

The Motivation-Influence-Ability (MIA) Model of Agency for Gender and Leadership

by

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Business Administration
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Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of
Philosophy of Business Administration in the Graduate School of Duke University

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ABSTRACT

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Abstract

Contradictory findings about whether agentic women are advantaged or disadvantaged persist in gender and leadership research. I suggest that these tensions may stem from ambiguities regarding the definition, content, and structure of agency. Across nine studies, I propose a motivation-influence-ability (MIA) multifactor model of agency perceptions that seeks to reconcile ambiguities surrounding the agency construct. The MIA model of agency reflects the distinct ways in which agency perceptions have been measured in gender and leadership research over 44 years. Exploratory factor analysis (pilot study) and confirmatory factor analyses across diverse independent samples support a multifactor structure of agency with six factors: ambitious agency, dominant agency, competent agency, self-assured agency, hardworking agency, and independent agency (Studies 1 to 4, Studies S1 to S3). Discriminant and convergent validity with gender stereotype (Study 2) and leadership (Study 3) measures were established. Additional psychometric analyses revealed measurement invariance across participant's gender, supervisor's leader, online vs. non-online samples, and time (Study S1). Further, I found that the six-factor model predicted more variance in perceived promotability relative to the existing one-factor model (Studies S2 and S3). In addition to demonstrating that the model has desirable psychometric properties, I also show that conceptualizing agency in a more nuanced way reconciles existing tensions within the gender and leadership literature and also leads to a different understanding of past conclusions. Women are advantaged when they are perceived as self-assured,

independent, competent, and hardworking but penalized when they are perceived as dominant (Study 4). Finally, an experiment revealed that agentic advantage was driven by a positive expectancy violation effect (Study S4), such that only people who believed that women who are less competent than men (i.e., those who subscribed to descriptive gender stereotypes) evaluated the highly competent female leader as more effective than the highly competent male leader.

Dedication

To my family.

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1 Introduction

In his seminal work, David Bakan (1966) suggests that agency is represented as asserting the self and mastering one's environment. In the decades since Bakan introduced this view, the concept of agency has become fundamental to gender and leadership research. Agentic qualities, like assertiveness, independence, and competence, are perceived as requirements for leadership success and are also more strongly ascribed to men than to women (e.g., Schein, 1973). One of the most robust and consistent findings in this domain of work is that in their pursuit of leadership, women are often penalized (i.e., encounter social and economic backlash) for being perceived as agentic (Eagly & Karau, 2002; Okimoto & Brescoll, 2010; Rosette et al., 2016; Rudman, 1998). However, emerging research suggests that agentic women may be perceived as more effective leaders than agentic men (Rosette & Tost, 2010; Schaumberg & Flynn 2017). I propose that this seeming paradox – that women are advantaged or disadvantaged when they are perceived as agentic – may derive from the existing unidimensional conceptualization of agency and vastly differing operationalizations of agency across studies.

Currently, gender and leadership research tend to represent agency as a single, all-encompassing construct that is exceptionally broad in its scope, content, and definition. For example, items such as active, ambitious, assertive, analytical, achieving, autonomous, and aspiring to lead have all been used to measure agency – and those are just some of the measurement items beginning with the letter “a.” When examining status

incongruity, agency serves as a referent for dominant and controlling judgements (Rudman et al., 2012). When studying the predictive effects of prescriptive stereotypes, agency is represented as perceptions of determination, dedication, and diligence (Gill, 2004). In studies of agentic backlash, agency signals self-promotion and confidence (e.g., Rudman, 1998). Given the disparate representations of agency in gender and leadership research, it becomes evident that this seeming agentic paradox likely arises and persists because of ambiguities associated with the definition and content of agency in existing gender and leadership research, leading to the question: What is agency?

In this research, I aim to answer this question and simultaneously resolve the ostensible agentic contradictions proffered in the opening paragraph through an investigation of the definition, content, and underlying structure of agency. Moreover, given the rampant demonstrations in existing research of the pervasiveness of agentic penalties toward women, a central goal of this work is to build on recent research demonstrating an agency advantage for women leaders to understand those facets of agency for which women may be rewarded. I propose a multifactor motivation-influence-ability (MIA) model of agency whereby “motivation” demonstrates a drive to push [toward a desired goal], “influence” signifies an effect on another and “ability” represents capability and skill. The MIA model of agency is inclusive of multiple factors and captures the disparate ways in which agency has been conceptualized and operationalized in gender and leadership research.

In addition to reconciling conflicting debates within gender and leadership research and providing a more nuanced understanding of agentic rewards for women leaders, the present research contributes to the field by providing a comprehensive consideration of the framework, structure, content, and definition of the agency construct. I believe that this new definition, model, and measure of agency can generate a more inclusive and cohesive understanding of agentic biases within gender and leadership by offering a common language researchers can use to specify the types of agency that drive their predictions.

Second, a multidimensional consideration of agency will allow for greater precision when incorporating agency into existing theoretical perspectives. For example, anchoring their findings in theory on the double standards of competence, Rosette and Tost (2010) found that top women leaders are seen as more agentic and more effective than male leaders. Similarly, leveraging expectancy violation theory, Schaumberg and Flynn (2017) observed that agentic women leaders were evaluated as more effective than agentic men. While agency is depicted as competence in the former study, agency is enacted as self-reliance in the latter study. By distinguishing between different types of agency, the MIA model will provide a clear framework that allows researchers to compare the extent to which separate theories postulate about different types of agentic content.

Further, many gender and leadership researchers currently use gender stereotype scales to measure perceptions of agency (Ahrens & O'Brien, 1996), even though these

two concepts are distinct. Although agentic qualities and gendered attributes may overlap (Eagly & Karau, 2002), not all gendered attributes concern agency (e.g., men are athletic, Prentice & Carranza, 2002). Similarly, not all agency attributes are gender-related (e.g., uniqueness, Jorgenson, 1981). I contribute to gender and leadership research by showing that agency can be discriminated from and is also far broader than measures of masculinity.

Finally, in terms of practical implications, many companies now publicly acclaim diversity, equity, and inclusion efforts as an organizational priority and collectively spend billions of dollars annually on diversity training (Lipman, 2018). However, despite substantial financial investments, gender inequity persists, especially in the domain of leadership (Florentine, 2018). In order to be effective, interventions targeted at reducing gender bias in leadership have to be explicit and identifiable (Dobbins & Kalev, 2016; Epitropaki & Martin, 2004). Conceptualizing agency as a broad, all-encompassing construct may therefore limit the productiveness of these efforts. Conversely, having a measure that recognizes and captures the potentially differing ways in which men and women may be perceived can help managers better understand and remedy the unique challenges that women face when attempting to pursue and maintain leader positions.¹

Therefore, the present research has two goals. The first goal is to provide a theoretical framework that reflects the manner in which agency has been depicted in

¹ In this work, I focus on binary gender social categories. This decision is not intended to imply that these social groups are worthier of consideration than others, but rather these groupings reflect the bulk of existing gender research upon which I base the proposed model.

gender research over several decades and encompasses a new measure of agency that possesses desirable psychometric properties. To do so, I first review past theoretical conceptualizations of agency. Next, following an inductive scale development process (Hinkin, 1998), I conduct a comprehensive literature review on how agency has been operationalized and compile an extensive list of items that have been used to measure agency perceptions in past research. After investigating the underlying factor structure of the construct using items yielded from the literature review, I propose the motivation-influence-ability (MIA) model of agency, including a principal definition of agency and specific definitions of particular types of agency derived from the emergent factor structure. I cross-validate the factor structure of this measure across eight additional independent samples, distinguish it from related organizational constructs, and demonstrate that the model has desirable psychometric properties.

The second goal is to showcase the promise of this new measure of agency by demonstrating its potential ability to reconcile persistent paradoxes concerning agentic biases in existing gender and leadership research. To do so, I explicitly theorize and consider how different agency perceptions in the MIA model relate to judgements of leader effectiveness, and how leader gender moderates these relationships.

2 Previous Conceptualizations of Agency

In Bakan's (1966, p. 15) initial conceptualization of agency, he introduces it as an abstruse and profound concept about asserting the self. His conceptualization of agency is purposefully somewhat confounding, as he suggests that one of his goals in the exposition of agency is to "push back the fringe of the unmanifest." As a result, his conceptualization – upon which much of the existing gender and leadership research is based – does not provide a concrete and specific definition of the term, but instead undulates back and forth between manifestations and abstractions of the concept. Indeed, a chronological review of how agency has been theorized since Bakan's introduction reveals that subsequent definitions of agency echoed this tendency to conceptualize agency as a broad construct capturing a general orientation towards self-assertion (see Appendix A for a non-exhaustive review of 24 existing definitions and conceptualizations of agency). For example, White (1979) described agency as "capabilities the self has which reflect a forceful active self, reaching out, attempting to achieve a goal" (1979, p. 300). Similarly, in their review of Hogan's (1982) socio-analytic theory of personality, Judge, Piccolo, and Kosalka (2009, p. 861) summarize agency as having been previously represented as the motivation to "get ahead," a basic challenge that individuals have to navigate throughout their social life. In other words, early conceptualizations of agency often placed a self-serving orientation at the forefront of agentic considerations but did so in a broad, overarching manner.

Since then, the study of agency has flourished in many disparate fields of research, such as values (Trapnell & Paulhus, 2012), impression management behaviors (Blasberg, Rogers, & Paulhus, 2014), self-regulation (Baumeister, 2019), and personality (e.g., the circumplex model, Wiggins, 1991). The study of agency within the context of social (or person) perception in particular has promoted a better understanding of the perceptual processes underlying people's impressions of agentic women and their potential and ability to lead. Indeed, a number of prominent gender and leadership theories focus on how gender bias may be driven by people's perceptions of agentic women. For example, both role congruity theory (Eagly & Karau, 2002) and the lack of fit model (Heilman & Caleo, 2018) propose that gender bias stems from the incongruity between people's perceptions of agentic women and stereotypical expectations associated with gender and leader social roles. Similarly, the status incongruity hypothesis (Rudman et al., 2012) proposes that gender backlash against agentic women occurs because their high-status agentic displays may be perceived as incongruent with the low status associated with their female identity (Rudman, Moss-Racusin, Phelan, & Nauts, 2012).

However, as the study of agency gained momentum in gender and leadership research, scholars began to define agency using a myriad of listings, which were all seemingly justifiable given the all-encompassing manner in which agency had been historically defined and conceptualized. Indeed, many studies of agency within the gender and leadership literature, especially since the 2000s, choose to define agency by listing certain qualities and adjectives without opting to provide an explicit definition of

the term (e.g., Rudman & Glick, 2001). For example, Eagly and Karau (2002, p. 574) describe agency as an “assertive, controlling, and confident tendency—for example, aggressive, ambitious, dominant, forceful, independent, self-sufficient, self-confident, and prone to act as a leader.” Similarly, in their exploration of the gender biases in academia, Madera and colleagues (2009, p. 1592) define agency as including “descriptions of aggressiveness, assertiveness, independence, and self-confidence... Agentic behaviors at work include speaking assertively, influencing others, and initiating tasks.” In their test of the status incongruity hypothesis, Rudman and colleagues (2012, p. 165) conceptualized agency as “competent, confident, and assertive (i.e., agentic)” (see Appendix A for additional examples).

Listings of agentic qualities and characteristics have advanced our understanding of the different types of agentic biases that women experience (Rosette et al., 2016), resulting in groundbreaking and enlightening theoretical perspectives like role congruity theory (Eagly & Karau, 2002), the lack of fit model (Heilman & Caleo, 2018), and the status incongruity hypothesis (Rudman et al., 2012). Yet, such listings – that tend to vary based on the aims of the study – have led to at least three limitations in the current study of agency when considered within the context of gender and leadership research. First, in addition to contradictory findings about agentic advantage and disadvantage described earlier, other debates and ostensibly conflicting findings in gender and leadership research persist because of the imprecise manner in which agency is currently depicted. For instance, some researchers have proposed that women face a “double bind,” being

perceived as either agentic or communal (Rudman et al., 2012). Others have found that, depending upon their position in the organization, women do not experience a double-bind and may be perceived as both agentic and communal (Rosette & Tost, 2010). Similarly, some contend that although women are now seen as comparably competent compared to men, they are still perceived to lack other agentic qualities (e.g., ambitious, confident; Eagly, Nater, Miller, Kaufmann, & Sczesny, 2019) and thus are still relatively disadvantaged. Yet, others have argued that the growing need for managers to be interpersonally skilled and communal (Vecchio, 2002), combined with the increasing perception that women have become more competent than they used to be (Eagly et al., 2019) have contributed to a female leadership advantage. One way to help reconcile these existing disputes is to dive deep into an understanding of how each side of these debates is conceptualizing agency.

Second, there may not currently exist a clear, concise, and specific definition of agency that captures the manner in which the notion of agency has evolved since the upsurge of gender and leadership studies that began in the early 1970's. Although the listing of terms that comprise agency has substantially informed our understanding of agentic biases in gender and leadership studies and is wholly consistent with Bakan's (1966, p. 15) original conception of agency as "manifested in various ways and various contexts," the literature is in need of a statement that clearly expresses the essential nature of agency.

Third, having a model that clearly delineates the different types of agency provides a much needed typology that succinctly captures the many lists of terms that have been used to measure agency over a 44 year period and can help researchers determine which items are appropriate measures of agency. For example, due to the conceptual overlap between agency and gender stereotype measures of masculinity, agency has been measured using items (e.g., “athletic,” Laurent & Hodges, 2009) that are not clearly related to self-assertion in organizational life nor conceptually tied to any of the other agency factors that I found. This present research can help clarify whether these masculine terms are manifestations of agency.

The goal of the present research is therefore to provide a comprehensive consideration of the multifaceted ways in which agency has been measured since Bakan first introduced the concept in the 60s. I collected a list of agentic qualities that have been frequently used to measure agency over the past several decades. Using psychometric techniques, I then developed a motivation-influence-ability model of agency that defines agency as motivation, influence, and ability to “assert the self,” thus tying the MIA model to Bakan’s original conceptualization of self-assertion. Hence, the development of this motivation, influence, and ability model of agency is an emergent one – I do not impose a preconceived framework but instead constructed this model through an inductive process of reviewing existing research in the applicable domain.

3 The Motivation-Influence-Ability (MIA) Model

To resolve ambiguity surrounding the definition and content of agency perceptions, I first conducted a pilot study which included a comprehensive literature review spanning forty-four years (1974-2018)² to ascertain how agency has been measured in gender and leadership research in fifteen top organizational behavior and social psychology academic journals.³ A search revealed 1159 potential articles of which 63 included explicit measures of agency as a construct. For each of these 63 articles, I recorded the items that were used to measure agency and counted the frequency with which each agency item occurred. A count resulted in 147 items used to measure agency in gender and leadership studies over the 44-year period. After carefully evaluating each item for inclusion (e.g., comparable wordings, synonyms, infrequency of use, see Appendix B for a listing of all 147 items and reasons why certain items were excluded), I employed exploratory factor analysis (EFA) on the final list of 49 words. Six distinct factors comprised of 25 items emerged from the EFA. Drawing on past theoretical conceptualizations of agency, I generated labels and definitions for each of the respective

² I used 1974 as the starting point as the majority of the journals I reviewed started their publication on or after 1974.

³ I conducted information searches of articles from 15 top journals in organizational behavior and social psychology: Academy of Management Journal, Organization Science, Administrative Science Quarterly, Journal of Applied Psychology, Organizational Behavior and Human Decision Processes, Journal of Personality and Social Psychology, Journal of Experimental Social Psychology, Personality and Social Psychology Bulletin, Psychological Science, Sex Roles, The Leadership Quarterly, Psychology of Women Quarterly, Personnel Psychology, Journal of Management, and Journal of Social Issues. I chose these journals because they included sufficient articles that focus on agency in relation to gender and leadership outcomes.

six factors. I label these factors: ambitious agency, dominant agency, competent agency, self-assured agency, hardworking agency, and independent agency (see Table 1 for names, factor loadings, communalities, item means, standard deviations, and reliability measures). For more details regarding this pilot study, please refer to section **7.1 Pilot study details**.

3.1 Unpacking Agency and its Factors

I closely examined the items that loaded onto each factor and used existing research to provide a succinct definition that accurately depicted the content of each respective factor. The first factor I identified, which included three measurement items (i.e., status-seeking, aspire to lead, and ambition), is ambitious agency. Past research has conceptualized agency as a manifestation of the need for achievement (Scott & Brown, 2006, p. 232) or a “strong will to power” (Okimoto & Brescoll, 2010, p. 927). Consistent with a general definition of ambition as the “desire to achieve ends, especially ends like success, power, and wealth” (Judge & Kammeyer-Mueller, 2012, p. 759), I define ambitious agency as “possessing a determination or desire for achievement.”

