al., 2021), it has thus far overlooked how this paradigm-shifting disruption will affect decision-makers themselves and their subsequent responses to algorithm-made choices. Although people prefer algorithmic to human judgment in very specific contexts (Logg, Minson, & Moore, 2019), there is no existing research to inform our understanding of how decision-makers might respond to the downstream consequences of algorithmically-driven decisions (Ma, Kor, & Seidl, 2020). In the context of promotability, it is thus not only important to consider how humans react to and accept algorithmic decision-making, but also to consider the multi-faceted consequences for individuals who are promoted

under such conditions. Thus, whether and how the use of advanced technologies would impact algorithm-selected candidates remains unknown.

In answering this question, the current study considers two types of biases that may arise in a post-promotion context: (a) *algorithmic aversion* (decision-maker: algorithmic vs. human decision-making) and (b) *escalation bias* (promotion decision: convergent choice, divergent choice). Drawing on research on algorithmic aversion (Allen & Choudhury,2022; Dietvorst, Simmons, & Massey, 2015), ego-centric advice discounting (Yaniv, 2004; Yaniv & Kleinberger, 2000), and negative escalation of commitment (Schoorman, 1988), this study examines whether algorithm-promoted executives face more scrutiny and less support than manager-promoted executives, especially if they are not the recommended candidate of the supervising executive (i.e., decision divergence).

Building on a tripartite measure of employee support which examines non-financial support, financial support, and advice taking (Menon, Thompson, & Choi, 2006) as well as a measure of employee scrutiny developed for this study, I test these predictions in an experimental vignette study (Aguinis & Bradley, 2014; Trevino, 1992) performed with 680 U.S. managers. I found some, but limited, support for the presence of an algorithmic aversion bias. Preliminary findings indicate that algorithm-promoted executives receive less non-financial support (i.e., lunch time with the gatekeeper) but face no more scrutiny and receive no less financial support than manager-promoted executives. Findings also suggest supervisors are similarly likely to be willing to take advice from both algorithm- and manager-promoted executives. Findings did not provide substantial support for the escalation bias argument; whether gatekeepers' pre-promotion

recommendation converged with or diverged from the ultimate promotion decision did not have a significant impact on post-promotion scrutiny or support received by promoted executives.

This study contributes to research on work outcomes associated with algorithmic decision-making by highlighting its nonfinancial costs for the promoted executives (Pereira et al., in-press). Findings also advance limited research on the executive-algorithm interface by highlighting attitudinal and behavioral responses to advanced technology adoption in an executive promotion context (Tsai et al., in-press). It also contributes to research on biases surrounding executive selection (e.g., Zorn et al., 2019) and extends micro-level research on advice-seeking by explicating how individuals in power positions (i.e., managers) respond to imposed advice from non-human sources.

Theoretical Background

In building the theoretical framework for understanding potential biases in a post-promotion context, I focus on two potential sources of biases: *algorithmic* bias and *escalation* bias, which may emerge because of how the promotion decision is made (human vs. algorithmic) and the consequence of the promotion decision (supervisor's promotion recommendation is implemented or not). In a rational word, who made the promotion decision, or the consequence of the promotion decision shall have little to do with how supervising executives would treat promoted executives. However, research on decision making show that human judgment deviate from a rational model (Kahneman & Tversky, 1973).

It is important to explore algorithmic bias in a post-promotion context because executives may have in-built biases against algorithm-promoted candidates just because

of how the promotion decision is made (e.g., 'you cannot let a machine decide on such an important issue as who is going to be a top leader of this organization because a machine would not know. But I know!') One of the ways in which an algorithmic bias manifest itself would be the treatment of algorithm-promoted candidates.

An equally important consideration is the consequence of the promotion decision. This is an important theoretical and practical consideration because it is likely that, in the soon future, when algorithmic aid is used in executive selection and promotion, it would be first implemented as an augmentation rather than an automation process (Raisch & Krakowski, 2021). That is organizational decision-makers would use algorithms to complement rather than substitute human decision-makers in selection (Erel et al., 2021). Because supervisors often have input into the promotion and hiring of individuals who would be their immediate subordinates. Whether supervisors participate or have a say in the promotion process may bring an additional bias because supervisors' promotion recommendation may or may not be implemented at the end (Schoorman, 1988). Thus, in exploring post-promotion biases, the current study considers two types of biases: (a) *algorithmic aversion* (decision-maker: algorithmic vs. human decision-making) and (b) *escalation bias* (decision consequence: convergent choice, divergent choice).

Advice Discounting and Algorithmic Aversion

The robust phenomenon known as ego-centric advice discounting (Yaniv, 2004; Yaniv & Kleinberger, 2000) suggests that decision-makers tend to ignore advice (Bonaccio & Dalal, 2006), overweigh their opinion relative to advisors (Yaniv & Kleinberger, 2000), and do not follow "recommendations nearly as much as they should have to truly have benefitted from them" (Bonaccio & Dalal, 2006, p. 129). The advice

discounting occurs because individuals have internal justifications for the reasons behind their decision (Yaniv, 2004; Yaniv & Kleinberger, 2000) and believe their opinion to be superior to those of others, even in judgments involving novel situations (Bonaccio & Dalal, 2006; Krueger, 2003). Research provides evidence that more knowledgeable individuals discount advice more (Yaniv, 2004). The advice discounting can be observed in an executive context also because power (Tost, Gino, & Larrick, 2012) and individual-level variables such as narcissism (Kausel et al., 2015) can elevate confidence in one's judgment and create a tendency to disregard advice (See et al., 2011).

The phenomenon of advice discounting may be exacerbated in an algorithmic promotion context when the advice is coming from artificial intelligence or some other similar type of algorithm because managers may additionally be subject to a phenomenon known as 'algorithmic aversion' (Dietvorst, Simmons, & Massey, 2015). Although algorithms consistently outperform human forecasters across domains (Grove et al., 2000; Lin et al., 2020), individuals often exhibit a preference for humans' forecasts over algorithms' (Dietvorst, Simmons, & Massey, 2015). Managers, thus, may be averse to relying on algorithms in executive selection; they may choose to rely on and value their own judgment more than an algorithm's recommendation. In addition, managers may have domain-specific misbeliefs about human versus algorithmic decision-making efficiency in personnel selection contexts. Managers may believe that certain qualitative and contextualized information (visioning, leadership, attitude) is not considered in algorithmic decisions (Newman, Fast, & Harmon, 2020). Because experts, in general, are less open to taking advice from algorithms (Logg, Minson, Moore, & 2019), managers may be less trusting of algorithm-made promotion decisions. Supervising executives may

be driven by a perception that algorithms make objectively inferior personnel decisions compared to human decision-makers. In using such a perception, supervising executives may consider that the algorithm-made promotion decisions sub-optimal. Thus, algorithm-promoted candidates may experience negative downstream consequences such as increased scrutiny and decreased support due to supervising executives' resistance to algorithm-selected candidates (Longoni, Bonezzi, & Morewedge, 2019). Thus, the first hypothesis reads:

> *Hypothesis 1*: Algorithm-promoted candidates are scrutinized more (in general and in resource allocation) and receive less support than manager-promoted candidates.