Table 1: Item loadings, communalities, means, and standard deviations (pilot study)

Factors	Cronbach's alpha	Omega total	Greatest Lower	Item	Loadings	Communality	<i>M</i>	<i>SD</i>
Ambitious agency	.84	.84	.85	Status-seeking: Reaching a higher standing relative to others	.70	.74	4.53	1.80
				Aspire to be leader: A desire to move upwards or higher than others	.92	.84	4.98	1.66
				Ambitious: Strong desire to achieve something or get ahead of others	.88	.79	5.15	1.58
Dominant agency	.88	.88	.92	Aggressive: Vigorously commanding over others	.71	.66	3.48	2.04
				Dominant: Exerting authority over others	.80	.74	4.70	1.74
				Controlling: Determining the behavior of others	.91	.79	4.27	1.81
				Forceful: Characterized as vigorous strength	.89	.76	4.25	1.76
				Manipulative: Affecting the behavior of others for one's own purposes	.69	.72	3.89	2.06
Competent agency	.93	.93	.95	Competent: Sufficiently qualified	.77	.79	5.56	1.57
				Capable: Having ability to complete a task efficiently	.72	.78	5.61	1.52
				Intelligent: Possessing sound knowledge	.78	.81	5.63	1.43
				Skillful (having skills): Possessing proficiency in relevant areas	.79	.79	5.69	1.34
				Masterful: Possessing an in depth understanding of pertinent tasks	.81	.78	5.30	1.61
Self-Assured agency	.86	.86	.88	Willing to take stand	.58	.59	5.36	1.53
				Self-assured: Having a firm belief in one's abilities	.90	.82	5.75	1.24
				Self-efficacy: Belief in one's capabilities	.84	.81	5.80	1.21
				Conviction: Possessing certainty or steadfast belief	.72	.71	5.63	1.23
Hardworking agency	.90	.90	.91	Active: Characterized by energetic work	.82	.77	5.20	1.59
				Dedicated: Wholly committed to an end	.86	.82	5.50	1.49
				Task oriented: To focus on getting the job done	.77	.70	5.63	1.43
				Hardworking: Working with diligence	.73	.76	5.53	1.52
Independent agency	.80	.80	.81	Independent: Not relying on others	.84	.75	4.67	1.72
				Self-reliant: Relying on oneself	.79	.66	5.12	1.48
				Individualistic: Showing individuality in behavior and thoughts	.54	.61	5.31	1.41
				Self-direction: Follows one's own thought or action	.62	.71	5.32	1.36

N = 452

The second type of agency includes five items (i.e., aggressive, dominant, controlling forceful, and manipulative) and is called dominant agency. Within the gender backlash literature (Rudman & Glick, 1998; 2001), agency has often been conceptualized as interpersonal control and “social dominance” (Rudman & Glick, 2001, p. 745). Consequently, dominance has been described as “controlling and arrogant” (Rudman et al., 2012, p. 166) and “demanding action” (Livingston, Rosette, & Washington, 2012, p. 356). Thus, I define dominant agency as “inclined to influence other people’s opinions and actions.”

I identify the third type of agency – measured as competent, capable, skillful, and masterful – as competent agency. Agency has been described in the past as an instrumental stereotype related to a “task focused orientation” (Scott & Brown, 2006, p. 232), “task functioning and goal achievement” (Wojciszke & Abele, 2008, p. 1139), and reflecting people’s ability to master a skill or to have the most pertinent experience relevant to one’s environment (Rosette et al., 2016). Drawing from this conceptualization, agency has often been evoked in debates about whether people perceive women to lack agency (e.g., Heilman & Okimoto, 2007). Indeed, this particular component of agency – competent agency – has been frequently described as intellect (Madera et al., 2009) and proficiency (Rosette et al., 2016). Thus, I define competent agency as “possessing the requisite ability and knowledge needed for a particular task or activity.”

The fourth type of agency is called self-assured agency, measured as willing to take a stand, self-assured, self-efficacy, and conviction. This form of agency has been conceptualized in past research on gender blindness ideology as reflecting “one’s beliefs in their ability to accomplish a number of goals and achieve success” (Martin & Phillips, 2017, p. 31). Thus, this aspect of agency – self-assured agency – appears related to confidence (sometimes labeled control beliefs; Skinner, Chapman, & Baltes, 1988) and also resembles self-efficacy, an individual’s belief in his or her capabilities to accomplish specific tasks (Bandura, 1989). Therefore, I define self-assured agency as “showing certainty in one’s own personal capabilities and judgment.”

I label the fifth factor as hardworking agency, measured as active, dedicated, task oriented, and hardworking. In analyses of gender stereotypes (Eagly et al., 2019), agency has sometimes been conceptualized as persistence and touted as a key quality needed for goal pursuit and attainment. Drawing from general definitions of hardworking as “the ability to be motivated from within and direct attention and effort toward a challenging goal” (Larson, 2000, p. 70) and “a sense of willpower, or determination to begin and maintain the effort needed to achieve goals” (Luthans & Jensen, 2002, p. 306), I define hardworking agency as “demonstrating devotion and discipline toward one’s work or a particular purpose.”

Finally, a central aspect of Bakan’s (1966) original depiction of agency is the tendency for people to act individually and separately. This aspect of agency is captured as “a focus on self and separation” (Helgeson, 1994, p. 414), “positive value placed on

individuality” (Paulhus & John, 1998, p. 1039), and “isolation, alienation, and aloneness” (Bakan, 1966, p. 15). Consequently, agency has been measured in gender and leadership research as being self-reliant (Schaumberg & Flynn, 2017), in explorations of motivations of women in STEM as self-directed (Diekman, Brown, Johnston, & Clark, 2010), and in explorations of gender bias in employment contexts as self-sufficient (Hoyt, 2012). Given its focus on independence and self-reliance, I define independent agency as “capable of acting on one’s own without relying on others.”

Next, I utilize these six distinct agentic factors to propose a motivation-influence-ability model of agency perceptions for gender and leadership research, which I describe below.

3.2 Defining Agency

I define agency as the “motivation, influence, and ability to assert the self.” The first facet of the definition is motivation, which represents inferences about whether a leader is motivated to assert the self in organizational life. The “motivation... to assert the self” pertains to a perceived willingness or determination to propel oneself ahead and is depicted in descriptions of agency as a demonstrated urge to master (Bakan, 1966). This resolve to get ahead is reflected in past operationalizations of agentic perceptions in gender research, such as being ambitious (Hoffman & Hurst, 1990; Rudman & Glick, 2001), power-seeking (Okimoto & Brescoll, 2010), and status-seeking (Diekman et al., 2010; Rosette & Tost, 2010; Sczesny, 2003). I propose that this desire for higher power and status positions is reflected in ambitious agency.

The second component in this definition is perceptions of influence, which represent judgements about a leader's capacity to affect change in others to accomplish goals. The "influence... to assert the self" refers to perceptions about the interpersonal tactics and behaviors people employ to assert the self, and I propose that this is reflected in dominant agency. Past research has represented influence as distinct and separate from ability and motivation because influence may elicit a qualitatively different type of gender bias compared to the other two components (Rosette et al., 2016). For example, Rosette and colleagues (2016) proposed two distinct types of agentic-based biases: an "agentic-deficiency" bias, which may be driven by judgements of agentic-ability as well as an "agentic-penalty" bias, which may be elicited by perceptions of agentic-influence. Similarly, Rudman and colleagues (1998; 2001; 2012) explicitly distinguish between competence (agentic-ability) and dominance (agentic-influence) by stating that agentic women experience backlash as a result of judgements of dominance, but not competence.

The final consideration in this definition is ability. This encompasses judgements about skill and capability for self-assertion and is reflected in the factors: competent, self-assured, hardworking, and independent agency. Each factor connotes the ability to attain mastery of one's environment via accomplishing tasks and achieving goals, but in differing ways. While competent agency connotes the ability to complete tasks via skill and expertise (Ybarra et al., 2008), self-assured agency connotes a composure and belief in one's ability to successfully achieve goals (Madera, Hebl, & Martin, 2009). Hardworking agency facilitates task completion via conscientiousness and perseverance

(White, 1979), whereas independent agency does so via demonstrating self-governance, self-efficacy and self-determination (Wojciszke & Abele, 2008). I also note that whereas agentic-ability is more task-based (e.g., perceptions of whether someone completes tasks in an independent, competent, and self-assured manner), dominant agency as interpersonal influence need not be explicitly related to a person's task-based capabilities. In other words, since agency has been defined as mastery of one's environment (Bakan, 1966), agentic-ability may pertain to the mastery of the physical environment, whereas agentic-influence (i.e., dominant agency) concerns mastery over the social context. Distinguishing between agentic-ability and agentic-influence is important because women may be perceived as lacking certain aspects of agentic-ability (i.e., self-confidence and independence, Prentice & Carranza, 2002) or agentic-motivation (e.g., ambition), but are explicitly penalized when they are perceived as enacting agentic-influence (i.e., dominant agency) behaviors (Rudman et al., 2012).⁴

Consistent with earlier definitions of agency (Bakan, 1966), I house the three facets of the definition – motivation, influence, ability – in the phrase “assert the self.” Self-assertion – a consideration prominent in Bakan's (1966) and other earlier conceptualizations of agency – might manifest in different ways. For instance, it might involve self-promotion (Rudman, 1998), or “getting ahead” of others (Judge et al., 2009),

⁴ This distinction between agentic-ability and agentic-influence also converges with Rosette and colleagues (2016)'s framework of agentic-competence and agentic-dominance, Rudman and colleagues' (2001; 2012) gender backlash model, as well as Eagly and Karau's (2002) two forms of gender prejudice model.

or it might manifest as aloneness and “self-separation” (Bakan, 1966). Regardless of how self-assertion is expressed, the key distinction in this definition is that agentic perceptions are fundamentally driven by judgements about whether the motives and behaviors of others are essentially driven by a focus on – or an enrichment of – the self (as opposed to other people). The phrase “assert the self” in the definition emphasizes this underlying self-orientation that unites the three components of the MIA model. This MIA model of agency is developed based on past operationalizations of agency within gender and leadership and thus emphasizes the perceptual and cognitive processes that underlie judgements about women’s leadership ability and potential. The focus on cognitive processes renders the MIA conceptually similar to other social cognitive theories of leadership that also examine how perceivers use pre-existing mental schemas to evaluate leaders (Eagly & Karau, 2002; Lord, Day, Zaccaro, Avolio, & Eagly, 2017; Lord, Foti, & DeVader, 1984).

Findings from the pilot study revealed a six-factor model of agency comprising of ambitious agency, dominant agency, competent agency, self-assured agency, hardworking agency, and independent agency. These six factors in turn correspond to three interwoven themes of agency, which I draw on to define agency as “motivation, influence and ability to assert the self.” This six-factor motivation-influence-ability model of agency provides a framework that reflects the manner in which agency has evolved in gender and leadership research over 44 years. Through an extensive review, I have unpacked and dissected this all-encompassing construct to organize its tenets around

three major themes that concern judgements about employees' motivation, influence, and ability to assert the self in organizational life. Having developed a six-factor MIA model of agency, I sought to use this model to reconcile existing contradictory findings about agentic advantage and disadvantage in the gender and leadership literature (Study 4 and Study S4) after establishing that this model possesses desirable psychometric properties (Studies 1 to 3 and Studies S1 to S3).

3.3 Reconciling Agentic Disadvantage and Advantage with the MIA Model

Given that one major goal of the present research is to demonstrate how a consideration of the multiple facets of agency reconciles the tension that women leaders can simultaneously be advantaged or disadvantaged for agency, I now consider how the MIA model relates to judgements of leader effectiveness, and how these relationships may be influenced by leader gender.

In goal setting theories, agentic motivation (as represented by ambitious agency) is conceptualized as “a desire to get ahead... and setting hard, challenging goals for themselves and their organizations” (Kirkpatrick & Locke, 1991, p. 50). Indeed, agentic-motivation has often been touted as a key determinant of leadership effectiveness (Kirkpatrick & Locke, 1991). For example, in a study with managers from AT&T, the willingness or determination to propel oneself ahead has been found to be the strongest predictor of occupational success in a period of twenty years (Howard & Bray, 1988). Similarly, a seven-decade study indicated that ambition is associated with greater occupational prestige and income (Judge & Kammeyer-Mueller, 2012).

Even though agentic-motivation (or ambition) is positively associated with greater judgements of leadership effectiveness, gender and leadership researchers have sometimes found that women (vs. men) are not rewarded when they are perceived as ambitious. For instance, past research has shown that people experience moral outrage towards highly ambitious female (vs. male) politicians (Okimoto & Brescoll, 2010), and people also dislike and are not willing to hire women (vs. men) who promote themselves (Rudman, 1998). These backlash findings may appear puzzling in light of the fact that when people are asked what are desirable qualities in men and women, they indicate that it is desirable for women (as well as men) to be “ambitious” and “competitive” (Prentice & Carranza, 2002, p. 273).

One possibility for these conflicting findings could be that women are penalized only at high but not moderate and low levels of perceived ambition. For instance, the experiments demonstrating gender backlash against ambitious women typically compare men and women who are high (vs. low) in ambition. In these vignettes, highly ambitious people are often described as “being hungry [is everything],” (Okimoto & Brescoll, 2010, p. 35-36) “figured out the “tricks” in all of them [computer games] so scoring high was easy,” (Rudman, 1998, p. 645), and having a “driving ambition to power and status” (Brescoll, Okimoto, & Vial, 2018, p. 153). In contrast, there were no observed gender differences (Rudman, 1998) or sometimes even a reversal of a gender difference in leader evaluations (Okimoto & Brescoll, 2010) at levels of low perceived ambition. As such, it is possible that gender backlash is only observed at high levels of perceived ambition,

whereas low or moderate levels of perceived ambition are judged as desirable in both men and women and therefore no gender backlash may be observed. Given these inconsistent findings, it is possible that women are neither disadvantaged nor advantaged when they are perceived to possess agentic-motivation.

I now consider the link between agentic-influence (as represented by dominant agency) and perceived leader effectiveness. Generally, leadership theories converge on the notion that leaders who are dominant and tyrannical are more likely to emerge as leaders (Anderson & Kilduff, 2009; Cheng, Tracy, Foulsham, Kingstone, & Henrich, 2013). However, the link between judgements of dominance and perceived leadership effectiveness is less clear. For instance, people rated the average leader higher on judgements of tyranny than the average effective leader (Offermann, Kennedy, & Wirtz, 1994), suggesting that effective leaders are thought to be less tyrannical than average leaders.

Generally, gender and leadership researchers also suggest a negative relationship between agentic-influence and perceived leader effectiveness for female leaders. Robust evidence from the gender backlash literature suggest that women are penalized when they are perceived as dominant, and this backlash occurs because dominance is most at odds with role expectations associated with the female leadership role (Rudman et al., 2012; Rudman, 2001; Prentice & Carranza, 2002). For example, when asked to describe qualities that are undesirable for women, people listed traits like rebellious, arrogant, controlling, and this was the case in a study that was conducted 20 years ago (Prentice &

Carranza, 2002) as well as more recently (Rudman et al., 2012). To avoid having to hire dominant women, people would even change the hiring criteria from a focus on competence (which dominant women are presumed to possess) to social skills (which dominant women are perceived as lacking) in order to justify hiring discrimination (Phelan, Moss-Racusin, & Rudman, 2008). Similarly, Heilman and colleagues (2004) found that people feel more hostile towards women (vs. men) who succeed at male-typed tasks and therefore do not want to recommend these women for fast tracked careers. Given the prevalence and strength of proscribed expectations around women's dominance, perhaps it is then not surprising that women are unwilling to negotiate or advocate for their own goals and agendas because they do not want to appear disagreeable or dominant and thus violate these injunctive norms (Amanatullah, Morris, & Curhan, 2008). Consistent with this research, it is therefore possible that agentic-influence (or judgements of dominance) is the main driver of gender backlash.

Finally, and perhaps most emphasized in considerations of leadership effectiveness are qualities represented by agentic-ability (i.e., competent, hardworking, independent, and self-assured agency). Agentic-ability is highlighted as an important determinant of leader effectiveness in many leadership theories, including a trait-based (Lord, De Vader, & Alliger, 1986) as well as a social cognitive (Eden & Leviatan, 1975) approaches. For example, implicit leadership theorists have found that when asked to list the qualities that effective leaders possess, people listed qualities like intelligence (similar to competent agency) and dedication (similar to hardworking agency). Similarly, a meta-

analysis of the link between the big five personality traits and leadership effectiveness found that conscientiousness (similar to hardworking agency) had a .28 positive correlation with leadership effectiveness (Judge, Bono, Ilies, & Gerhardt, 2002).

As popularized by the notion of a gender double bind, it is often thought that women are “seen as competent or likeable, but rarely both” (Catalyst, 2019). However, the gender stereotype literature suggests that women may not be penalized for demonstrating competence as well as other types of agency such as hardworking, self-assured, and independent agency because these qualities do not appear to conflict with gendered role expectations. For example, when asked what are desirable qualities in women, people listed qualities like “intelligent” (similar to competent agency), “self-reliant” (similar to independent agency), “high self-esteem” (similar to self-assured agency), and “disciplined” (similar to hardworking agency), suggesting that these qualities are not explicitly proscribed for women, and therefore women may not experience backlash when they are perceived to possess these qualities. Indeed, people evaluate self-reliant women even more positively than self-reliant men (Schaumberg & Flynn, 2017). Similarly, Rosette and Tost (2010, p. 225) found that female leaders can be perceived as even more effective than male leaders because unlike men, these women can be judged as both agentic and communal. Therefore, it is possible that women may not be penalized for demonstrating agentic-ability – rather, these women may be rewarded when they are perceived to possess independent, competent, self-assured, and hardworking agency.

3.4 Overview of Studies

Across 4 main studies and 4 supplementary studies, I aimed to achieve two major goals. The first goal was to establish the psychometric validity of the MIA model. To do so, I first cross-validated this multi-factor model using confirmatory factor analysis (Studies 1 to 4). Given the emphasis on gender and leadership, I then explored the convergent and discriminant validity of the MIA model in relation to both gender stereotype (Study 2) as well as leadership measures (Study 3). In Study S1, I established test-retest reliability and measurement invariance of the multifactor model of agency across participant gender, leader gender, sample type (online vs. non-online), and time. In Studies S2 and S3, I consider the predictive validity of the six-factor model of agency in relation to past uni-factor conceptualizations and found that the six-factor model of agency explained more variance in perceived leader promotability than the existing one-factor conceptualization of agency. In these two studies, I asked supervisors to rate subordinates' agency and assessed perceived promotability.

The second goal was to examine if the MIA model can reconcile agentic advantage and disadvantage. Study 4 presents a consideration of how conceptualizing agency in a more nuanced way can reconcile existing tensions within the agentic bias literature and also offer a fresh perspective on existing conclusions within the gender and leadership literature. Finally, Study S4 examines positive expectancy violation as a boundary condition of agentic advantage.

4 Study 1: Confirmatory Factor Analysis

The goal in this study is to use confirmatory factor analysis (CFA) to cross-validate the six-factor motivation-influence-ability model of agency using a sample of Masters of Business Administration (MBA) students. In addition, I sought to employ CFA techniques to test the statistical fit of a three factor model to assess the theoretical grouping of agency as motivation, influence, and ability. A final goal was to establish the convergent and discriminant validity of factors within the model.

4.1 Method

Four hundred and twenty-one Masters of Business Administration (MBA) students with prior work experience participated in this study. Participants were asked to evaluate their most recent supervisor using the 25 agency items on a 7-point scale (1 = strongly disagree, 7 = strongly agree). In this and following studies, I used robust maximum likelihood CFA to examine the validity of the six factors of agency because it is less sensitive to violations of normality. In the CFA, I specified that the agency construct would consist of 6 correlated latent factors, that each item would have a greater than zero loading on its designated factor, zero loadings on all other factors, and uncorrelated measurement errors. Consistent with other measure development research (Epitropaki & Martin, 2004), I report four model fit statistics: normed chi-square measure (χ^2/df), robust comparative fit index (CFI), robust Tucker-Lewis index (TLI), and the robust root-mean-square error of approximation (RMSEA).

4.2 Results and Discussion

Agency was well represented by six correlated first order factors, $\chi^2(260) = 679.11$, $p < .001$, $\chi^2/df = 2.61$, CFI = .92, TLI = .91, RMSEA = .07. Please refer to Table 2 for the fit indices of the six-factor agency structure in all other studies. Since current gender and leadership research tends to conceptualize agency as a unidimensional construct, I tested the six correlated factors model against a competing model with all items loading on one first order factor, and the one-factor structure was not well represented by the data, $\chi^2(275) = 3317.51$, $p < .001$, $\chi^2/df = 12.06$, CFI = .42, TLI = .37, RMSEA = .19 (Table 2).

Next, I examined whether each item had a significant loading on the main factor (Anderson & Gerbing, 1988), and I found that this was the case. Standardized loadings ranged from .62 to .90 ($ps < .01$). Each factor had an Average Variance Extracted (AVE) greater than .5 ($AVE_{ambitious\ agency} = .65$, $AVE_{competent\ agency} = .72$, $AVE_{self-assured\ agency} = .61$, $AVE_{independent\ agency} = .59$, $AVE_{dominant\ agency} = .71$, $AVE_{hardworking\ agency} = .57$, Fornell & Larcker, 1981, p. 45). Thus, the results suggest that there is both convergent and discriminant validity among the six agency factors.

Table 2: Fit indices for agency measures

	Scaling factor	χ^2	$\Delta\chi^2 (df)$	<i>df</i>	χ^2/df	<i>CFI</i>	<i>TLI</i>	<i>RMSEA</i>
Two correlated first order factors (Study 1)a	1.35	2137.06	822.92(14)***	274	7.80	0.65	0.61	0.15
Two correlated first order factors (Study 1)b	1.34	2203.54	891.68(14)***	274	8.04	0.63	0.60	0.15
Three correlated first order factors (Study 1)c	1.34	1758.51	620.61(12)***	272	6.47	0.72	0.69	0.13
Four correlated first order factors (Study 1)d	1.32	1559.23	505.09(9)***	269	5.80	0.76	0.73	0.12
Five correlated first order factors (Study 1)e	1.30	1102.04	311.92(5)***	265	4.16	0.85	0.83	0.10
Five correlated first order factors (Study 1)f	1.30	905.39	143.35(5)***	265	3.42	0.88	0.87	0.09
One first order factor (Study 1)	1.35	3317.51	1494.00(15)***	275	12.06	0.42	0.37	0.19
Three correlated first- and second- order factors (Study 1)g	1.29	725.00	42.40(8)***	268	2.71	0.92	0.91	0.07
Six correlated first order factors (Study 1)	1.28	679.11	-	260	2.61	0.92	0.91	0.07
One first order factor (Study 2)	1.28	3402.75	1684.5(15)***	275	12.37	0.53	0.48	0.19
Three correlated first- and second- order factors (Study 2)g	1.23	668.52	73.32(8)***	268	2.49	0.94	0.93	0.07
Six correlated first order factors (Study 2)	1.23	585.69	-	260	2.25	0.95	0.95	0.06
One first order factor (Study 3)	1.29	3116.22	1343.6(15)***	275	11.33	0.53	0.48	0.20
Three correlated first- and second- order factors (Study 3)g	1.24	585.61	58.93(8)***	268	2.19	0.95	0.94	0.07
Six correlated first order factors (Study 3)	1.22	528.01	-	260	2.03	0.96	0.95	0.06
One first order factor (Study 4)	1.37	7900.20	4901.6(15)**	275	28.73	0.53	0.49	0.19
Three correlated first- and second- order factors (Study 4)g	1.34	1318.51	147.67(8)***	268	4.92	0.94	0.93	0.07
Six correlated first order factors (Study 4)	1.34	1163.29	-	260	4.47	0.95	0.94	0.07
One first order factor (Study S1)	1.26	2545.09	1692(15)***	275	9.25	0.59	0.55	0.17
Three correlated first- and second- order factors (Study S1)g	1.24	632.68	58.30(8)***	268	2.36	0.94	0.93	0.07
Six correlated first order factors (Study S1)	1.25	580.11	-	260	2.23	0.94	0.93	0.06
One first order factor (Study S2)	1.11	1594.51	1009.7(15)***	275	5.80	0.39	0.34	0.18
Three correlated first- and second- order factors (Study S2)g	1.11	430.57	8.71 (8)	268	1.61	0.93	0.92	0.07
Six correlated first order factors (Study S2)	1.10	422.60	-	260	1.63	0.93	0.91	0.07
One first order factor (Study S3)	1.24	2212.55	1160.2(15)***	275	8.05	0.48	0.44	0.20
Three correlated first- and second- order factors (Study S3)g	1.20	587.92	108.05(5)***	268	2.19	0.92	0.91	0.08
Six correlated first order factors (Study S3)	1.21	493.00	-	260	1.90	0.94	0.93	0.07
One first order factor (Study S4)	1.81	2781.61	1248.7(15)***	275	10.11	0.67	0.64	0.17
Three correlated first- and second- order factors (Study S4)g	1.87	739.49	76.08(8)***	268	2.76	0.94	0.93	0.07
Six correlated first order factors (Study S4)	1.73	671.40	-	260	2.58	0.95	0.94	0.07

Note. CFI = comparative fit index. TLI = Tucker- Lewis index. RMSEA = root mean square of approximation.

a Factors: Ambitious +Dominant (collapsed), Competent +Independent + Hardworking + Self-Assured (collapsed)

b Factors: Ambitious + Competent + Independent+ Hardworking + Self-Assured (collapsed), Dominant

c Factors: Ambitious, Dominant , Hardworking + Competent + Independent + Self-Assured (collapsed)

d Factors: Ambitious, Dominant , Hardworking, Competent + Independent + Self-Assured (collapsed)

e Factors: Ambitious, Dominant , Competent + Independent (collapsed), Hardworking, Self-Assured

f Factors: Ambitious, Dominant, Competent + Hardworking (collapsed), Independent, Self-Assured

g Ambitious (first-order), Dominant(first-order), Competent + Independent+ Hardworking + Self-Assured (second-order)

Scaled chi-square difference tests shown here are comparison between alternative models and the six factors model

***p* < .001

In terms of the three factor model, the latent factor correlations (see Table 3) supported the conceptual grouping of the factors in the MIA model. Ambitious agency (agentic-motivation) had moderate correlations with the other agency factors ($r = .13$ to $.41$). Dominant agency (agentic-influence) had weak to moderate correlations with other agency factors ($r = -.19$ to $.35$). Competent, self-assured, hardworking, and independent

agency (agentic-ability) had moderate to high correlations with each other ($r = .34$ to $.69$), suggesting that each factor connotes “mastery” over the physical environment – or the tendency for task initiation and goal achievement – but in differing ways.

Table 3: Latent factor correlations among agency factors (Study 1)

	1	2	3	4	5	6
1. Ambitious agency						
2. Dominant agency	.35**					
3. Competent agency	.26**	-.19**				
4. Self-Assured agency	.41**	.09	.55**			
5. Hardworking agency	.31**	-.13*	.69**	.50**		
6. Independent agency	.13	.11	.46**	.38**	.34**	

* $p < .05$, ** $p < .01$

I proceeded to test the fit of a three correlated first order factor MIA model and found that this model did not possess good fit, $\chi^2(272) = 1758.51$, $p < .001$, $\chi^2/df = 6.47$, CFI = .72, TLI = .69, RMSEA = .13. Although the agency construct is not well represented by three first order factors, there is still a possibility of a three correlated first- and second-order factor motivation-influence-ability model. Therefore, in this model, I correlated the first order dominant and ambitious latent factors with a second-order latent factor (“agentic-ability”) that was comprised of four latent indicator factors (self-assured, independent, competent, and hardworking factors, see Figure 1). I found that this three factor structure of motivation-influence-ability (MIA) fit the data well, $\chi^2(268) = 679.11$, $p < .001$, $\chi^2/df = 2.61$, CFI = .92, TLI = .91, RMSEA = .07, and this was the case across studies (see Table 2). As can be seen from Figure 1, all items and latent factors load highly and significantly on their respective first- and second-order

factors (standardized loadings ranged from .50 to .90), providing support for the motivation-influence-ability model of agency. However, despite the fact that this second order factor model achieved good fit, nested scaled chi-square tests indicated that the six-factor model fit the data slightly better than this three-factor model, $\chi^2(8) = 73.32$, $p < .001$, and this was the case across studies.

Finally, I tested alternative factor structures (Table 2). Generally, I found that the fit of these other models (robust CFIs ranged from .42 to .88, TLIs ranged from .37 to .87, and RMSEAs ranged from .09 to .19) were not as desirable as the six-factor model of agency or the first- and second-order three factor MIA model of agency.

Taken together, these results provide support for both the six-factor model and the first- and second- order motivation-influence-ability model of agency. Although the nested scaled chi-square tests indicated that the fit of the six-factor models across studies were superior to that of the three-factor MIA models, the factor correlations and statistical tests also supported the three-factor MIA model. Hence, I maintain the MIA theoretical framework, but to be thorough and consistent with the slightly better fit, I conduct the analyses in the remaining studies using all six factors. In the next two studies, I sought to examine the convergent and discriminant validity of the MIA model in relation to measures of gender stereotypes (Study 2) and leadership (Study 3).

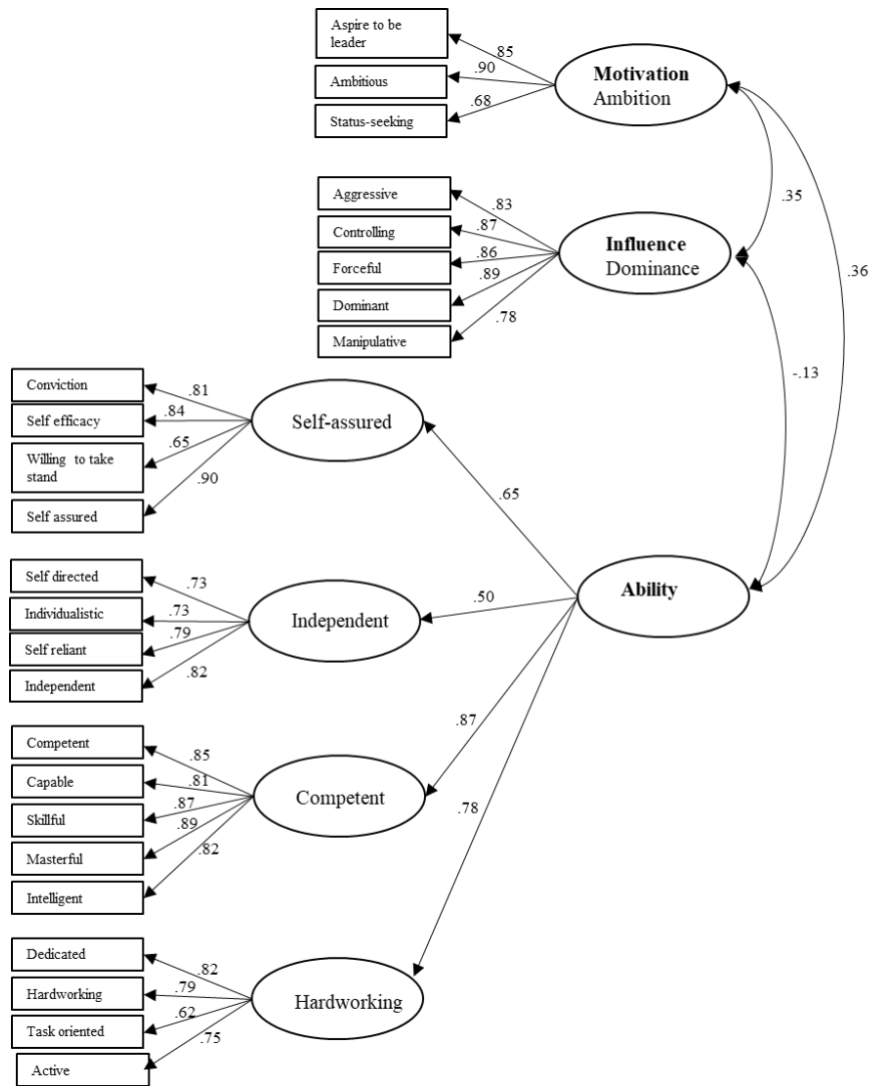


Figure 1: The Motivation-Influence-Ability Model (Study 1). Standardized Loadings.

5 Study 2: Convergent and Discriminant Validity with Gender Stereotypes

In this study, I consider the discriminant and convergent validity of the MIA model of agency in relation to existing gender stereotype measures. Bakan (1966, p. 100) stated that although agency is present in both men and women, agency is “more characteristically masculine,” which is supported by substantial gender and leadership research. For example, role congruity theory asserts that “agentic characteristics...are ascribed more strongly to men” (Eagly & Karau, 2002, p. 574). Similarly, in examining whether leadership roles are masculine, Koenig and colleagues (2011, p. 636) noted that “agency is stereotypically masculine.” Indeed, many gender and leadership researchers currently measure agency using existing measures of gender stereotypes, even though findings from the pilot study suggest that agency is far broader psychologically.