Escalation Bias

Another form of bias that may emerge in a post-selection context is escalation bias, which may occur when supervising executives participate in the promotion process (Schoorman, 1988). Supervising executives often provide inputs and have a say in the hiring and promotion of individuals who would become their subordinates. However, supervising executives' participation in the promotion decision can lead to an escalation bias because supervising executives may commit to one candidate during selection. Decision-makers who commit to a course of action may make nonoptimal subsequent decisions to justify their prior commitment (Bazerman, Beekun, & Schoorman, 1982), which leads to an escalation of commitment (Staw, 1981). While primarily examined in investment of financial resources, escalation of commitment may also occur in personnel management contexts (Bazerman, Beekun, & Schoorman, 1982; Schoorman, 1988; Schoorman & Holahan, 1996; Slaughter & Greguras, 2008). Although much of the

research has focused on positive escalation of commitment (cf., Zorn et al., 2020) - i.e., the opinion of the decision-maker is consistent with the decision implemented - research provides evidence that escalation of bias can also occur in a negative direction when the opinion of a supervisor is not consistent with the eventual decision (Schoorman, 1988). In such a case, managers who participated in the selection decision may evaluate candidates in a biased manner and may display negative escalation of bias towards candidates they decided not to hire but were assigned to them (Angelovski, Brandts, & Sola, 2016). Building on these theoretical insights, the second hypothesis reads:

> *Hypothesis 2:* Promoted candidates are scrutinized more and receive less support when the ultimate promotion decision diverges from rather than converges with supervising executives' promotion recommendation.

Furthermore, supervising executives may additionally be averse to algorithm-promoted executives who they did not recommend for promotion in the first place but were promoted and assigned to them due to algorithmic advice. Because unsolicited advice is often seen as intrusive and poorly received (Bonaccio & Dalal, 2006), the use of algorithmic tools could threaten the status and autonomy of decision-makers (Vrontis et al., 2021) especially so if their recommendations are overruled. Thus, the third hypothesis reads:

> *Hypothesis 3*: Decision maker (algorithm vs. human) and decision consequence (convergence vs. divergent) interact, such that the (negative) effects of algorithmic decision-making on promoted executives in terms of increased scrutiny and decreased support becomes stronger when the algorithmic decision-making diverges rather converges with supervising executives' recommendation.

Method

The experimental design is an effective method to study executive advice taking (Ma, Kor, Seidl, 2020). Experimental vignette methodology (EVM), in particular, has been extensively used to examine judgment and decision-making. It allows researchers to examine relations that "may be difficult or inappropriate to test in the field" (Trevino, 1992, p.126) and allows experimental control over manipulated conditions (Aguinis & Bradley, 2014) such as promotion decision outcome and promotion decision-maker. I used EVM to examine the hypotheses that algorithm-promoted candidates receive more scrutiny and less support than manager-promoted candidates, especially if they are not the candidate recommended by the supervising executives.

Pre-Testing

I conducted two pilot studies with 30 participants each time. These pilot-tests helped me to consolidate the final design of the experimental study by informing me about: 1) the number of filler tasks to be included, 2) the length of candidate profile information to be provided, and 3) the wording to be included in the resource allocation tasks. The earlier versions included several, additional filler tasks, and as a result, participants took longer than 13 minutes to complete the study. Since filler tasks were not central to the aims of the study, I kept one filler task (described in detail below) in order to reduce the time taken to complete study. With respect to the candidate profiles, the preliminary versions included a CV and a 360-degree feedback with 6 pages. Having this level of detail posed two challenges. First, participants needed more time to go through the 360-degree feedback report. Second, I did not have experimental control over the time that participants spent on reading the candidate profiles; there were no upper time

limits because having a document with six pages required me to allow participants top open the feedback report in a new window, where I could not impose time limits[12]. To solve this issue, I removed the 5-pages with graphs that did not present any critical information about the candidate (because I included a summary chart) from the feedback report. This reduction in content allowed me to present all the necessary candidate information on the same Qualtrics page and impose time limits on reading candidate profiles (described in detail below). With respect to resource allocation tasks, I asked participants 'how much' of their time and a given resource budget they would like to allocate to different organizational members. The response patterns obtained in pre-testing were difficult to understand, and it seemed difficult for participants to add numbers up. I asked open-ended questions in the second pre-test asking participants to explain how they allocated their time/budget. It appeared from participants written responses that some were allocating percentages and some others were entering absolute quantities. Therefore, I edited the question stem to indicate and highlight "percentage" of time and budget allocated (described in detail below).

Participants and Data Quality

I used Prolific Academic to recruit participants given that, compared to other platforms (e.g., CloudResearch and Amazon Mechnical Turk) and panels (e.g., Qualtrics), it provides high quality data in terms of participant attention, comprehension, honesty, and reliability (Eyal et al., 2021). I used Prolific's predefined filters (Giurge & Bohns, 2021) to recruit 680 employed U.S.-born and -based managers with supervisory

[12] This is not to suggest this is an impossible task - this is to indicate I did not see/find a workable solution around this issue. There may be Javascript code.

responsibilities and experience in making hiring decisions (e.g., Awtrey et al., 2021; Giurge & Bohns, 2021).

To access the study, participants first needed to respond to a CAPTCHA question correctly and then provide matching responses to Prolific's prescreening questions. Participants whose responses did not match Prolific's predefined filters were returned to Prolific and were not allowed to participate in the main part of the study. Approximately, 188 participants responses were returned to Prolific[13] (described below in 'Section 1: Brief survey').