Therefore, it is important to examine the convergent and discriminant validity of agency in relation to measures of gender stereotypes. To empirically examine the relation between agency and perceived masculinity, I used the Bem Sex Role Inventory (BSRI, 1977)⁵ and the Extended Personal Attributes Questionnaire (EPAQ), because they are two “of the most widely used trait measures of masculinity” (Helgeson, 1994, p. 414).

⁵ Indeed, the BSRI and EPAQ have largely been used to assess people’s perceptions of themselves or social groups (e.g., men and women in general, Holt & Ellis, 1998), and researchers who are interested in interpersonal judgements of agency often have to “translate” these self-measures to an interpersonal measure (e.g., Conway, Pizzamiglio, & Mount, 1996).

Since the masculinity subscale of the BSRI is a broad unidimensional construct, I expected that it would be associated with all agency factors.

The EPAQ (Spence, Helmreich, & Stapp, 1974; Spence, Helmreich, & Holahan, 1979) consists of three masculinity subscales: positive-masculinity (M+), negative masculinity (M-), and masculinity-femininity (M-F). Positive masculinity (comprised of items such as not passive and feels superior) describes socially desirable masculine qualities. Past gender and leadership research has noted that these positive masculine qualities, such as “competence” and being “confident and assertive” have been linked to a greater likelihood of being selected as a leader (Eagly & Karau, 2002, p. 583-584) and attaining higher status (Conway, Pizzamiglio, & Mount, 1996). Positive masculinity should thus relate to both the agentic-ability (i.e., competent agency, self-assured agency, independent agency, hardworking agency) and agentic-motivation (i.e., ambitious agency) aspects of the MIA model.

Negative masculinity (comprised of items such as arrogant and egotistical) describes socially undesirable qualities and also converges with explicitly proscribed qualities for women, as reflected in agentic-influence (i.e., dominant agency, Rudman et al., 2012). Agentic-influence (i.e., dominant agency) has been conceptualized by some researchers as an excess of agency (or “unmitigated” agency) and can manifest as a “‘hunger for power and superiority’ and...aggressive and rude behavior” (Abele,

Uchronski et al., 2008). Given the similarities in how dominant agency and negative masculinity have been operationalized, I expect that they will be positively correlated⁶.

5.1 Method

To test these predictions, I collected data from 396 participants with working experience drawn from Prolific Academic. All participants rated their direct supervisors at work. In addition to the 25-item agency measure, I measured the BSRI (Bem, 1977) and the Extended Personal Attributes Questionnaire (EPAQ, Spence et al., 1979). The BSRI was measured on a 7-point scale (1 = strongly disagree, 7 = strongly agree). The EPAQ was measured using a 7-point scale with bipolar items (e.g., 1 = not at all cynical, 7 = very cynical). For easy reference, I have reproduced the exact questionnaire that I used to measure the agency items in this study (and in subsequent studies) in Appendix C.

5.2 Results and Discussion

All the means, standard deviations and correlations among variables are found in Table 4. CFAs indicated support for the correlated six-factor model (Table 2), and I found improvement in fit indices (e.g., robust CFI = .95) relative to Study 1. I found that agency factors had moderate or high correlations with theoretically similar constructs. For example, the BSRI was significantly positively correlated with all agency factors ($r =$

⁶ Finally, because of unsatisfactory reliability and psychometric problems associated with the masculinity-femininity (MF) subscale of the EPAQ (for details, see Ward et al., 2006), I do not make explicit predictions about the EPAQ-MF scale. I included it in the data collection because it is part of the EPAQ full scale.

.29 to .67). The positive-masculine dimension of EPAQ had strong positive correlations with ambitious, competent, self-assured, independent, and hardworking agency ($r = .40$ to $.71$). Last, the negative-masculine EPAQ subscale was positively correlated with dominant agency ($r = .70$). These results support the convergent validity of the MIA model with these gender stereotype measures.

To examine discriminant validity, I tested the fit of competing two-factor and one-factor models. In the two-factor models, agency factors were specified to be freely correlated with gender stereotype measures (e.g., self-assured agency and BSRI). Using nested scaled chi-square tests, these freely correlated two-factor models were compared to competing one-factor models in which the latent factor correlations between the agency factors and other measures were constrained to 1, thus implying that the two latent factors belong to the same broad construct.⁷ I performed discriminant analyses if the absolute value of the zero-order correlations of the two factors exceeded $r = .5$ (i.e., a large effect size, Cohen, 1992). Across 6 scaled chi-square tests, I found that the two-factor models performed better than one-factor models, suggesting discriminant validity ($p < .01$, see Table 5 for details). For example, the one-factor model for self-assured agency and the BSRI, $\chi^2 = 2606.92$, $p < .001$, had significantly worse fit than that of the two-factor model, $\chi^2 = 1769.16$, $p < .001$, $\Delta\chi^2(1) = 67.46$, $p < .001$. Overall, Study 2

⁷ It is important to note that these analyses are relative comparisons between the constrained and the unconstrained models and that low fit indices should not be taken as evidence of bad fit of the agency measure.

indicates that the agency scale has good fit and also has both convergent and discriminant validity in relation to existing measures of gender stereotypes.

In sum, Study 2 findings have important implications for gender and leadership. I show that although agency overlaps with masculinity measures (as indicated by moderate correlations), it is also distinct from gender stereotype measures (as shown by results from the model fit comparisons). Therefore, gender and leadership researchers may want to reconsider the appropriateness of using gender stereotype scales to measure agency. Indeed, the BSRI and EPAQ have been subject to methodological criticisms (see Gill, Stockard, Johnson, & Williams, 1987; Hoffman & Borders, 2001). The MIA model of agency may possess less debatable psychometric properties.

Table 4: Correlations between agency, BSRI, and PAQ (Study 2)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Ambitious agency	5.07	1.33	(.86/.86/.89)											
2. Dominant agency	3.44	1.71	.28	(.93/.93/.94)										
3. Competent agency	5.70	1.27	.14	-.26	(.94/.93/.93)									
4. Self-assured agency	5.69	1.14	.31	.04	.61	(.89/.89/.92)								
5. Hardworking agency	5.71	1.19	.22	-.27	.74	.57	(.91/.92/.92)							
6. Independent agency	5.26	1.31	.20	-.05	.62	.64	.63	(.90/.90/.93)						
7. BSRI	4.80	.92	.48	.29	.51	.66	.54	.67	(.90/.89/.94)					
8. EPAQ ^b - M ⁺	5.07	1.01	.40	.12	.44	.60	.46	.55	.71	(.81/.92/.85)				
9. EPAQ - M-	3.21	1.58	.22	.70	-.47	-.20	-.47	-.28	.01	-.11	(.95/.95/.96)			
10. EPAQ - MF	3.94	.59	.17	.33	.06	.26	.03	.23	.43	.33	.21	(.15/.25/.61)		
11. Subordinate's gender ^a	.52	.50	-.04	.02	.006	.04	-.02	-.004	.04	-.02	.08	-.05		
12. Leader's gender ^a	.54	.50	-.06	.05	-.06	-.02	-.08	-.09	-.007	-.07	.05	.01	.32	

N = 396

^a Gender was coded 0 = Men, 1 = Women

^bM+: Positively valued masculine items, M-: Negatively valued masculine items, MF: Masculine-Femininity scale

Absolute correlations > .09 significant at the .05 level, >.13 significant at .01 level

Values in parentheses are reliabilities. The first number is Cronbach's alpha, the second number is Omega total, the third number is Greatest Lower Bound

Table 5: Discriminant analyses (Study 2)

	<i>Scaled χ^2</i>	<i>df</i>	<i>$\Delta\chi^2 (1)$</i>
1. Dominant agency vs. EPAQ M-			
2 factor	270.189	64	257.42(1)**
1 factor	872.715	65	
2. Self-assured agency vs. BSRI			
2 factor	1769.159	251	67.46(1)**
1 factor	2060.916	252	
3. Independent agency vs. BSRI			
2 factor	1789.481	251	31.83(1)**
1 factor	1845.322	252	
4. Hardworking agency vs. BSRI			
2 factor	1796.074	251	266.54 (1)**
1 factor	2187.396	252	
5. Self-assured agency vs. EPAQ-M+			
2 factor	218.098	64	72.50(1)**
1 factor	454.922	65	
6. Independent agency vs. EPAQ-M+			
2 factor	185.213	64	34.49(1)**
1 factor	185.213	65	

** $p < .01$

It is important to note that these analyses are relative comparisons between the two factor and one factor models and low fit indices should not be taken as evidence of bad fit of the agency measure.

6 Study 3: Convergent and Discriminant Validity with Leadership Measures

The MIA model of agency concerns the motivation, influence and ability to assert the self, which may manifest in promotion, expansion, and separation of the self over the social and physical environment. Within organizations, agency should therefore be strongly tied to the attainment of high-status and power positions (e.g., leadership roles). Indeed, the idea that agency is fundamental to leadership outcomes lies at the core of many influential theories of gender and leadership. For example, according to social role theory, people with higher (vs. lower) status and authority exhibit greater agency (Eagly & Steffen, 1984). Similarly, status incongruity theory states that agentic women leaders are disliked because agentic, high-status behaviors are perceived as incongruent with the low status associated with their female identity (Rudman et al., 2012). Therefore, in this study, I consider the relationship between agency and existing leadership theories, which were chosen for their prominence in the leadership literature as well as their conceptual relation to the agency factors.⁸

One aspect of leadership style that has attracted substantial scholarly attention is the extent to which leaders are autocratic and discourage subordinates from being involved in decision making (Eagly & Johnson, 1990). Autocratic leadership is often contrasted with participative leadership and describes leaders who are dominant and

⁸ In addition to considering the convergent and discriminant validity of agency in relation to leadership constructs, I also examine the predictive effects of agency factors on perceived leadership promotability in Studies S2 and S3.

controlling – qualities that also tend to be associated with men (Eagly & Johnson, 1990; Eagly & Johannesen-Schmidt, 2001). Therefore, I expect that autocratic leadership will be positively associated with dominant agency.

I also examined the relationship between the MIA model and implicit leadership theory, another construct that, similar to agency, is also based in the social cognitive tradition of leadership (Lord et al., 2017). I sought to demonstrate the convergent validity between agency and ILT, which consists of six different dimensions: sensitivity, intelligence, dedication, dynamism, tyranny, and masculinity (Epitropaki & Martin, 2004). First, agentic-motivation – or ambitious agency – is not reflected in the ILT. However, given the strong overlap between ambition and people’s preconceived cognitive representations of leadership (Den Hartog et al., 1999), I expect that ambitious agency (or agentic-motivation) will have a moderate relationship with ILT factors. Second, agentic-influence (i.e., dominant agency) represents interpersonal authority, and thus I expect that it will be positively associated with ILT-Tyranny, which represents feelings of power over other people (Offermann, Kennedy, & Wirtz, 1994). I propose that agentic-ability, which encompasses the skill and capability to accomplish self-assertive goals, should converge with ILT-intelligence, ILT-dedication, and ILT-dynamism.

Finally, I note here that although certain ILT factors are convergent with agency, agency and ILT should also possess discriminant validity. For instance, ILT includes a sensitivity factor, which is inherently communal (as opposed to agentic) and thus should not be strongly correlated with agency factors. Similarly, ILT-masculinity consists of

items like “male” and “masculinity,” which are different from agency. Although agency is associated with masculinity, agency factors also encompass specific and distinct content (e.g., dominant, ambitious).

6.1 Method

To test these predictions, I collected data from 355 participants from a large university in the southeastern United States. Participants were recruited via an advertisement about participating in a laboratory study assessing their perception of leaders for whom they had worked. I asked participants to evaluate their current or previous supervisor using the 25-item agency measure and an established 21-item measure of implicit leadership theory (ILT; Epitropaki & Martin, 2004). I used a 6-item measure of despotic leadership, which has also been described as a “domineering, controlling” leadership style (De Hoogh & Den Hartog, 2008, p. 298), as a proxy measure for autocratic leadership. All items were measured on a 7-point scale (1 = strongly disagree to 7 = strongly agree). Due to space limitations, I do not report example items.

6.2 Results and Discussion

CFAs supported the correlated first order six-factor model (Table 2).⁹ See Table 6 for variable correlations, means, standard deviations, and reliabilities in this study.

⁹ I also note here that the six-factor model had superior fit to the first- and second- order correlated three factor model (see Table 2 for details and model comparisons across studies).

I found evidence for convergent validity. As expected, dominant agency was also correlated with autocratic leadership ($r = .69$). ILT-intelligence had significant positive correlations with competent agency ($r = .68$), self-assured agency ($r = .55$), hardworking agency ($r = .57$), and independent agency ($r = .41$). ILT-dedication was also significantly positively associated with competent agency ($r = .70$), self-assured agency ($r = .62$), hardworking agency ($r = .80$)¹⁰, and independent agency ($r = .47$). ILT-dynamism had significant positive correlations with competent agency ($r = .43$), self-assured agency ($r = .55$), hardworking agency ($r = .57$), and independent agency ($r = .39$). Dominant agency was positively related to ILT-Tyranny ($r = .80$).

¹⁰ The correlations between agency and ILT factors are high because they tapped into the psychologically similar constructs (e.g., ILT-tyranny and dominant agency). However, this does not mean that ILT and agency (as broad multi-factor measures) are then indistinguishable because ILT and agency consist of different factors. Further, although these correlations were high, they did not exceed .85 (Kline, 1998), suggesting that although the constructs are highly correlated, they remain distinct.

Table 6: Correlations between agency, implicit leadership theory (ILT), and autocratic leadership (Study 4)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Agency factors																	
1. Ambitious agency	4.83	1.42	(.85/.85/.86)														
2. Dominant agency	3.23	1.75	.38	(.94/.94/.96)													
3. Competent agency	6.09	1.12	.18	-.26	(.95/.95/.96)												
4. Self-assured agency	5.86	1.09	.30	-.004	.69	(.90/.90/.91)											
5. Hardworking agency	5.98	1.07	.27	-.15	.72	.67	(.90/.91/.90)										
6. Independent agency	5.56	1.17	.23	.08	.55	.62	.56	(.89/.89/.92)									
Implicit leadership theories																	
7. Sensitivity	5.67	1.32	-.09	-.55	.55	.39	.48	.26	(.90/.91/.90)								
8. Intelligence	6.00	.96	.14	-.25	.68	.55	.57	.41	.57	(.87/.87/.89)							
9. Dedication	6.16	1.07	.20	-.24	.70	.62	.80	.47	.62	.68	(.95/.95/.95)						
10. Dynamism	5.36	1.15	.25	-.15	.43	.55	.57	.39	.58	.53	.59	(.77/.81/.80)					
11. Tyranny	2.56	1.58	.32	.80	-.39	-.13	-.27	-.03	-.67	-.37	-.37	-.22	(.94/.94/.96)				
12. Masculinity	3.84	2.34	.20	.12	.0002	.05	-.03	.04	-.06	.03	-.02	.05	.16	(.84) ^b			
13. Autocratic leadership	2.15	1.36	.20	.69	-.45	.31	-.35	-.11	-.71	-.46	-.43	-.38	.74	.13	(.90/.90/.90)		
14. Subordinate's gender ^a	.71	.46	-.04	-.14	.14	.10	.13	.18	.09	.17	.20	.10	-.08	-.20	-.13	--	
15. Leader's gender ^a	.49	.50	-.13	-.05	.04	.002	.06	.003	.07	.01	.05	-.01	-.10	-.89	-.08	.25	--

N = 355, Absolute correlations > .11 significant at the .05 level, >.14 significant at .01 level

Values in parentheses are reliabilities. The first number is Cronbach's alpha, the second number is Omega total, the third number is Greatest Lower Bound

^a Gender was coded 0 = Men, 1 = Women

^b ILT-masculinity was a two-item measure, and therefore we only present the pearson correlation as a measure of scale reliability

Correlations between the MIA agency factors and unrelated constructs ranged from small to moderate, providing initial evidence for discriminant validity. For example, ambitious agency had moderate correlations with the ILT factors ($r = -.09$ to $.32$). ILT-masculinity ($r = -.03$ to $.20$) and ILT-sensitivity ($r = -.55$ to $.55$) were not strongly associated with agency factors, suggesting discriminant validity.

To further investigate the discriminant validity between ILT and agency, I examined the fit of competing two-factor and one-factor models in which the agency factors were specified to be freely (vs. not freely) correlated with leadership measures (e.g., competent agency vs. ILT-sensitivity). The 12 scaled chi-square difference tests were all significant ($ps < .01$) supporting discriminant validity (see Table 7). Taken together, fit indices in the present study (e.g., CFI = $.96$) provide strong support for the six-factor model of agency and these findings also demonstrate the convergent and discriminant of agency in relation to leadership measures.

So far, I have established that the multifactor MIA model of agency possesses convergent and discriminant validity in relation to existing gender and leadership measures (Studies 2 and 3). I have also demonstrated that the MIA model possesses test-retest reliability and measurement invariance across leader gender, participant gender, sample type (online vs. non-online), and time (Study S1), and that the six-factor (vs. one-factor) model of agency predicts more variance in leader promotability after accounting for common method variance (Studies S2 and S3). In the next study, I sought to establish

that the multifactor model of agency contributes to gender and leadership research by reconciling conflicts about agentic advantage and disadvantage.

Table 7: Discriminant analyses (Study 3)

	<i>Scaled χ^2</i>	<i>df</i>	<i>$\Delta\chi^2 (1)$</i>
1. Competent agency vs. Sensitivity (ILT)			
2 factor	113.32	19	
1 factor	353.56	20	282.56(1)**
2. Competent agency vs. Intelligent (ILT)			
2 factor	149.40	26	
1 factor	405.57	27	98.70(1)**
3. Competent agency vs. Dedication (ILT) ^a			
2 factor	46.79	19	
1 factor	464.09	20	196.9(1)**
4. Self-assured agency vs. Intelligent (ILT)			
2 factor	88.44	19	
1 factor	434.51	20	74.10(1)**
5. Self-assured agency vs. Dedication (ILT)			
2 factor	26.74	13	
1 factor	330.98	14	75.17(1)**
6. Self-assured agency vs. Dynamism (ILT)			
2 factor	58.42	13	
1 factor	208.38	14	192.15(1)**
7. Dominant agency vs. Sensitivity (ILT)			
2 factor	139.44	19	
1 factor	508.09	20	107.87(1)**
8. Dominant agency vs. Tyranny (ILT)			
2 factor	484.78	43	
1 factor	668.77	44	51.16(1)**
9. Dominant agency vs. Autocratic leadership			
2 factor	222.22	43	
1 factor	718.27	44	144.11(1)**
10. Hardworking agency vs. Intelligent (ILT) ^a			
2 factor	67.42	19	
1 factor	782.91	20	162.44(1)**
11. Hardworking agency vs. Dedication (ILT)			
2 factor	74.52	13	
1 factor	186.10	14	42.34(1)**
12. Hardworking agency vs. Dynamism (ILT) ^a			
2 factor	110.42	13	
1 factor	374.69	14	80.32(1)**

^a We used formulas from Satorra (2000) to ensure a strictly positive chi-square

** $p < .001$

It is important to note that these analyses are relative comparisons between the two-factor and one-factor models and low fit indices should not be taken as evidence of bad fit of the agency measure.

7 Study 4: Predictive Validity for Agentic Advantage and Disadvantage

Study 4 aims to test the central premise of the paper by demonstrating how a consideration of the multiple facets of agency reconciles the tension that women leaders can simultaneously be rewarded and penalized for agency. Here, I develop propositions for the predictions offered in **1.3.3. Reconciling agentic disadvantage and advantage with the MIA model.**

As discussed earlier, robust evidence suggests that women can be penalized when they are perceived as agentic. For example, in her research, Rudman (1998) labeled the economic and social reprisals toward agentic women as gender backlash. So far, gender backlash research has focused on dominance (Heilman & Okimoto, 2007; Rudman & Glick, 2001; Rudman & Phelan, 2008; Rudman et al., 2012) and to a lesser extent ambition (Brescoll & Okimoto, 2010). Indeed, in much of this empirical work, dominance measures are often intertwined with measures of ambition (Okimoto & Brescoll, 2010). Hence, although dominance is proposed as the driver of the double-bind for women, current operationalizations of this agency factor do not clearly measure dominance. Consistent with previous research (Rosette et al., 2016; Rudman et al., 2012; Williams & Tiedens, 2016), I expect that displays of dominance would indeed most violate the prescriptive norms ascribed to female leaders' behavior (Hypothesis 2). Indeed, if I were to find that dominance (but not ambition) elicits gender backlash, these

findings would provide further support to the distinctiveness of the agentic-motivation and agentic-influence components of the MIA model.

Hypothesis 1. Leader gender will interact with dominant agency, such that female leaders will be perceived as less effective when they are perceived as high (vs. low) in dominant agency.

In addition, I sought to disentangle the types of agency for which women may be rewarded (agentic-ability). One reason why women may be rewarded for demonstrating these types of agency is that, unlike dominance, independence and competence may not insinuate a lack of warmth and niceness. That is, these qualities do not violate stereotypic expectations that women should be communal (i.e., gender role prescriptions, Eagly & Karau, 2002). For instance, past research has shown that women receive a boost in leader evaluations because they are perceived as being independent and competent as well as communal (e.g., warm, sensitive, Schaumberg & Flynn, 2017; Rosette & Tost, 2010). Further, the agentic advantage may also be explained in terms of positive expectancy violation effects. Unlike dominance which is explicitly proscribed for women (i.e., people think that women should not have these qualities), competent, independent, self-assuredness and hardworkingness are considered desirable qualities that are also not typical of women (Prentice & Carranza, 2002). According to positive expectancy violation theory, when people encounter those who violate their expectations in a positive way, they experience greater positive affective arousal (Bartholow, Fabiani, Gratton, & Bettencourt, 2001), and therefore give the target more extreme positive evaluations

(Jussim, Coleman, & Lerch, 1987). As a result, women may be judged as more effective than men when they are perceived to possess similar levels of independent, competent, self-assuredness, and hardworking agency.

Hypothesis 2. Competent agency, self-assured agency, hardworking agency, and independent agency will interact with leader gender, such that female (vs. male) leaders who are high on these types of agency will be perceived as more effective.

7.1 Method

Data were collected from 1,092 full-time employees recruited from Prolific Academic, an online research panel. All participants were asked to rate their current supervisors at work. In addition to the agency scale, I measured leader effectiveness using an established 9-item measure (Ng, Ang, & Chan, 2008). All participants rated their current supervisor at work.

7.2 Results and Discussion

All the means, standard deviations, and correlations among variables are found in Table 8. No main effects for leader gender were found for the six agency factors ($p > .09$). Second, consistent with the notion that agency is an important requirement for leadership (Eagly & Karau, 2002), all agency factors (except dominant agency) were positively associated with perceived leader effectiveness ($r = .17$ to $.72$). I then proceeded to test Hypotheses 1 and 2.

Table 8: Correlations between agency and leadership measures (Study 4)

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Ambitious agency	5.13	1.39	(.87/.88/.89)								
2. Dominant agency	3.81	1.74	.34	(.93/.93/.95)							
3. Competent agency	5.55	1.34	.11	-.22	(.94/.94/.93)						
4. Self-assured agency	5.57	1.17	.33	.05	.58	(.88/.88/.90)					
5. Hardworking agency	5.46	1.33	.24	-.17	.76	.62	(.90/.90/.90)				
6. Independent agency	5.20	1.33	.14	-.05	.61	.60	.63	(.88/.88/.91)			
7. Leader effectiveness	4.85	1.33	.17	-.22	.72	.54	.72	.57	(.94/.94/.95)		
8. Subordinate's gender ^a	.52	.50	.02	-.01	-.009	.03	-.02	.02	-.02		
9. Leader's gender ^a	.48	.50	.004	-.05	-.03	-.006	-.009	-.05	-.0001	.43	

N = 1092. Absolute correlations > .06 significant at the .05 level, >.10 significant at .01 level

^a Gender was coded 0 = Men, 1 = Women

Values in parentheses are reliabilities. The first number is Cronbach's alpha, the second number is Omega total, the third number is Greatest Lower Bound

Interactive effects of leader gender and agentic-motivation (i.e., ambitious agency). First, I examined the interactive effects of ambitious agency and leader's gender (1 = women, 0 = men) on perceived leader effectiveness using a linear moderated regression and did not find a significant interaction ($p = \text{n.s.}$). That is, the relationship between ambitious agency and leader effectiveness did not significantly differ for male and female leaders.

Interactive effects of leader gender and agentic-influence (i.e., dominant agency). I examined the interactive effects of dominant agency and leader's gender (1 = women, 0 = men) on perceived leader effectiveness using a linear moderated regression. A significant interaction term (dominant agency and leader's gender) emerged, $b = -.15$, $SE = .04$, $p < .001$ (Figure 2). Simple slopes analyses indicated that both female leaders, $b = -.25$, $SE = .03$, $p < .001$, and male leaders, $b = -.10$, $SE = .03$, $p = .001$, who were perceived as more (vs. less) dominant were perceived as less effective, and the interaction suggests that the dominance penalty was stronger for female leaders (Figure 2). Indeed, floodlight analyses (Spiller, Fitzsimons, Lynch, & McClelland, 2013) suggest that when perceived dominance is greater than 4.69,¹¹ women are perceived as significantly less effective than men. These findings support the notion of gender backlash for dominant agency and provides support for Hypothesis 1.

¹¹ Interestingly, women were evaluated as more effective than men when they were perceived as equally low in dominance (values lower than 2.44). This might be driven by the backlash that men may experience when they are perceived as weak or lacking dominance (Rosette, Mueller, & Lebel, 2015).

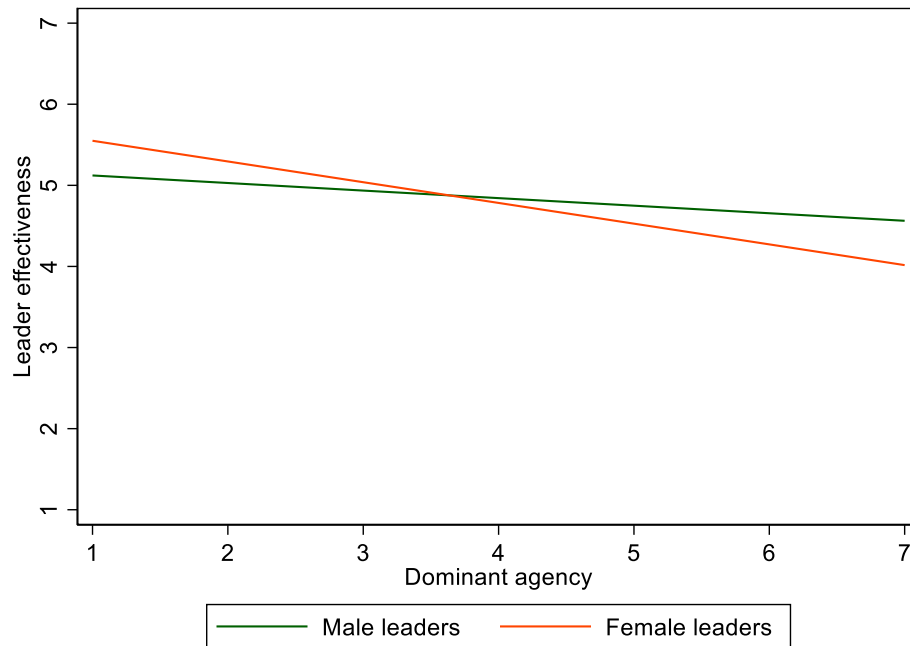


Figure 2: Linear moderated regression between dominant agency and leader gender

Interactive effects of leader gender and competent, self-assured, hardworking and independent agency. I conducted four linear moderated regressions. The two-way interactions for competent, $b = .08$, $SE = .04$, $p = .041$, self-assured, $b = .17$, $SE = .06$, $p = .003$, hardworking, $b = .13$, $SE = .04$, $p = .002$, and independent agency, $b = .14$, $SE = .05$, $p = .004$, were all significant. Simple slopes indicated that the more competent, self-assured, hardworking, and independent both female and male leaders were perceived to be, the more effective both male, $b_{\text{competent}} = .66$, $SE = .03$, $p < .001$; $b_{\text{self-assured}} = .53$, $SE = .04$, $p < .001$; $b_{\text{hardworking}} = .66$, $SE = .03$, $p < .001$, $b_{\text{independent}} = .50$, $SE = .04$, $p < .001$, and female leaders, $b_{\text{competent}} = .75$, $SE = .03$, $p < .001$; $b_{\text{self-assured}} = .70$, $SE = .04$, $p < .001$; $b_{\text{hardworking}} = .79$, $SE = .03$, $p < .001$, $b_{\text{independent}} = .64$, $SE = .04$, $p < .001$, were also

perceived (Figure 3). However, the significant two-way interactions indicated that the simple slopes for female (vs. male) leaders were significantly steeper, which suggest that women were rewarded more than men for demonstrating competent agency, self-assured agency, hardworking agency, and independent agency. Similarly, floodlight analyses suggest that at high levels of these four types of agency (competent agency = 6.51, self-assured agency = 6.54, hardworking agency = 6.36, independent agency = 5.59),¹² women are perceived as significantly more effective than men (Figure 3). Taken together, these findings provide support for Hypothesis 2^{13,14}

¹² I also found that men were perceived as more effective than women at low levels of self-assured (values below 4.44), hardworking (values below 4.08), and independent agency (values below 2.78). Because of the perceived association between masculinity and agency, one reason could be that subordinates believe it might be easier for men to change and become more agentic in the future (i.e., exhibit malleable beliefs about agency, Dweck, Chiu, & Hong, 1995). Conversely, due to stereotypical beliefs that women in general tend to be less agentic than men, subordinates may believe it may be more difficult for women to become agentic in the future (i.e., exhibit fixed beliefs about agency). Examining if this is the case would be an interesting avenue for future research.

¹³ Given that all these four factors load onto a common second-order factor (“agentic-ability”), it is important to demonstrate that the four significant interactions are not driven by common variance that underlie these factors. I also analyzed each of these four interactions after controlling for all the other five factors, and found that the two-way interactions remained significant for competent agency, $b = .08$, $SE = .03$, $p = .019$, self-assured agency, $b = .15$, $SE = .05$, $p = .001$, hardworking agency, $b = .09$, $SE = .04$, $p = .015$, and independent agency, $b = .08$, $SE = .03$, $p = .028$, thus addressing this alternative explanation.

¹⁴ I did not find that participant gender significantly moderated the two-way interactions.

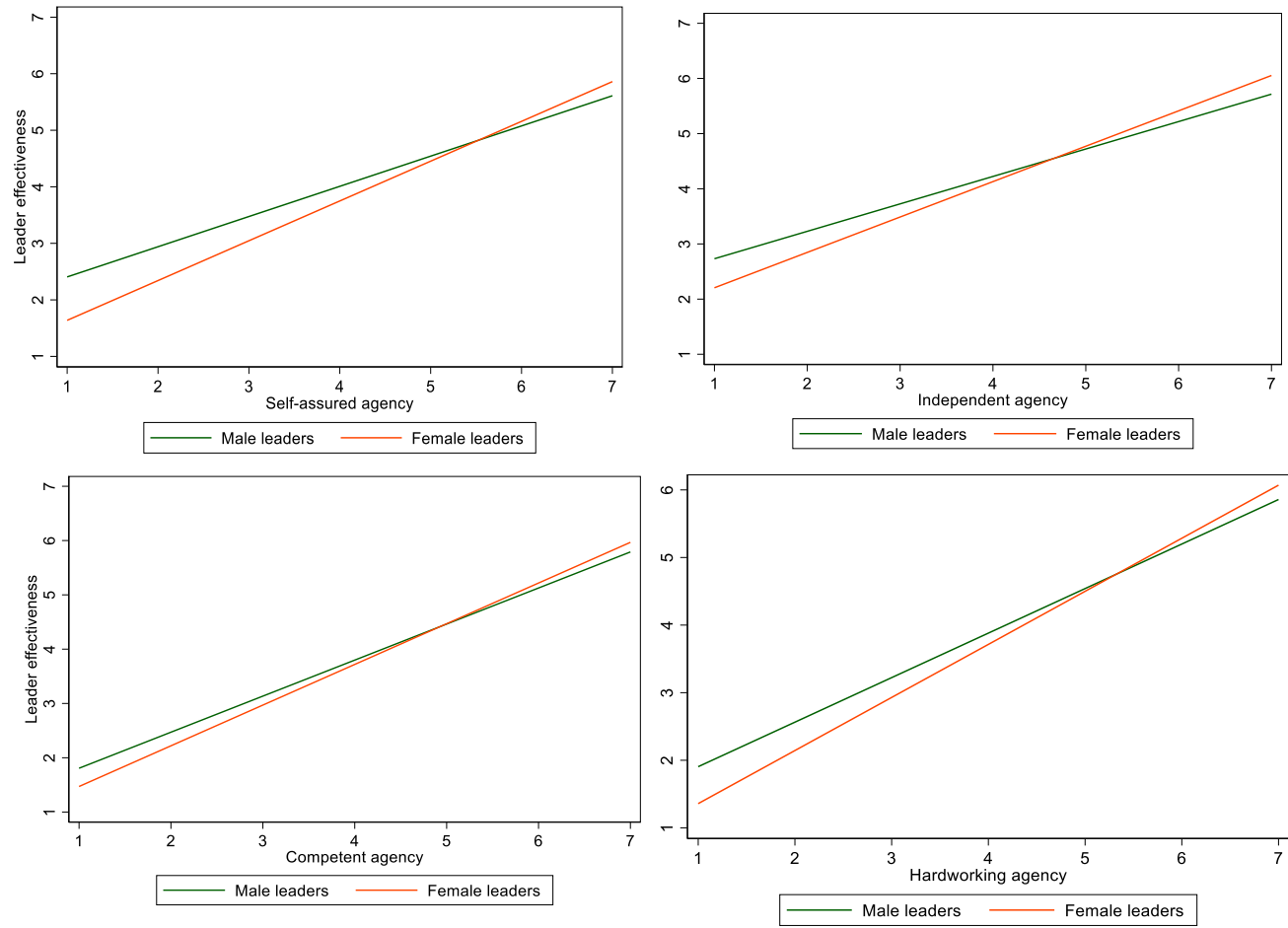


Figure 3: Linear moderated regression between self-assured, independent competent, hardworking agency and leader gender

In sum, Study 4 finds that conceptualizing agency as a multifactor construct potentially reconciles the finding that women may simultaneously be advantaged and disadvantaged for being perceived as agentic. For example, the interactions between leader gender and competent, self-assured, hardworking, and independent agency reveal that women (vs. men) supervisors are perceived as more effective if they are perceived as high in competence, self-assuredness, hardworking, and independence but less effective when they are perceived as high in dominance. These findings suggest that a multi-factor conceptualization of agency is preferred over a uni-factor model because the moderating effects that I present here would have been obscured by a uni-factor conceptualization.