Participants were randomly assigned to one of four conditions in a 2 (decision-maker: algorithmic decision-making, human decision-making) × 2 (promotion decision consequence: convergent choice, divergent choice) between-person design. Respondents received compensation of $2.28 for their participation in the study[14]. A-priori power analysis conducted by G*Power software (Faul, Erdfelder, Lang, & Buchner, 2007) indicated that a sample size of 327 would be required to detect a small effect size (f = 0.20) to be powered at 95% (Cojuharenco & Karelaia, 2020). Of the 685[15] participants, 536 passed all the three attention checks (Giurge & Bohns, 2021; Cojuharenco & Karelaia, 2020), four comprehension/manipulation checks (described in detail later) and did not have duplicate IP addresses. The final sample is comparable to sample sizes used in prior research with a similar experimental design (Amit, Danziger, & Smith, in-press; Mooijman et al., 2019).

[13] Not all of them were returned back due to mismatching data – in some cases participants chose to return the study back

[14] This experimental study was funded by the FIU CIBER PhD research grant.

[15] 685 instead of 680 participated because some participants were rejected.

Participants had 20.08 years of working experience (*SD* = 10.64). Nearly 49.8% of them identified themselves as female[16] and 1.3% identified as non-binary. Of this sample[17], 3.9% were between 18-24 years old, 34% were between 25-34 years old, 30.2% between 35-44 years old, 18.7% was between 45-54 years old, 10.6% was between 55-64 years old, 2.2% was older than 65 years old, and 0.2% was under 18 years old. The majority of participants (84.9%) identified themselves as White/Caucasian, 3.5% identified as Black or African American, 0.4% identified as Black non-American, 4.5% identified themselves as Hispanic or Latino(a), 2.2% identified as East Asian, 2.6% identified as bi-racial/multicultural, and the rest identified themselves as South East Asian (0.2%), South Asian (0.6%), Naïve Hawaiian or Other Pacific Islander (0.2%), Native American or Alaska Native (0.6%), and 0.4% identified themselves as other.

Materials, Procedure, and Conditions

The study was presented to participants as a timed and speeded managerial decision-making in-basket activity[18] that involved several decision-making tasks (e.g., Martin & Harder, 1994; Petersen & Dietz, 2000; Sherf, Venkataramani, & Gajendran, 2019; Whetzel, Rotenberry, & McDaniel, 2014). Participants were instructed that the participation in the study should take approximately 13 minutes. Participants took, on average, 15.98 minutes (SD = 6.70) to complete the study.

A series of managerial decision-making activities (instead of just one) were used to: (a) increase the level of immersion and enhance the realism (Aguinis & Bradley,

[16] I requested a gender-balanced sample on Prolific.

[17] One participant chose not to report the age group.

[18] To achieve the timed-aspect of the study, I used JavaScript to present a floating timer across pages, provided written instructions to let participants know how much time they had left for each task, and used auto-advance functions for key tasks.

2014), (b) keep the main purpose of the study ambiguous in an effort to reduce demand characteristics[19] (Orne, 1962), and ensure that (c) participants invested similar amounts of time to key aspects of the study, (d) the design reflected the fast-paced nature of managerial work and provide the ground for the emergence of, any if, unconscious and automatic thinking that may lead to "micro" discrimination (Reskin, 2002), and (e) participants were not distracted by other activities such as internet and TV. The study consisted of two sections. The first section included a brief survey including demographics and questions about personality. The second section included the in-basket activity.

Section 1: Brief survey. To access the brief survey, participants first needed to answer a CAPTCHA (i.e., Completely Automated Public Turing Test to tell Computers and Humans Apart) question, which was used to exclude bot participants (e.g., Barneron, Choshen-Hillel, & Yaniv, 2021). After this step, participants were presented with a brief survey, which included a mix of demographic and personality questions. Among these questions were the six Prolific prescreening questions I used to identify the required sample. In other words, I re-asked the exact Prolific questions at the beginning of the study to identify potential inaccurate respondents or imposters (Chandler & Paolacci, 2017) and to obtain a representative sample (Aiman-Smith, Scullen, & Barr, 2002)—supervising managers in this case—familiar with the tasks included in the study (i.e., promotion decision and resource allocation). Participants who did not provide matching responses to their responses to Prolific's predefined filters were returned to Prolific and

[19] "The totality of cues which convey an experimental hypothesis to the subject" (Orne, 1962, p. 779). Presenting several tasks can help with and participants may form different hypotheses about the research study.

were not allowed to participate in the main study. Participants were returned because they did not provide matching responses to questions relating to participants': (1) c*ountry of birth* – I requested participants born and living in the U.S. to minimize potential confounds relating to cross-cultural differences in AI perceptions (e.g., Kelley et al., 2021), (2) current *working status* (working either full or part time was required), (3) *management experience* (required), (4) *supervisory experience* at work with the authority to give instructions to subordinates (required), (5) *hiring experience* (required), 6) first language (English as first language was required). In addition to these six questions, the brief survey included other demographic questions such as age and race. Because narcissism has been associated with dismissing advice (Kausel et al., 2015), the brief survey included a four-item measure of narcissism (Jonason & Webster, 2010), $\alpha = 0.83$. Upon completion of the first section, participants proceeded to second section, managerial in-basket activity.

Section 2: Managerial in-basket activity. The first part of the activity provided participants with the background information. Participants presumed the role of a senior executive vice president (SVP) named Hayden Clark[20] of SignBank– a mid-size New York-based S&P 500 company with more than 1,600 employees. To enhance realism, SignBank was modeled based on off an actual bank, which I selected at random from Forbes top ten list of America's Best and Worst Banks. To help participants achieve a sense of decision-making authority over managerial tasks, participants were informed that, in their role as the SVP of SignBank, they had the power to influence most of what

[20] A gender neutral name that had a female-to-male ratio close to one on the U.S. Social Security Administration's list of popular names (Sirola & Pitesa, 2018).

happens in the company in whatever way they think was best for the company. Participants also were informed that on very rare occasions SignBank could override their decisions if it considers an alternative more beneficial.

The second part of the simulation included six in-basket activities, which were presented to the participants as emails coming from company's Chief Human Resources Officer (CHRO), Administrative Assistant, and Chief Financial Officer (CFO). In their role as Hayden Clark, participants needed to respond to these emails, making decisions and recommendations. I used both attitudinal and behavioral measures (Banks, Woznyj, & Mansfield, in-press) to capture outcome variables.