One limitation of the present study is that it is correlational and thus inferences about the causal effect of agency perceptions on leader evaluations may be limited. To address this, I conduct an experimental test (Study S4) by manipulating three types of agency (competent, ambitious, and dominant) that are representative of the motivation-influence-ability model and examine the moderating influences of leader gender on the causal effect of manipulated agency on judgements of leader effectiveness. Broadly, Study S4 offers support for the positive expectancy violation account of agentic advantage. I found that people evaluate highly competent women as more effective than highly competent men, but this effect was observed only among those who subscribed to the descriptive stereotype that women, on average, are less competent than men. Put simply, when people who believe that women are typically less competent than men are

asked to read about a highly competent (vs. ambitious or dominant) women, their expectations are violated in a positive way and as a result they evaluate the highly competent female leader more positively than the highly competent male leader. Please see Study S4 for more details.

In sum, the current research not only reconciles conflicting biases within the gender and leadership literature but also offers a fresh perspective on emerging findings about agentic-rewards. I show that women may be perceived as more effective than men when they are perceived as possessing not just competent agency (Rosette & Tost, 2010) and independent agency (Schaumberg & Flynn, 2012) but also hardworking and self-assured agency.

8 General Discussion

The present research presents one of the first comprehensive investigations of the structure and content of agency for gender and leadership research. In doing so, I developed a motivation-influence-ability (MIA) model of agency, generated a succinct definition reflective of how the concept of agency has evolved in gender and leadership research, and created a new multi-factor measure of agency that possesses discriminant and convergent validity in relation to key gender and leadership constructs. To develop the model, I reviewed more than 1,000 journal articles to assess how agency has been measured and conceptualized in gender and leadership research. Across eight independent samples, I cross-validated the underlying structure that emerged from a review and exploratory analysis and is comprised of six distinct factors – ambitious agency, dominant agency, competent agency, self-assured agency, hardworking agency, and independent agency. Evidence of convergent and discriminant validity was established amongst the agency factors (Study 1) as well as in relation to conceptually similar constructs (Studies 2 and 3). Finally, the MIA model of agency offers a fresh perspective on agentic advantage and disadvantage. I found that women can be rewarded or penalized, depending on the type of agency they are perceived to demonstrate (Study 4). On the whole, these consistent patterns of evidence support the viability, coherence, and importance of the MIA model of agency for gender and leadership.

8.1 Theoretical and Practical Implications

The present research contributes to gender and leadership research by showing how a more nuanced measure of agency allows for a better understanding of the conditions under which women are evaluated favorably and unfavorably. Further, by providing a comprehensive view of the varied ways in which researchers have measured agency in the past, the MIA model can serve not only as a common language for future agency scholars, but also as a source of specificity regarding the types of agency driving predictions about agentic-based biases. Overall, I believe that the MIA model can generate a more cohesive organization and understanding of agency in gender and leadership research.

This research also contributes to existing investigations of agentic content and structure. In terms of agentic content, this work is similar to previous conceptualizations of agency in that it contains some of the same items that can be found in past research (Rosette et al., 2016; Rudman et al., 2012). This is unsurprising because I developed the model based on how past gender and leadership research have measured agency. However, it differs from past research in that the present consideration of agentic content is more comprehensive. For example, I find that the agency perceptions construct consists of not just judgements of competence and dominance (Rudman, 2001) but also judgements of self-assuredness, independence, hardworkingness, and ambition. Indeed, to my knowledge, this research is the first to provide a comprehensive and inclusive

consideration of the framework, definition, and development of a scale with extensive psychometric testing across 9 studies for gender and leadership.

In terms of agentic structure, existing theoretical and empirical research on the structure of agency has been largely equivocal, yielding both unidimensional (e.g., Bakan, 1966; Eagly & Steffen, 1984) and multifactor considerations of agency (Rosette et al., 2016, see Table S1). For example, in a qualitative study, McAdams and colleagues (1996, p. 346) depict self-mastery (described as one of four agency factors) as encompassing three distinct concepts: independence, competence, and ambition. Similarly, Abele, Uchronski and colleagues (2008) opted for a three-facet definition of agency that included individuality, self-assertion, and achievement. Perhaps the most prevalent multifactor consideration is a two-factor structure of agency (e.g., Abele & Bruckmüller, 2008; Hirokawa & Dohi, 2007). A common theme amongst these two-factor conceptualizations is that one factor emphasizes agency as extending interpersonal influence, such as being dominant (Abele & Bruckmüller, 2008) and boastful (Conway, Alfonsi, Pushkar, & Giannopoulos, 2008), whereas the other factor, which also appears broader in scope, emphasizes the individual's task-based abilities and capabilities.

Although this work is consistent with past investigations of agentic structure in that I also find agency has multiple factors, I note that there are limitations in these past conceptualizations of agentic structure. For instance, because McAdams and colleagues' (1996) work was a qualitative study, the individual factors that they considered are

somewhat conflated. Although someone who is competent (e.g., efficacious and skilled) may also be ambitious (e.g., achievement oriented with aspirations of advancement), competence is not necessarily associated with an individual's ambition (Carrier et al., 2014). Instead, it is possible that the three components of self-mastery (i.e., independence, competence, and ambition) may represent distinct agency factors. Similarly, although Abele, Uchronski, and colleagues (2008, p. 1203) opted for a three-facet definition of agency that included individuality, self-assertion, and achievement, these were not considered separately in assessing the dimensionality of agency and instead were combined in a single definition provided to participants. Finally, the ability-focused factor commonly discussed in two-factor conceptualizations has been described in a variety of ways, including having confidence in oneself (Hirokawa & Dohi, 2007), being self-reliant, persistent (Abele & Bruckmüller, 2008), and knowledgeable (Ybarra et al., 2008), just to name a few. The sheer scope of this factor suggests that this ability focused dimension might include several distinct agency factors, including competent, self-assured, hardworking, and independent agency.

In addition to clarifying ambiguities associated with the past work, the present work also propels agency research forward by demonstrating the value of a multifactor model of agency for gender and leadership, a consideration that is largely missing from past investigations (Abele, Uchronski et al., 2008; Hentschel, Heilman, & Peus, 2019). The present research suggests that researchers should adopt a multifactor perspective of

agency because the MIA model yields novel insights for gender and leadership (i.e., women are judged as more effective than men when they are perceived as not just independent and competent but also hardworking and self-assured), and these insights would have been largely obscured by a unidimensional model of agency.

Further, the “bandwidth-fidelity dilemma” suggests that both broad and narrow measures have merits (Ones & Viswesvarana, 1996). Although conceptualizing agency as a broad construct has advantages, a multifactor measure may be considered in addition to, and not necessarily in lieu of, current unidimensional conceptualizations of agency in gender and leadership research. Future research could examine situations in which a unidimensional (vs. multidimensional) model might be more useful.

In terms of practical implications, having a measure that recognizes and captures the potentially differing ways in which people may be perceived (e.g., dominant, independent, competent) can help us better understand and remedy the unique challenges that women face when attempting to pursue and maintain leader positions. Indeed, the interventions used to address the various types of agentic biases may be very different. That is, the manner in which one combats agentic penalties (e.g., economic and social backlash) should be distinct from the manner in which agentic deficiencies (e.g., failure to identify women as leaders) are addressed in the workplace. For example, more objective criteria in the hiring process may help enhance women’s access to leader

positions but may do little to address the extent to which they are evaluated fairly once they occupy a leader role.

8.2 Limitations and Future Research

Certain items capturing the dominant agency factor have negative connotations. This may also partly explain why dominant agency was negatively related to leader outcome measures (although see Study S2 for an exception). Although I believe that future research should strive to replicate these findings using a set of dominant agency items that do not have negative connotations, I opted to use these items here because I wanted to be faithful to how agency has been represented in past research.

Further, I focused on the measurement and consequences of agentic perceptions rather than the actual behaviors that lead to these impressions. These findings suggest that, to the extent that these agency perceptions are equated in magnitude, women can be advantaged or disadvantaged when they are perceived as agentic. However, at the same time, women and men are often judged differently for the same behaviors. For instance, women might have to demonstrate more competent or hardworking behaviors in order to be perceived as competent as men. This is consistent with the “double standards of competence” theory (Foschi, 2000), which suggests that people apply stricter standards of competence for those with lower status (e.g., women). Similarly, there might be gender differences in the extent to which behaviors elicit backlash. Persistent eye contact (Williams & Tiedens, 2016) may induce perceptions of dominant agency for women (but

not men), eliciting gender backlash. Although Study S4 replicated agentic advantage by describing men and women engaging in the same behaviors using a vignette, a more vivid and rigorous test would be to show participants videos of men and women engaging in the same behaviors and examine how leader gender moderates the links between these behaviors, agency perceptions, and leadership evaluations. Indeed, doing so will be important for determining the boundary conditions and the robustness of agentic advantage and disadvantage.

Future research can also examine if certain agency factors play a more fundamental role in shaping leadership evaluations and outcomes, and thus further establish the non-substitutability of agency factors. Post hoc analyses of Study 4 data showed that supervisors who were perceived as lacking in competence or hard work did not receive a boost in leader evaluations even when they were perceived as ambitious, self-assured, or independent (details upon request). These findings suggest that competence and hard work may be prerequisites that leaders must possess before demonstrations of other agentic qualities like independence can bolster leader evaluations. These preliminary findings have important implications for advice that tells women to be more ambitious and confident (e.g., Sandberg, 2013) because these prescriptions may only bolster perceived leader effectiveness if women are already perceived to be competent and hardworking.

The present research is also limited in not considering the variation that occurs within various categories of women. Women vary in race, religion, and sexual orientation (just to name a few), and when these demographics are also considered, it is possible that the effects of different types of agency may also vary. In terms of race, because the stereotypes associated with Black women are very different from those of Asian or White women (Rosette et al., 2016; Rosette, Ponce de Leon, Koval, & Harrison, 2019), women leaders of different racial groups should experience different agency-related challenges. For example, Study 4 revealed women were penalized for dominant agency. Because of stereotypic images of Black women as dominant and angry (Childs, 2005; Pratt, 2012), previous research has found that this agentic penalty may not generalize to Black women (see Livingston et al., 2012).

9 Conclusion

By developing a multifactor motivation-influence-ability (MIA) model of agency that possesses good psychometric properties, I hope that this work helps researchers to better understand the obstacles and barriers faced by women. I hope that the MIA model of agency can serve as a meaningful framework that facilitates a more nuanced investigation of the leadership challenges that women experience at the workplace.

Appendix A: Existing Conceptualizations of Agency (Chronological)

Study	Prior definitions	Research type	Agentic content assessed ^a	Agentic structure
Bakan (1966)	“Agency manifests itself in self-protection, self-assertion, and self-expansion; ... Agency manifests itself in the formation of separations... Agency manifests itself in isolation, alienation, and aloneness... Agency manifests itself in the urge to master” (p. 14-15).	Qualitative	NA	One factor
White (1979) ^b	Agency as the “capabilities the self has which reflect a forceful active self, reaching out, attempting to achieve a goal, but not necessarily in competition. There is a sense of striving with the self as agent ("determined"), and working to bring results ("industrious"). They may also indicate qualities the self has, effectances which are characteristic of the individual	Quantitative	Ambitious, adventurous, curious, persevering, clear thinking, determined, individualistic, industrious, energetic, independent, intelligent, outspoken, assertive, self-confident, calm, active, capable, forceful, courageous, efficient, enterprising, rational, initiative, organized, sharp-witted	One factor used to conceptualize agency.

	self ("independent"; "decisive"). These are self-competencies-the self acting alone with no compelling sense of others being involved in the activity." (p. 300)			
Eagly & Steffen (1984)	"agentic qualities are manifested by self-assertion, self-expansion, and the urge to master" (p. 736)	Quantitative	Perceived agency was measured with items selected primarily from the masculinity-instrumentality subscale of the Personal Attributes Questionnaire. These items are: active, not easily influenced, aggressive, independent, dominant, self-confident, competitive, makes decisions easily, never gives up easily. The item "stands up well under pressure" was also included in all experiments except Experiment 1.	One factor
Helgeson (1994)	"Agency reflects one's existence as an individual... Agency includes self-protection, self-assertion, self-expansion, self-control, and self-direction and	Qualitative	NA	One factor

	emphasizes the forming of separations.” (p. 414)			
McAdams et al. (1996)	“Agency encompasses a wide range of motivational ideas, including the concepts of strength, power, expansion, mastery, control, dominance, achievement, autonomy, separation, and independence.” (p. 346)	Qualitative	Four broad themes: Self-mastery, status, achievement/responsibility, empowerment (p. 345)	Four factors
Rudman & Glick (2001) ^c	“Self-perceptions of women’s agency have occurred mainly for specific traits (e.g., self-reliant, individualistic, and ambitious) that can be characterized as reflecting agentic competence. By contrast, women continue to rate themselves as lower than men on the agentic traits of competitiveness, decisiveness, aggressiveness, and forcefulness, which can be characterized as reflecting social dominance” (p. 745)	Quantitative	Agentic applicant’s essay was manipulated with “a stereotypically masculine, competitive orientation (e.g., “Basically there are two kinds of people, winners and losers. My goal is to be a winner, the type of person who gets to be in charge and make the decisions.”)” (p. 750). Gender stereotype IAT as well as gender stereotype index were measured with 6 agentic-meaning words: independent, competitive,	One factor

	“We have argued that agency contains two components—competence and dominance” (p. 746)		autonomous, individualistic, hierarchical, and self-sufficient	
Twenge (2001)	“Other theories have treated assertiveness as part of agency (Bakan, 1966), a set of personality traits including elements of dominance, independence, leadership, and control.” (p. 134).	Quantitative	Meta-analysis	One factor
Eagly & Karau (2002)	“agentic characteristics, which are ascribed more strongly to men, describe primarily an assertive, controlling, and confident tendency—for example, aggressive, ambitious, dominant, forceful, independent, self-sufficient, self-confident, and prone to act as a leader” (p. 574).	Qualitative	NA	One factor
Duehr & Bono (2006)	“Agentic characteristics describe a more assertive, dominant, and confident tendency, including attributes such as aggressive, ambitious, independent, and self-confident. Agentic characteristics	Quantitative	Agentic characteristics were measured by: aggressive, ambitious, analytical ability, assertive, dominant, forceful, self-confident	One factor

	have traditionally been aligned with leadership roles” (p. 816).			
Scott & Brown (2006)	<p>“The male agentic/instrumental stereotype reflects a self-interested, task focused orientation in which men are believed to strive to master, dominate, and control the self and the environment. In line with this position, men are stereotypically believed to be independent, ambitious, competent, and competitive as well as motivated by stronger needs for dominance, autonomy, aggression, achievement, and endurance... In the current paper I utilize the labels agentic and communal to reflect male and female stereotypical characteristics, respectively” (p. 232).</p>	Quantitative	<p>Study 1: 12 behavioral items were used to describe 6 agentic qualities. The agency qualities were: dedicated, charismatic, intelligent, determined, aggressive, and competitive. The 12 agentic behavior items that corresponded to these agentic qualities were: “Worked late all week in order to finish the project; works on projects outside of working hours; When speaking, motivates employees; Talks enthusiastically to the employees about what needs to be accomplished; Displays extraordinary talent and competence in every project; Consistently contributes good ideas during group discussions; Does not give up on a project when complications arise; Works relentlessly to solve difficult problems; Argues until co-</p>	One factor

			workers see the ideas. Fights to get the work group necessary resources; Emphasizes that the team needs to be number one. Wants own ideas to be heard before other employees' ideas are heard.” Study 2a: agentic traits were measured as Ambitious, Decisive, Industrious Study 2b: agentic traits were measured as Decisive, dedicated, goal oriented	
Heilman & Okimoto (2007)	“agentic behavior, behavior that demonstrates dominance, competitiveness, and achievement orientation, is generally considered out of bounds for women” (p. 81)	Quantitative	Perceived agenticism in all studies was measured using a bipolar measure consisting of the following items: strong–weak, assertive–not assertive, tough–not tough, bold–timid, active–passive, and dominant–submissive	One factor
Hirokawa & Dohi (2007)	“Agency refers to concerns about self-affirmation and individualization, and it leads to a focus on self-protection and self-	Quantitative	Agency was assessed using the communion-agency scale, and comprised of items such as: “I am proactive; I have a strong will and firm beliefs; Once I decide, I	Two factors that measure positive aspects of agency and negative

	assertion by emphasizing separation” (p. 517).		take action; I have confidence in myself; I assert my opinion; I deal well with a difficulty.” Unmitigated agency was measured with these items: “I take an aggressive attitude toward others; I have no patience for someone’s failures; I can’t tolerate incompetence; I make others comply with me; I don’t listen to other people’s opinions; I can’t accept an opinion that is different than mine”	aspects of agency (unmitigated agency)
Abele, Uchronski and colleagues (2008)	“ ‘Agency’ refers to a person’s striving to be independent, to control one’s environment, and to assert, protect and expand one’s self. Agentic individuals are usually capable of high performance and are autonomous and individualistic; they like to lead and to dominate, are aspiring and strive to achieve their goals, even if they have to conquer obstacles. In an excessive	Quantitative	69 agentic and communion related words ^a	Two factors, consisting of qualities that express a lack of agency and positive adjectives that express a presence of agency

	<p>fashion, agency shows up as a ‘hunger for power and superiority’ and can manifest itself in aggressive and rude behavior, alienation and rejection. A lack of ‘agency’ manifests itself in, for instance, inactivity and apathy... I also provided examples for the different facets of agency (presence of agency: Inquiring, aggressive; lack of agency: Slow, aimless; has nothing to do with agency: Funny)” (p. 1204)</p>			
Conway et al (2008)	<p>“Agency is an instrumental, goal-directed orientation that encompasses traits such as forceful and dominant” (p. 739).</p> <p>“Unmitigated agency refers to negative stereotypically masculine tendencies including being arrogant and boastful” (p. 741).</p>	Quantitative	<p>Agency was measured using the positive masculinity subscale of the Extended Personal Attributes Questionnaire (EPAQ). Unmitigated agency was measured by the negative masculinity subscale of the EPAQ.</p>	Two factors: mitigated agency and unmitigated agency

Wojciszke & Abele (2008)	“Agency/competence refers to task functioning and goal achievement...involves qualities like efficient, competent, active, persistent, and energetic (and their opposites)” (p. 1139)	Quantitative	<p>Study 1: Raters were instructed to rate stories based on agency content. Agency was defined for the rater as the extent “this event show that the acting person is agency oriented, that is, that he/she is oriented toward doing things in an efficient way, or that he/she is not oriented toward action and its efficiency” (p. 1141).</p> <p>Study 2: perceived agency was measured as active, innovative, open-minded, resourceful, self-dependent, and thinks prospectively</p>	One factor
Ybarra et al. (2008)	“The second challenge, acquiring skills, talent, and status, is addressed through the agency dimension...which deals with characteristics and behavioral tendencies such as intelligence, competence, and diligence” (p. 1084).	Quantitative	<p>Study 1: Raters classified cultural practices into categories. Agency category was defined as “practices enabling people to perform tasks, solve problems, and attain their goals... Examples of agency-related universals included: tools; tool dependency; mental maps; memory; practice</p>	Two factors: positive aspect of agency and negative aspect of agency

			<p>to improve skills; critical learning periods” (p. 1085).</p> <p>Study 2: Positive characteristics of agency: astute, inventive, skillful, knowledgeable, talented, methodical, diligent, witty, attentive, purposeful</p> <p>Negative characteristics of agency: inept, hasty, sluggish, ignorant, irresponsible, lazy, mediocre, disorganized, idiotic, haphazard</p> <p>Study 3: Positive characteristics of agency was measured as: creative, intelligent, skillful.</p> <p>Negative characteristics of agency was measured as: unimaginative, stupid, clumsy</p>	
Madera, Hebl, & Martin (2009)	“Agency includes descriptions of aggressiveness, assertiveness, independence, and self-confidence... Agentic behaviors	Quantitative	Agentic adjectives was measured with words like: assertive, confident, aggressive, ambitious,	One factor

	at work include speaking assertively, influencing others, and initiating tasks” (p. 1592)		<p>dominant, forceful, independent, daring, outspoken, intellectual</p> <p>Agentic orientation was measured using a computerized text analysis program which accounted for words that deal with cognitive processes, achievements, and actions. Psychologically, this index refers to how much a person is “referred to the applicants as active, dynamic, and achievers” (p. 1593). Examples of these words include: earn, gain, do, know, insight, and think.</p>	
Rosette & Tost (2010)	“Men, on the other hand, are expected to be more achievement oriented and thus are viewed as competent, aggressive, independent, decisive, and forceful ... These characteristics are labeled agentic.” (p. 222)	Quantitative	Agentic characteristics was measured using the following items: confidence, skillfulness, competitiveness, power, and capability	One factor
Witt & Wood (2010)	“men, more than women, are agentic—that is, masterful,	Quantitative	<u>Study 1</u> : Agentic attributes were measured with items from the BSRI and the measure included	One factor

	assertive, competitive, and dominant” (p. 635)		<p>items such as defends beliefs, is independent, is reliable, has a strong personality, has leadership skills, and willing to take a stand</p> <p>Study 2: agentic traits were measured using a single item: “To what extent is it important that you act in a dominant, powerful, or assertive manner?”</p>	
Abele & Bruckmüller (2011)	“Agency was defined as traits related to a person’s striving to assert the self, to show competence, and to pursue goals; “ambitious”, “dominant”, and “egoistic” were given as examples” (p. 937-938).	Quantitative	<p>Positive agency was measured using the following words: active, persistent, clever, resolute, industrious, competent, capable, self-confident, independent, determined, efficient, ambitious, consequent, self-reliant</p> <p>Negative agency was measured using the following words: undisciplined, dumb, simple-minded, passive, aimless, messy, lazy, insecure, aggressive, arrogant, chaotic, dominant, selfish, self-opinionated, presumptuous</p>	Two factors, consisting of positive agency and negative agency

Hundhamer & Mussweiler (2012)	“Agency reflecting a priority concern for the self” (p. 177).	Quantitative	Agency was measured using the following items: decisive, assertive, confident, fearless, businesslike, daunting, resolute, willing to take risks	One factor
Rudman and colleagues (2012)	“In order to be perceived as qualified, they must defeat gender stereotypes by presenting themselves as competent, confident, and assertive (i.e., agentic)” (p. 165)	Quantitative	<p>Study 2: Agency was manipulated in a vignette as “providing brutally honest feedback,” and “commitment to maintaining high standards.”</p> <p>Further, male agency prescriptions were measured with the following items: career-oriented, leadership ability, assertive, independent, business sense, ambitious, self-starter, intelligent, high self-esteem, and competitive</p> <p>Study 3: Agency was manipulated in a vignette. The agentic person “stressed their prior managerial success and their ability to initiate projects,</p>	One factor

			<p>lead a team, and work well under pressure.” (p. 171).</p> <p>Study 5: To manipulate confederate’s agency, participants completed a “leadership aptitude test” in the belief that confederates completed the test as well. Sample items in this test included, “When I am in charge of a group, things always go smoothly,” and “I usually do not need deadlines and timetables to be productive.” The sample items include, “When I am in charge of a group, things always go smoothly,” and “I usually do not need deadlines and timetables to be productive” (p. 174). Participants in the agentic condition were told that the agentic confederate leaders scored 97th percentile on the test whereas participants themselves scored 77th percentile</p>	
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Koenig & Eagly (2014)	“Agency or instrumentality represented... mainly by adjectives such as assertive and competitive” (p. 387)	Quantitative	<p><u>Study 1a & 2:</u> Agency/competence was measured by boastful, arrogant, egotistical, competitive, aggressive, competent, intelligent and loaded onto one factor</p> <p><u>Study 1b & 3:</u> Agency/competence was measured by assertive, dominant, confident, aggressive, competent, intelligent and loaded on one factor</p> <p><u>Study 4:</u> agency was measured using items such as dominant, arrogant, boastful, egotistical, daring</p>	One factor
Rosette and colleagues (2016)	“Agentic content manifests itself as independent achievement, self-direction, and the pursuit of competence, proficiency, and control” (p. 430-431)	Qualitative	NA	Two factors: agentic-competence and agentic-dominance

This table is not an exhaustive representation of agency.

^a By agentic-content, I mean how agency was measured or manipulated in empirical papers, as well as how it was conceptualized in theoretical papers.

^b The author conceptualized agency as “agentic competencies” for a number of conceptual reasons that are discussed in detail in their article (see p. 299). For example, one reason was due to the author’s desire to focus on the positive

aspects of agency in terms of “gains,” as opposed to the “negative, defeating, or conflicting” qualities that lead to pathology or neurotic tendencies (p. 299). This is also why unlike other scales that have been used as measures of agency, all the agency items in their scale are positive.

^c Although the authors conceptualize and define agency as comprising of two components (dominance and competence, see p. 746), their operationalization of agency had one factor.

^d Due to space constraints, I do not list the agency words here (please refer to Table 1 in their paper for a complete list of agency words)

^e For reasons they articulate in the paper, Koenig and Eagly (2014) consider competence as separate from agency. Although agency is referred to as agency/competence in some of their studies (e.g., Study 1a), they conceptualize agency as a uni-factor construct.

Appendix B: Summary of Agency Items and Reasons for Exclusion

No	Agency related adjective	Included? (X = included)	Reasons for exclusion/Additional comments
1	Achievement	X	
2	Active	X	
3	acts as a leader	X	Subsumed as to aspire to be leader
4	Adventurous		Observed thrice
5	aggressive/aggression	X	
6	ambitious/ambition	X	
7	Analytical	X	
8	Arrogant		Observed once
9	aspiration to lead rather than follow	X	
10	Assertive	X	
11	Athletic		Not in any current definitions of agency
12	Autonomy	X	
13	be a leader	X	Subsumed as to "aspire to be leader"
14	Boastful		Observed once
15	Bold	X	
16	Businesslike		Observed thrice
17	cannot tolerate different opinions		Observed once
18	cannot tolerate incompetence		Observed once
19	Capability	X	
20	career seriousness/oriented		Observed thrice
21	Charismatic	X	
22	Command		Observed once
23	competence/competent	X	
24	competing for attention		Observed once
25	competitive/competition	X	
26	Confidence	X	
27	Controlling	X	
28	Courageous		Observed infrequently (four times) and not in current definitions of agency

29	cynical		Observed once
30	daring	X	Subsumed as to "bold"
31	daunting		Observed once
32	deal well with difficulty		Observed once
33	decisive	X	
34	dedicated	X	
35	defends beliefs	X	Subsumed as to "conviction"
36	demonstrating skill	X	Subsumed as to "skillful"
37	determined	X	
38	dictatorial		Observed once
39	dominance/dominant	X	
40	don't listen to other's opinions		Observed once
41	dynamic		Observed once
42	efficacy	X	
43	efficient		Observed twice
44	egotistical		Observed once
45	endurance		Observed once
46	fearless		Observed once
47	feelings not easily hurt		Observed once
48	feels superior	X	
49	financial rewards		Noun, not adjective
50	focus on the self	X	Subsumed as to "self-interested"
51	forceful	X	
52	goal oriented	X	
53	greedy		Observed once
54	hardworking	X	
55	has a strong personality		Observed twice
56	has leadership skills	X	Subsumed as to "aspire to be leader"
57	hedonism		Observed once
58	hostile		Observed once
59	in control		Observed once
60	independence / independent	X	
61	indifferent to others		Observed once
62	individualistic	X	
63	industrious		Observed once
64	influencing others	X	

	initiating activity directed to assigned		
65	tasks		Observed once
66	intellectual/intelligent	X	
67	irresponsible (reverse)	X	Subsumed as to "responsible"
68	leadership	X	Subsumed as to "aspire to be leader"
69	leadership motivation	X	Subsumed as to "aspire to be leader"
70	likely to have leadership ability	X	Subsumed as to "aspire to be leader"
71	logical		Observed once
72	looks out only for self	X	Subsumed as to "self-focused"
73	makes decisions easily	X	Subsumed as to "decisive"
74	makes others comply	X	Subsumed as to "controlling"
75	making problem-focused suggestions		Observed once
76	manipulative	X	
			Not in any current definitions of agency
77	masculine		
78	masterful/mastery	X	
79	motivated to succeed	X	Subsumed as to "successful"
80	never cry		Observed once
81	never gives up easily	X	Subsumed as to "dedicated"
82	no patience for other's failures		Observed once
83	not easily influenced		Observed twice
84	not excitable		Observed once
85	objective	X	
86	once I decide, I take action		Observed once
87	opinionated	X	
88	outspoken	X	
89	performance motivation		Observed once
90	power(ful)	X	
91	productive		Observed once
92	recognition	X	Subsumed as to "status-seeking"
93	reliable		Observed twice
94	resolute	X	Subsumed as to determined
95	responsible	X	
			Not in any current definitions of agency
96	risk taker		
97	seek power	X	Subsumed as to "power-seeking"
98	seeking new experience or excitement		Observed twice

99	self-confident(ce)	X	Subsumed as to "confident"
100	self-direction	X	
101	self-expansion		Observed once
102	self-improvement		Observed once
103	self-interested	X	
104	self-promotion	X	Subsumed as to "status-seeking"
105	self-reliant	X	
106	self-sufficiency	X	Subsumed as to self-reliance
107	separation		Observed once
108	sincerity (reverse)	X	
109	skillful	X	
110	stands well as pressure	X	Subsumed as to "tough"
111	status	X	
112	strong	X	
113	strong willed	X	Subsumed as to "conviction"
114	success	X	
115	task focused orientation	X	
116	tough	X	
117	trustworthy (reverse)	X	
118	uniqueness		Observed once
119	very little need for security		Observed once
120	willing to take a stand	X	
121	worldly		Observed once
122	curious		Observed once
123	persevering	X	Subsumed as to "dedicated"
124	clear thinking		Observed once
125	energetic	X	Subsumed as to "active"
126	calm		Observed once
127	enterprising		Observed once
128	rational	X	Subsumed as to "analytical"
129	initiative		Observed once
130	organized		Observed once
131	sharp-witted	X	Subsumed as to "intelligent"
132	hierarchical		Observed once
133	self-starter		Observed twice
134	high self-esteem		Observed twice
135	Persuasive		Observed once

136	Able	Observed once
137	Creative	Observed once
138	High status	Observed once
139	Wealthy	Observed once
140	Insecure (reverse-coded)	Observed once
141	Others acknowledge when I'm right	Observed once
142	Get chance to voice views	Observed once
143	Respect my privacy	Observed once
144	Not back down when disagreements arise	Observed once
145	Others not tell me what to do	Observed once
146	Obedied when I am in authority	Observed once
147	Others admit when they are wrong	Observed once

Appendix C: Agency Scale

Managerial Evaluations

Consider your current supervisor, or the most recent supervisor you had, and rate your agreement about whether he or she displays these traits and behaviors at the workplace.