The first email was a filler task relating to company's social responsibility practices and top management team compensation. The second email came from the CHRO and asked participants to make a promotion recommendation. The third email was the experimental manipulation; participants received a follow up email from the CHRO learning the outcome of the promotion decision (convergent choice vs. divergent choice) and the decision-maker (algorithmic decision-making vs. human decision-making). The third and fourth emails captured resources allocation decisions, and the last email captured a behavioral measure of advice taking.

Promotion recommendation. Participants received an email from the CHRO about the vacant top-level executive position at SignBank. They were told that the CHRO was collecting information and recommendations about the two candidates in the executive pipeline who were being considered for promotion to this position. Participants were also told that their input was going to receive substantial consideration in making the final decision as the promoted candidate would work closely with them. The email also

mentioned that there might be other voices included in the selection process. It was highlighted that participants would not meet with the larger selection committee or the candidates, and that they would not need to justify their promotion recommendation. Participants were instructed to read the profiles of candidates carefully, and then make a promotion recommendation. Participants read that the company was hoping to consolidate opinions that day with the hope to reach a decision very quickly. In the following screen, participants accessed candidate information.

Candidate executive profiles. The executive profiles were presented to participants one at a time. The order in which participants saw the two profiles was randomized. Profiles were presented using the pseudonyms Candidate A and Candidate B, and participants were told that the first and last names of the executives were withheld for anonymity. In fact, it was to avoid any potential gender-related confounds.

Two pieces of information were included in candidate profiles: a CV and a summary 360-degree feedback report. To ensure these profiles were realistic, I took several measures. To build the candidate CVs, I examined the background information and CVs of several high-ranking executives (e.g., CFOs) working in finance. To build the summary 360-degree feedback reports, I consulted several publicly available sample 360-degree feedback reports to make sure that the feedback report included feasible combinations of behavioral cues and stylistically realistic written comments (Aiman-Smith, Scullen, & Barr, 2002).

For the CV, I included four pieces of information: a) educational credentials, b) tenure in the company, c) experience in the industry and prior employment, d) prestige in terms of board seats, and e) engagement with companies' CSR practices. For the 360-

degree feedback, I incorporated only positively worded comments. I sought to build approximately equivalent and desirable candidate profiles. The contents of the CV and the 360-degree feedback were comparable across two candidates. They differed only so slightly to allow participants develop a preference for one candidate over the other. For instance, one candidate led company's philanthropic giving activities whereas the other sponsored company's Disability Advocacy Network. I conducted two pilot studies with longer and shorter version of the candidate profiles. CA and CB were recommended approximately equally (CA was recommended 44% of the time and CB was recommended 56% of the time in pilot 1; CA was recommended 47% of the time and CB was recommended 53% of the time in pilot 2). I decided to include the short version of candidate profiles to minimize participant fatigue, and the longer version did not provide any additional information about the candidates. The CVs of CA and CB are illustrated in Figure 1 and Figure 2 respectively. The radar chart for 360-degree feedback reports for CA and CB are presented in Figure 3 and Figure 5 respectively. The open-ended comments section of the 360-degree feedback reports for CA and CB are presented in Figure 4 and Figure 6 respectively.

Participants were given four minutes to go through both profiles to control the time spent on reading candidate profiles. Each profile was given two minutes, and after two minutes, participants were auto advanced to the next profile. Participants provided a promotion recommendation after four minutes. Nearly 43.1% of the participants recommended CA. I asked participants how confident they felt with their promotion recommendation as a robustness check (Blunden et al., 2019) using three items, $\alpha = 0.84$.

Experimental manipulation of decision outcome and decision-maker. The third email included the experimental manipulation. It was designed as a follow-up email coming from the CHRO, informing participants about the outcome of the promotion decision. Regardless of which candidate that the participants recommended, they were randomly assigned to the following four scenarios, decision outcome (promotion decision: convergent choice, divergent choice) and decision maker (decision maker: algorithmic decision-making, human decision-making). Participants read the following emails coming from the CHRO, and after reading them, they responded to the CHRO demonstrating that they understood the promotion process and its outcome[21].

> ***Convergent choice and decision-maker manipulation email***. Hi Hayden. Thanks again for your input earlier today regarding the promotion recommendation. I am following up to let you know that the company has finally decided on whom to promote. I am pleased to say this, the company decided to move forward with your recommended candidate. The company accepted your recommendation because it relied on other executive decision makers in the company (it incorporated an algorithm – a computerized decision-making tool), and your promotion recommendation converged with other executives' (the algorithm's) recommendations. I hope this helps, and let us know if we can provide more information.
>
> ***Divergent choice and decision-maker manipulation email***. Hi Hayden. Thanks again for your input earlier today regarding the promotion recommendation. I am following up to let you know that the company has finally decided on whom to promote. I hate to say this, the company decided to move forward with the other candidate. The company overruled your recommendation because it relied on other executive decision-makers in the company (it incorporated an algorithm – a computerized decision-making tool), and your promotion recommendation diverged from other executives' (the algorithm's) recommendations. I hope this helps, and let us know if we can provide more information.

Attention checks. Participants responded to three attention checks through-out the second (i.e., the main) part of the study. Two were instructional manipulation check

[21] I used JavaScript to hide the 'next' button until participants entered 15 words into the textbox and to dynamically present the number of words participants were typing into text-box.

(IMC) questions (Oppenheimer, Meyvis, & Davidenko, 2009) and one was a “catch trial” (Paolacci, Chandler, & Ipeirotis, 2010). The first IMC question stated, “The color test you are about to take part in is very simple, when asked for your favorite color you must select "Blue". This is an attention check.”). The second IMC asked participants to select a specific answer choice for a question, “Choose "Do not accept; I do not have time for this" answer for this question.” The third attention check was a nonsensical question, asking participants their level of agreement with the statement, “I swim across the Atlantic Ocean to get to work every day.”

Manipulation and comprehension checks. At the end of the survey participants were presented with four comprehension checks presented as multiple-choice questions. The first question was about scenario comprehension and read: “Based on the scenario, what is your role and the company you work for?” Response options were, “Employee at a local retail store”, “Vice President of a company operating in the U.S.”, and “An engineer in a soft-ware company.” The second question was about decision outcome (Blunden et al., 2019): “The candidate you recommended was promoted to the vacant executive position.” The response options were “Yes” and “No”. The third comprehension check inquired about the decision-maker: “Strictly based on what you read until now, how the promotion decision was made in the company?” The response options were, “The promotion decision was made by an algorithm (computerized decision making)” and “The promotion decision was made based on inputs only from other executive decision makers (no computerized decision making.)” The last comprehension check was a memory-check question: “Which candidate did you

recommend for promotion?" The response options were: "Candidate A" and "Candidate B".

Post-promotion scrutiny. A literature search did not locate a previously developed measure of scrutiny. Therefore, I developed two measures to examine whether participants would scrutinize the promoted executive in general and their resource requests in particular. I developed four items to measure scrutiny of the candidates. Items read "I'd place additional scrutiny on the promoted executive", "I'd closely monitor the promoted executive", "I'd feel the need to be stringent in my performance evaluation of the promoted executive", and "I'd put additional scrutiny on the promoted executive mostly because of how the promotion decision was made." Participants provided their agreement on a 5-point Likert type scale (1 = *strongly disagree,* 5 = *strongly agree*), α = 0.85.

I also developed a three-item measure of resource scrutinization. The items read: "I'd scrutinize resource requests coming from the promoted executive.", I'd put additional scrutiny than I usually would do to accept initiatives and recommendations coming from the promoted executive.", and "I'd apply more stringent criteria than I usually would do to approve the requests coming from the promoted executive." These items were rated on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), α = 0.81. Although these two measures are presented and discussed first in this dissertation, they were presented last in the study.

Post-promotion support. Building on past research (Menon, Thompson, & Choi, 2006), I incorporated a tripartite measure of support in terms of: a) time allocation, b)

financial budget allocation, and c) advice taking (i.e., showing willingness to consider and use ideas and opinions of the promoted executive.)

Non-financial support – lunch with the SVP. The fourth email captured lunch time allocation (Menon, Thompson, & Choi, 2006). It was an email from company's administrative assistant requesting guidance as how to schedule participants' lunches as several people requested to meet with them (Martin & Harder, 1994). The email read:

> Hi Hayden! I am being bombarded by requests for lunches with you. I'd feel better if I knew more about your priorities concerning how I should schedule your lunches and how much of your time I should allocate to each appointment. Here, I provide a chart for you to fill in, and I will arrange your lunches accordingly.

After reading this email, participants were presented with two questions. The first question inquired participants' willingness to meet with several organizational members using a scale ranging from "1" *do not accept; I do not have time for this* to "6" *definitely*. This question is illustrated in Figure 7. The second question asked participants to indicate what percentage of their available lunch time, they would like to allocate to organizational members.

Financial support - budget allocation. The fifth email captured participants' willingness to dedicate financial resources to the promoted executive (Menon, Thompson, & Choi, 2006). The email came from company's CFO requesting participants' recommendations about allocating limited funds to requested projects. The email read:

> Hi Hayden! The company has set aside some money in case funding is needed. However, the company does not have sufficient funds to support all proposed projects. Resources are too scarce to be of full help to everyone.
>
> Additional funds are allocated based on the recommendation of vice presidents. Here is the chart for requested resources. We need some guidance on who you think the company should help first and most.
>
> Our budget is limited to **$1M**. You can allocate this budget as you see fit. You can also decline the requests. Let me know what percentage of this budget should go to the following requests.

Participants were asked to indicate what percentage of the $1M budget they would like to allocate to each request. This question is illustrated in Figure 8.

Support - Advice taking. The sixth email captured participants' willingness to consider the ideas and opinions of the promoted executive. It was an email coming from the CHRO and related to a filler activity presented at the beginning of the study, which requested participants' opinion about company's compensation policy. This last email was set up as a follow-up email to that filler activity. The email read:

> Hi Hayden. I am reaching out because the executive, who has been recently promoted to the vacant executive position, mentioned that they have some exciting ideas to share with you regarding this policy. How would you like to proceed? Would you like to reconsider your decision and hear their thoughts, or would you like to move forward with the policy you shared earlier? Please let us know, and we will act accordingly. Thanks.

Participants were asked to respond to this email by choosing one of the two options: 1 (*Thanks for the follow-up. I feel pretty comfortable with the policy decision I have recommended. There is no immediate need to reconsider that policy*) and 2 (*Thanks for the follow up. I will reach out to the administrative assistant to have a call scheduled with the executive and hear their thoughts*.)

Results

Comprehension Check

The manipulations of decision consequence (promotion decision consequence: convergent choice, divergent choice) and decision-maker (algorithmic vs. human decision making) were successful. Participants in the convergent choice condition were more likely to respond that the candidate they had recommended was promoted to the vacant executive position (97.6%), whereas participants in the divergent choice condition were more likely to report "No" to the question inquiring whether the candidate they recommended was promoted to the vacant executive position (83.8%), χ^2 (1) = 451.80, $p < .001$. In addition, participants in the algorithmic decision-making condition were more likely to respond that the promotion decision was made by an algorithm (88.0%), whereas participants in the human decision-making group were more likely to respond that the promotion decision was made based on inputs only from other executive decision makers – i.e., no algorithmic decision making (97.3%), (χ^2 (1) = 492.41, $p <$ .001. Participants who failed comprehension and attention checks and Participants with duplicate IP addresses have been excluded from the study (Effron, Lucas, & O'Connor, 2015; Inesi, Adams, & Gupta, 2021). That is, 536 participants were used in the analyses.

Descriptive Statistics and Correlations

Table 4 illustrates the descriptive statistics and the correlation table for the variables examined in this study. Because the correlations among the three different forms of support (lunch-time allocation, financial resource allocation, and advice taking) were relatively low (rs < 0.40), I analyzed the results for each support outcome separately (e.g., Collins, Whillans, & John, 2021).

Post-promotion Scrutiny

I performed an ANOVA of decision-maker (algorithmic vs. human decision-making) and promotion decision consequence (convergent vs. divergent choice) on promoted executive scrutiny. There was no significant main effect of decision consequence (convergent vs. divergent choice) such that participants in the divergent decision promotion condition did not think that they would scrutinize the promoted candidate more ($M = 2.71$, $SD = 0.91$), compared to the ratings provided by participants in the divergent promotion condition ($M = 2.83$, $SD = .89$), $F(1, 536) = 2.36$, $p = .125$, $\eta^2 = .00$. Findings did not reveal a significant main effect of decision-maker (human vs. algorithmic) on perceived scrutinization of the promoted candidate, $F(1, 536) = 0.53$, $p = 0.468$, $\eta^2 = .00$. There was no significant interaction between the decision outcome and the decision-maker on perceived scrutinization of the promoted candidate, $F(1, 536) = 0.52$, $p = 0.473$, $\eta^2 = .00$.

A 2 (decision-maker: algorithmic vs. human decision making) X 2 (decision outcome: convergent vs. divergent choice) ANOVA conducted on resource allocation scrutinization did not reveal a significant interaction, $F(1, 536) = 0.01$, $p = .91$, $\eta^2 = .00$. Similarly, the decision-outcome ($F(1, 536) = 1.76$, $p = .19$, $\eta^2 = .00$) and decision-maker ($F(1, 536) = 0.00$, $p = .97$, $\eta^2 = .00$) did not have a main effect on resource scrutiny.

Post-Promotion Non-Financial Support: Lunch with the SVP

I conducted an ANOVA of decision-maker (human vs. algorithm) × decision consequence (convergence vs. divergence) on participants' willingness to have a lunch meeting with the promoted executive. I did not find a main effect of decision consequence in terms of divergence or convergence, ($F(1, 536) = 0.15$, $p = .70$, $\eta^2 = .00$)

or decision-maker ($F(1, 536) = 0.12$, $p = .73$, $\eta^2 = .00$) on participants' willingness to have lunch with the promoted executive. Similarly, findings did not reveal a significant interaction effect between these two conditions, $F(1, 536) = 0.33$, $p = .57$, $\eta^2 = .00$.

However, there was a significant main effect of decision-maker (algorithmic vs. human) on lunch time allocated to the promoted executive, such that the participants in the algorithmic decision-making condition allocated significantly less percentage of their available time to have lunch with the promoted executive ($M = 21.80$, $SD = 9.53$) compared to the lunch time allocated by the participants in human decision-making condition $M = 23.55$, $SD = 10.47$), $F(1, 536) = 3.99$, $p = .046$, $\eta^2 = .01$. There was not a main effect of decision consequence (divergence vs. convergence) on lunch time allocated to the promoted candidates, $F(1, 536) = 0.04$, $p = .84$, $\eta^2 = .00$. Findings did not reveal a significant interaction between decision consequence (divergence vs. convergence) and decision-maker (algorithm vs. human), $F(1, 536) = 0.30$, $p = .59$, $\eta^2 = .00$.

Post-Promotion Financial Support

I performed An ANOVA of decision-maker (human vs. algorithm) × decision consequence (convergence vs. divergence) on participants' decision to allocate a certain percentage of discretionary funds to promoted executive's project. Findings did not reveal a significant main effect of decision consequence (convergence vs. divergence), $F(1, 536) = 1.85$, $p = .17$, $\eta^2 = .00$. Similarly, the main effect of decision-maker (human vs. algorithm) on financial budget allocation to the promoted candidate was not significant, $F(1, 536) = 1.33$, $p = .25$, $\eta^2 = .00$. I did not find a significant interaction between these conditions, $F(1, 536) = 0.52$, $p = .47$, $\eta^2 = .00$.

Post-Promotion Advice Taking

Given that the dependent variable for advice taking was a dichotomous variable, a logistic regression was used to test the hypotheses (Barnes et al., 2011). The decision consequence (convergence vs. divergence) did not have a significant effect on the dichotomous advice taking in logistic regression, β = .05, *SE* = .28, Wald = .03, *p* = .86, *OR* = 1.05. Similarly, decision-maker (human vs. algorithm) did not have a significant effect on advice taking, β = -.82, *SE* = .30, Wald = .07, *p* = .78, *OR* = .92. The interaction between decision-maker and decision consequence was not significant either, β = -.16, *SE* = .42, Wald = .14, *p* = .71, *OR* = 0.86.

Discussion

One of the premises of algorithmic decision-making is prediction accuracy and minimization of human biases. However, much of this research has focused on bias in selection whether advanced technologies such as machine learning algorithms can improve human biases (Cowgill, 2018) and lead to better selection decisions (Erel et al., 2021). Extant research has, however, overlooked potential biases that may emerge post-selection. In other words, if AI is being used for selection and promotional decisions, we need to have a better understanding of the downstream consequences for individuals who are promoted using AI. It is precisely these kinds of considerations that might help us determine whether or not such AI based interventions are likely to fail in achieving some of the outcomes which they claim to be able to solve. If AI-promoted executives are promoted but ignored and set up to fail, we need to have a better understand of such issues for successful implementation. If there are subsequent concerns and problems, we need to be able to understand the parameters of these challenges in order to also

understand how we might solve them. Indeed - it is the resource and support and mentoring that is so critical for future success (e.g., McDonald & Westphal, 2013). This study takes a step forward in this direction. Using a sample of 680 managers in the U.S., this study examined whether algorithm-selected candidates experience more scrutiny and less support than manager-selected candidates, and especially if they are not supervising executives' recommended candidate.

Findings provide some, but limited, support for bias against algorithm-selected candidates. Findings indicate that while participants (acting in the role of SVP of Signbank) did not significantly differ in terms of their willingness to meet with algorithm-selected executives versus manager-selected executives, they nonetheless distributed significantly less nonfinancial resources (i.e., lunch time) to algorithm-selected executives compared to manager-selected executives. Findings from this study did not provide evidence for additional post-promotion scrutiny of executives who were promoted via algorithmic determination vs. human decision-making. Findings also show that algorithm-selected and manager-selected executives did not differ in the financial resources they received. Participants reported that they were similarly likely to take advice from both algorithm- and manager-promoted executives.

The findings of the study contribute to research on work outcomes of algorithmic decision-making by highlighting its nonfinancial costs for the promoted executives (Pereira et al., in-press). This finding is important because companies are increasingly using advanced technologies to make better selection decisions. Scholars predict that advanced technologies "will be able to source and select candidates based on core aspects and logic in the literature on strategic human capital and strategic HR" (Elfenbein &

Sterling, 2018). However, limited research has examined the downstream consequences of algorithmic decision-making on algorithm-selected candidates. The findings of the study advance knowledge by showing that algorithm-promoted candidates may face not visible and tractable aversion but may rather receive less nonfinancial support compared to manager-promoted executives.

Findings also advance limited research on the executive-algorithm interface by highlighting attitudinal and behavioral responses to advanced technology adoption in an executive promotion context (Tsai et al., in-press). Although previous research has begun to explore employee (Möhlmann & Henfridsson, 2019; Zhang, Pentina, & Fan, 2021) and customer responses (Tomaino et al., 2020) to AI-implementation, research has yet to address the potential benefits and perils of using algorithmic decision-making systems in identifying executive talent – especially from a perspective of its impact on a number of downstream outcomes, such as support and post-promotion of scrutiny of executives who are promoted via algorithmic determination.

Findings offer limited support for the algorithmic bias argument in a post-promotion context. These findings may be due to the fact that participants were not asked to choose between an algorithm-promoted versus human-promoted candidate. Another explanation for the near non-significant findings may be explained by the idea that algorithmic bias may not be relevant to (or observable) in the sample used for this study – given that these participants interact with and use technology as a source of income. It is also possible that participants disagreed with the idea of using algorithmic decision-making in executive promotion but did not choose to treat the promoted executives differently.

Findings from this study provided little support for escalation bias in executive selection – whether supervising executives promotion recommendation was overruled or implemented did not have a significant impact on the support and scrutiny received by promoted executives. While a lack of support for negative escalation of bias has been observed in prior research (Slaughter & Greguras, 2008), there has been some evidence to suggest that top-level decision-makers would exhibit choice-based bias in the selection and evaluation of CEOs (e.g., Zorn et al., 2019). The insignificant findings obtained in this study may be explained by 1) lack of justification required for promotion recommendation, 2) low risk associated with selecting either candidate because both were approximately similar and highly qualified, 3) difference between preference and disagreement with the ultimate promotion decision (preferring one candidate over the other does not mean that the supervising executives disagreed with the promotion of other candidate), and 4) the hypothetical nature of the choices made – their ultimate decision did not have any significant impact on the participants; they did not need to work on subsequent tasks with the promoted candidate and their choices were not publicly disclosed. While the in-basket activity has been adopted to create high psychological fidelity (Whetzel, Rotenberry, & McDaniel, 2014), nevertheless providing a promotion recommendation alone in this study may not have been sufficient to induce (non)commitment to the (rejected) recommended candidate. In the 'real' world, executives engaging in promotion decisions are likely to know the candidate executives well and are likely to take their decision to heart, seriously, creating a possible psychological commitment to the candidate that is likely not to be captured with this experimental study set-up.

By providing some evidence of algorithm aversion in an executive promotion context, the study also contributes to research on biases surrounding executive selection (e.g., Zorn et al., 2019), which has traditionally examined biases related to candidate characteristics. The findings of this research provide some evidence that a new form of bias may emerge if algorithmic solutions are used in the selection of top-executives and directors.

Limitations and Future Research

This study design had several limitations. First, while several steps have been taken to increase realism and create high psychological fidelity, the experimental set-up was limited in its efficiency to simulate the 'history' within an executive promotion context. In real life, supervising executives would have a long co-working history with candidate executives and may have (involuntary and effortless) positive affective for some candidate that may shape their promotion preferences (e.g., Lefkowitz, 2000; Prendergast & Topel, 1996). Having less than five minutes to look at candidate profiles, having comparably similarly good candidates to choose from, choosing from hypothetical but not real candidates, may not have created the psychological commitment needed.

Second, the present study does not provide a theoretical explanation of why executives exhibit an algorithm aversion post-promotion. One potential explanation may be that corporate executives often cannot understand an algorithm and the reason behind its forecast (Crews, 2019). Due to this black-box nature of AI, executives may come to perceive themselves (and other executive decision-makers) as being more accurate than an algorithm in identifying executive talent. Executives can also foster the illusion that they understand human decision-making any better than they understand how an

algorithm arrives at a conclusion (*illusion of explanatory depth*, IOED; Rozenblitz & Keil, 2002). Thus, future research can focus on developing interventions that may alleviate executives' algorithmic aversion in executive selection.

Another important limitation of this study is that it does not explain whether some executives are more likely than others to resist algorithmic decision-making. Future research can shed light on types or profiles of executives who are more (or less) likely to be resist receiving algorithmic aid during a decision task. One future area of research is to explore the drivers of executives' motivation to use intelligent autonomous systems in their work.

Fourth, the present study presumed that the target of any potential algorithmic aversion in executive selection would be the promoted executive. Thus, the current study explored downstream consequences of algorithmic decision-making only for one type of recipient. However, it is also plausible that participants react negatively to the firm that employ advanced technologies in executive selection. Future studies can explore executive mobility within and across firms in response to digital technology adoption.

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Table 4 Descriptive statistics and correlations for Study 2

	M	SD	1	2	3	4	5	6	7
1. Decision consequence [a]	0.52	0.50							
2. Decision maker [b]	0.48	0.50	-.04						
3. Scrutiny	2.78	0.91	.07	.03					
4. Resource scrutiny	2.82	0.93	.06	.00	.93**				
5. Willingness to have lunch	5.03	0.99	.02	.01	-.05	-.04			
6. Percentage of lunch time allocated	22.72	10.06	.00	-.09*	.01	.01	.39**		
7. Percentage of financial resources allocated	26.34	13.79	.06	-.05	-.01	-.02	.20**	.28**	
8. Advice taking [c]	0.22	0.41	.00	-.03	.14**	.10*	-.14**	-.05	-.05

Note: *Correlation is significant at the 0.05 level (2-tailed), **Correlation is significant at the 0.01 level (2-tailed

[a] Decision consequence "0" Divergent choice, "1" Convergent choice
[b] Decision maker "0" Human decision-maker, "1" Algorithmic decision-maker
[c] Advice taking "0" Advice taken, "1" Advice dismissed

CANDIDATE A

Group Director, Brooklyn New York

PROFILE

Candidate A is the Group Director of a seven-person team at Sign Bank's private client office in Brooklyn, N.Y. CA caters to a broad business clientele such as professional services firms and real estate entities.

CA oversees company's local corporate social responsibility activities such as environmental initiatives, philanthropic giving. CA is active in the business community and sits on the board of the New York Area Chamber of Commerce.

PROFESSIONAL EXPERIENCE

Group Director — March 2015 - Present
Sign Bank

Vice President, Relationship Manager — November 2005 – February 2015
JP Morgan Chase
Held a number of management positions such as branch manager, business banker, and sales manager.

EDUCATION

MASTER OF SCIENCE IN FINANICIAL ECONOMICS
Columbia Business School, Columbia University

BACHELOR OF SCIENCE IN FINANCE AND ACCOUNTING
Stern School of Business, New York University

Figure 1: The CV of Candidate A

CANDIDATE B

Group Director, Manhattan New York

PROFILE

Candidate B is the Group Director of a team at Sign Bank's private client office in Manhattan, N.Y. CB caters to a broad business clientele.

CB sponsored company's Disability Advocacy Network and FutureGen Council, which seek to understand the needs of next generation employees and customers. CB is active in the community and sits on the board of the Cradles to Crayons, which is a non-profit organization providing essential items for children living in low-income situations.

PROFESSIONAL EXPERIENCE

Group Director — November 2015 - Present
Sign Bank

Vice President, Team Leader — February 2005 – October 2015
Bank of America
Focused on business development for banking services such as commercial and insurance lines and loans, personal deposit accounts, real estate loans.

EDUCATION

MBA
The Wharton School, University of Pennsylvania

BACHELOR OF SCIENCE IN ECONOMICS
Yale University

Figure 2: The CV of Candidate B

CANDIDATE A

360-Degree Leadership Assessment Report

Competency Profile Radar Chart

The Competency Profile Radar Chart below shows scores for each rating group across all competencies. The marks on the chart represent a relationship group (i.e., Manager). For each competency area, each relationship group mark will be located between a score of 1 – 5 (more favorable scores fall toward the outside of the chart.) Where the marks are clustered together indicates that all the groups are fairly aligned in their score for you in that competency. If the marks are spread out, gaps between rater groups' perceptions and observations are easily visible.

Figure 3: The 360-degree feedback report for Candidate A (Radar Chart)

Open-Ended Comments

All respondents were asked to provide open-ended commentary on skills. The comments below are presented exactly as they were entered by the respondent.

Strategic Leadership
Is aware of our resource limitations in our department and plans accordingly. Tries to spread thing out to the members of the team to make sure all are engaged.

Developing Oneself
Is open and willing to listen.

Developing Others
Always looks out for the members of the team. Is confident to speak for the team members.

Diversity and Inclusion
Always looks to build up the team. A high point for this individual. Always respects you as a person.

Effective Communication
Is a master communicator and a people person. Looks after the team. Easy to communicate with. Approachable.

Emotional Intelligence
Has built a very strong working relationship with all members.

Inspiring Others
Is good at making others understand the organizational goals.

Teamwork
Is a great cross functional asset. Is very much a leader who looks after the team – a strong role model.

Accountability
Is very responsive and willing to be accountable. Can be trusted to deliver the outputs expected. Is very knowledgeable.

Additional Comments
Is very effective at understanding issues that arise, planning and implementing solutions. Very knowledgeable and can manage complex projects. Is one of the top managers whom I respect and look up to as a role model. Is well connected to influential people. Has a great industry reputation. Has a good understanding of internal and external stakeholder. Is honest to a fault. Is well liked and has achieved great outcomes with the team. Good at analyzing data. Is great at working with diverse groups of people. Is excellent at finding the correct person for the team. Has a "get it done" approach.

Figure 4: The 360-degree feedback report for Candidate A (comments)

CANDIDATE B
360-Degree Leadership Assessment Report

Competency Profile Radar Chart

The Competency Profile Radar Chart below shows scores for each rating group across all competencies. The marks on the chart represent a relationship group (i.e., Manager). For each competency area, each relationship group mark will be located between a score of 1 – 5 (more favorable scores fall toward the outside of the chart.) Where the marks are clustered together indicates that all the groups are fairly aligned in their score for you in that competency. If the marks are spread out, gaps between rater groups' perceptions and observations are easily visible.

Figure 5: The 360-degree feedback report for Candidate B (Radar Chart)

Open-Ended Comments

All respondents were asked to provide open-ended commentary on skills. The comments below are presented exactly as they were entered by the respondent.

Strategic Leadership
Has a strategic vision.

Developing Oneself
Is one of the few people who actually seeks out feedback.

Developing Others
Uses the network to help the development of team members.

Diversity and Inclusion
Listens to the team and lets them know they have a voice. Acts with strong values and is an example in this area.

Effective Communication
Is often good at communicating with a wide range of individuals. Is very good at actively listening to others. Is comfortable working with senior leaders.

Emotional Intelligence
Has a very high IQ to go with their intellectual ability.

Inspiring Others
Translates well the big picture.

Teamwork
Works well with other groups. Includes all members in discussions.

Accountability
Always delivers to a high standard. Measured, diligent and hardworking.

Additional Comments
Excellent functional knowledge. Is calm under fire. Is very effective at understanding issues that arise and implementing solutions. Can manage complex projects. Is thorough and well-prepared. Takes time to understand problems before finding or bringing forward solutions. Is accepted and respected by many individuals within the organization and community. Is very loyal and dependable. Is immensely valued and trusted by team members. Does not get easily distracted by side issues. Is adept at managing many different cultures. Effective in getting things done.

Figure 6: The 360-degree feedback report for Candidate B (comments)

	Do not accept; I do not have time for this	Probably not	Possibly	Probably	Very Probably	Definitely
Other Vice Presidents in the company	○	○	○	○	○	○
Executive who has been recently promoted to the vacant executive position	○	○	○	○	○	○
Your direct report	○	○	○	○	○	○
Engineers who want to talk about platform	○	○	○	○	○	○
Employees with medical expenses	○	○	○	○	○	○
Choose "Do not accept; I do not have time for this" answer for this question.	○	○	○	○	○	○

Figure 7: Dependent measure of willingness to have lunch

People	Requested
Vice presidents: Renewal of office space and computers	$1,7M
Executive who has been promoted to vacant executive position: Initiation of a new project.	$1,2M
Engineers: Development of a new platform.	$2.1M

Figure 8: Dependent measure of financial budget allocation

VITA

SIBEL OZGEN

2001	B.Sc., Chemical Engineering Ege University Izmir, Turkey
2004	M.Sc., Chemical Engineering Ege University Izmir, Turkey
2010	Ph.D., Chemical Engineering Universidad Rovira i Virgili Tarragona, Spain

PUBLICATIONS AND PRESENTATIONS

Gajendran, R., Loewenstein, J. Choi, H., Ozgen, S. (in-press). Hidden costs of text-based electronic communication on complex reasoning tasks: Motivation maintenance and impaired downstream performance. *Organizational Behavior and Human Decision Processes.*

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