There are no right or wrong answers, so please answer each question as you see fit. Do not spend too much time on the questions, it is best to follow your first impression. Use the following scale: 1: Strongly disagree 2: Moderately disagree 3: Slightly disagree 4: Neutral 5: Slightly agree 6: Moderately agree 7: Strongly agree.

The questions below consist of adjectives or behaviors that may describe your supervisor. Following the adjective or behavior is a definition of the adjective or phrase. For example, if you see "achievement-oriented: performance focused", we mean that performance focused is the meaning of the word "achievement-oriented", and we would like you to indicate to what extent your supervisor was "achievement-oriented" at the workplace.

-
1. **Status-seeking:** Reaching a higher standing relative to others
 2. **Aspire to be leader:** A desire to move upwards or higher than others
 3. **Ambitious:** Strong desire to achieve something or get ahead of others
 4. **Willing to take stand**
 5. **Self-assured:** Having a firm belief in one's abilities
 6. **Self-efficacy:** Belief in one's capabilities
 7. **Conviction:** Possessing certainty or steadfast belief
 8. **Independent:** Not relying on others
 9. **Self-reliant:** Relying on oneself
 10. **Individualistic:** Showing individuality in behavior and thoughts
 11. **Self-direction:** Follows one's own thought or action
 12. **Aggressive:** Vigorously commanding over others
 13. **Dominant:** Exerting authority over others
 14. **Controlling:** Determining the behavior of others
 15. **Forceful:** Characterized as vigorous strength
 16. **Manipulative:** Affecting the behavior of others for one's own purposes
 17. **Active:** Characterized by energetic work
 18. **Dedicated:** Wholly committed to an end
 19. **Task oriented:** To focus on getting the job done
 20. **Hardworking:** Working with diligence
 21. **Competent:** Sufficiently qualified
 22. **Capable:** Having ability to complete a task efficiently
 23. **Intelligent:** Possessing sound knowledge
 24. **Skillful (having skills):** Possessing proficiency in relevant areas

25. Masterful: Possessing an in depth understanding of pertinent tasks

Note. None of the items are reverse scored.

Appendix D: 63 Agency Articles

1. Abele, A. E. (2003). The dynamics of masculine-agentic and feminine-communal traits: Findings from a prospective study. *Journal of Personality and Social Psychology*, 85, 768-776.
2. Abele, A., & Bruckmüller, S. (2011). The bigger one of the "Big Two?" Preferential processing of communal information. *Journal of Experimental Social Psychology*, 47, 935-948.
3. Ahrens, J. A., & O'Brien, K. M. (1996). Predicting gender-role attitudes in adolescent females: Ability, agency, and parental factors. *Psychology of Women Quarterly*, 20, 409-417.
4. Akinola, M., Martin, A. E., & Phillips, K. W. (2018). To delegate or not to delegate: Gender differences in affective associations and behavioral responses to delegation. *Academy of Management Journal*, 61, 1467-1491.
5. Badura, K. L., Grijalva, E., Newman, D. A., Yan, T. T., & Jeon, G. (2018). Gender and leadership emergence: A meta-analysis and explanatory model. *Personnel Psychology*, 71, 335-367.
6. Bikmen, N., Torrence, M. A., & Krumholtz, V. (2018). The Importance of Knowing your History: Perceiving Past Women as less Agentic than Contemporary Women Predicts Impaired Quantitative Performance. *Sex Roles*, 79, 621-632.
7. Bosak, J., & Sczesny, S. (2008). Am I the right candidate? Self-ascribed fit of women and men to a leadership position. *Sex Roles*, 58, 682-688.
8. Conway, M., Alfonsi, G., Pushkar, D., & Giannopoulos, C. (2008). Rumination on sadness and dimensions of communality and agency: Comparing White and visible minority individuals in a Canadian context. *Sex Roles*, 58, 738-749.
9. Conway, M., Pizzamiglio, M. T., & Mount, L. (1996). Status, communality, and agency: Implications for stereotypes of gender and other groups. *Journal of Personality and Social Psychology*, 71, 25-38.
10. Dasgupta, N., & Asgari, S. (2004). Seeing is believing: Exposure to counterstereotypic women leaders and its effect on the malleability of automatic gender stereotyping. *Journal of Experimental Social Psychology*, 40, 642-658.

11. Diekman, A. B., Brown, E. R., Johnston, A. M., & Clark, E. K. (2010). Seeking congruity between goals and roles: A new look at why women opt of Science, Technology, Engineering, and Mathematics Careers. *Psychological Science*, 21, 1051-1057.
12. Diekman, A. B., Clark, E. K., Johnston, A. M., Brown, E. R., & Steinberg, M. (2011). Malleability in communal goals and beliefs influences attraction to stem careers: Evidence for a goal congruity perspective. *Journal of Personality and Social Psychology*, 101, 902-918.
13. Duehr, E. E., & Bono, J. E. (2006). Men, women, and managers: are stereotypes finally changing? *Personnel Psychology*, 59, 815-846.
14. Eagly, A., & Johannesen-Schmidt, M. C. (2001). The leadership styles of women and men. *Journal of Social Issues*, 57, 781-797.
15. Eagly, A. H., & Kite, M. E. (1987). Are stereotypes of nationalities applied to both women and men? *Journal of Personality and Social Psychology*, 53, 451-462.
16. Eagly, A., & Steffen, V. (1984). Gender stereotypes stem from the distribution of women and men into social roles. *Journal of Personality and Social Psychology*, 46, 735-754.
17. Eagly, A. H., & Steffen, V. J. (1986). Gender stereotypes, occupational roles, and beliefs about part-time employees. *Psychology of Women Quarterly*, 10, 252-262.
18. Evers, A., & Sieverding, M. (2014). Why do highly qualified women (still) earn less? Gender differences in long-term predictors of career success. *Psychology of Women Quarterly*, 38, 93-106.
19. Fleischmann, A., & Sieverding, M. (2015). Reactions toward men who have taken parental leave: Does the length of parental leave matter? *Sex Roles*, 72, 462-476.
20. Fuegen, K., Biernat, M., Haines, E., & Deaux, K. (2004). Mothers and fathers in the workplace: how gender and parental status influence judgments of job-related competence. *Journal of Social Issues*, 60, 737-754.
21. Gabriel, A. S., Butts, M. M., Yuan, Z., Rosen, R. L., & Sliter, M. T. (2018). Further understanding incivility in the workplace: The effects of gender, agency, and communion. *Journal of Applied Psychology*, 103, 362-382.

22. Gerber, G. L. 1988. Leadership roles and the gender stereotype traits. *Sex Roles*, 18: 649-668.
23. Gill, M. J. 2004. When information does not deter stereotyping: Prescriptive stereotyping can foster bias as conditions that deter descriptive stereotyping. *Journal of Experimental Social Psychology*, 40: 619-632.
24. Heilman, M. E., Caleo, S., & Halim, M. L. (2010). Just the thought of it: Effects of anticipating computer-mediated communication on gender stereotyping. *Journal of Experimental Social Psychology*, 46, 672-675.
25. Heilman, M., & Okimoto, T. (2007). Why are women penalized for success at male tasks?: The implied communality deficit. *Journal of Applied Psychology*, 92, 81-92.
26. Heilman, M. E., & Okimoto, T. G. (2008). Motherhood, a potential source of bias in employment decisions. *Journal of Applied Psychology*, 93, 189-198.
27. Hideg, I., Krstic, A., Trau, R. N., & Zarina, T. (2018). The unintended consequences of maternity leaves: How agency interventions mitigate the negative effects of longer legislated maternity leaves. *Journal of Applied Psychology*, 103: 1155-1164.
28. Hirokawa, K., & Dohi, I. (2007). Agency and communion related to mental health in Japanese young adults. *Sex Roles*, 56, 517-524.
29. Hundhammer, T., & Mussweiler, T. (2012). How sex puts you in gendered shoes: Sexuality-priming leads to gender-based self-perception and behavior. *Journal of Personality and Social Psychology*, 103, 176-193.
30. Hoffman, C., & Hurst, N. (1990). Gender Stereotypes - Perception or Rationalization. *Journal of Personality and Social Psychology*, 58, 197-208.
31. Hoyt, C. L., & Burnette, J. (2013). Gender Bias in Leader Evaluations: Merging Implicit Theories and Role Congruity Perspectives. *Personality and Social Psychology Bulletin*, 39, 1306-1319.
32. Koch, A., Imhoff, R., Dotsch, R., Unkelbach, C., & Alves, H. (2016). The ABC of stereotypes about groups: Agency/socioeconomic success, conservative–progressive beliefs, and communion. *Journal of Personality and Social Psychology*, 1105, 675-709

33. Johnson, S. K., Murphy, S. E., Zewdie, S., & Reichard, R. J. (2008). The strong, sensitive type: Effects of gender stereotypes and leadership prototypes on the evaluation of male and female leaders. *Organizational Behavior and Human Decision Processes*, 106, 39-60.
34. Jost, J. T., & Kay, A. C. (2005). Exposure to benevolent sexism and complementary gender stereotypes: Consequences for specific and diffuse forms of system justification. *Journal of Personality and Social Psychology*, 88, 498-509.
35. Jorgenson, D. O. (1981). Agency and communion trends in consumer goods advertising. *Personality and Social Psychology Bulletin*, 7, 410-414.
36. Laurent, S. M., & Hodges, S. D. (2009). Gender roles and empathic accuracy: The role of communion in reading minds. *Sex Roles*, 60, 387-398.
37. Leaper, C. (1987). Agency, communion, and gender as predictors of communication style and being liked in adult male-female dyads. *Sex Roles*, 16, 137-149.
38. Leslie, L. M., Manchester, C. F., & Dahm, P. C. (2017). Why and when does the gender gap reverse? Diversity goals and the pay premium for high potential women. *Academy of Management Journal*, 60(2), 402-432.
39. Locke, K. D., & Heller, S. 2017. Communal and agentic interpersonal and intergroup motives predict preferences for status versus power. *Personality and Social Psychology Bulletin*, 43(1): 71-86.
40. Maass, A., Suitner, C., Favaretto, X., & Cignacchi, M. (2009). Groups in space: Stereotypes and the spatial agency bias. *Journal of Experimental Social Psychology*, 45, 496-504
41. Martin, A. E., & Phillips, K. W. (2017). What “blindness” to gender differences helps women see and do: Implications for confidence, agency, and action in male-dominated environments. *Organizational Behavior and Human Decision Processes*, 142, 28-44.
42. Martin, A. E., & Phillips, K. W. (2019). Blind to bias: the benefits of gender-blindness for STEM Stereotyping. *Journal of Experimental Social Psychology*, 82, 294-306.

43. Martin, A. E., North, M. S., & Phillips, K. W. (2019). Intersectional escape: older women elude agentic prescriptions more than older men. *Personality and Social Psychology Bulletin*, 453, 342-359.
44. McCarty, M. K., Monteith, M. J., & Kaiser, C. R. (2014). Communally constrained decisions in workplace contexts. *Journal of Experimental Social Psychology*, 55, 175-187.
45. Madera, J., Hebl, M., & Martin, R. (2009). Gender and Letters of Recommendation for Academia: Agentic and Communal Differences. *Journal of Applied Psychology*, 94, 1591-1599.
46. Okimoto, T. G., & Brescoll, V. L. (2010). The Price of Power: Power Seeking and Backlash Against Female Politicians. *Personality and Social Psychology Bulletin*, 36, 923-936.
47. Pillemer, J., Graham, E. R., & Burke, D. M. (2014). The face says it all: CEOs, gender, and predicting corporate performance. *The Leadership Quarterly*, 25, 855-864.
48. Pratto, F., & Bargh, J. A. (1991). Stereotyping based on apparently individuating information: Trait and global components of sex stereotypes as attention overload. *Journal of Experimental Social Psychology*, 27, 26-47.
49. Proudfoot, D., Kay, A. C., & Koval, C. Z. (2015). A gender bias in the attribution of creativity: Archival and experimental evidence for the perceived association between masculinity and creative thinking. *Psychological Science*, 26(11), 1751-1761.
50. Rau, R., Nestler, S., Geukes, K., Back, M. D., & Dufner, M. (2019). Can other-derogation be beneficial? Seeing others as low in agency can lead to an agentic reputation in newly formed face-to-face groups. *Journal of Personality and Social Psychology*, 117(1), 201-227.
51. Rosette, A. S., & Tost, L. (2010). Agentic women and communal leadership: How role prescriptions confer advantage to top women leaders. *Journal of Applied Psychology*, 95, 221-235.
52. Rule, N. O., & Ambady, N. (2009). She's got the look: Inferences from female chief executive officers' faces predict their success. *Sex Roles*, 61, 644-652.

53. Rudman, L. A., & Glick, P. (2001). Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social Issues, 57*, 743-762.
54. Rudman, L. A., & Mescher, Kris (2013). Penalizing men who request a family leave: Is flexibility stigma a femininity stigma? *Journal of Social Issues, 69*, 322-340.
55. Rudman, L. A., Moss-Racusin, C. A., Phelan, J. E., & Nauts, S. (2012). Status incongruity and backlash effects: Defending the gender hierarchy motivates prejudice against female leaders. *Journal of Experimental Social Psychology, 48*, 165-179.
56. Scott, K., & Brown, D. (2006). Female first, leader second? Gender bias in the encoding of leadership behavior. *Organizational Behavior and Human Decision Making Processes, 101*, 230 - 242.
57. Shepherd, S., Kay, A. C., & Gray, K. (2019). Military veterans are morally typecast as agentic but unfeeling: Implications for veteran employment. *Organizational Behavior and Human Decision Processes, 153*, 75-88.
58. Simon, S., & O'Brien, L. T. (2015). Confronting Sexism: Exploring the Effect of Nonsexist Credentials on the Costs of Target Confrontations. *Sex Roles, 73*: 245-257.
59. Stout, J. G., Grunberg, V. A., & Ito, T. A. (2016). Gender roles and stereotypes about science careers help explain women and men's science pursuits. *Sex Roles, 759*, 490-499.
60. Wessel, J. L., Hagiwara, N., Ryan, A. M., & Kermond, C. M. (2015). Should women applicants "man up" for traditionally masculine fields? Effectiveness of two verbal identity management strategies. *Psychology of Women Quarterly, 392*, 243-255.
61. White, M. S. (1979). Measuring androgyny in adulthood. *Psychology of Women Quarterly, 3*, 293-307.
62. Witt, M. G., & Wood, W. (2010). Self-regulation of gendered behavior in everyday life. *Sex Roles, 62*, 635-646.
63. Young, D. M., Moss-Racusin, C. A., & Sanchez, D. T. (2014). Implicit agency, communality, and perceptual congruence in couples: Implications for relationship health. *Journal of Experimental Social Psychology, 55*, 133-138.

Appendix E: Pilot Study Details

The first step of a scale development process is to generate a pool of items that measure the construct of interest. To do so, I conducted a literature review to compile items frequently used to operationalize agency in previous gender and leadership research (Hinkin, 1998). I then conducted an exploratory factor analysis (EFA) to obtain a smaller set of items that possesses construct validity.

Item Generation and Content Validation

I conducted information searches of articles from 15 top journals in organizational behavior and social psychology: *Academy of Management Journal*, *Organization Science*, *Administrative Science Quarterly*, *Journal of Applied Psychology*, *Organizational Behavior and Human Decision Processes*, *Journal of Personality and Social Psychology*, *Journal of Experimental Social Psychology*, *Personality and Social Psychology Bulletin*, *Psychological Science*, *Sex Roles*, *The Leadership Quarterly*, *Psychology of Women Quarterly*, *Personnel Psychology*, *Journal of Management*, and *Journal of Social Issues*. I chose these journals because they included sufficient articles that focus on agency in relation to gender and leadership outcomes.

Within these journals, I searched for articles using key words such as gender, gender bias, gender prejudice, gender stereotype, gender differences, interpersonal dominance, role congruity, masculine, feminine, male, female, men, women, agency, agentic, communion, gender role, sex role, and communality in the article title and abstract. I confined the search to English-only articles from a 40-year period (1974-2019)

with adult subjects (more than 18 years old). I used 1974 as the starting point as the majority of the journals I reviewed started their publication on or after 1974. I also searched through the reference lists of relevant meta-analyses and review papers on gender differences. In total, I identified 1159 potential articles.

Next, because I was specifically interested in how gender and leadership researchers have operationalized agency, I eliminated articles that did not explicitly manipulate or measure gender-related attributes (e.g., reaction time and physiological measures), defined as the constellation of psychological traits used to describe men or women (Williams & Bennett, 1975). Further, although agentic qualities and gender attributes may overlap (Eagly & Karau, 2002), not all gender attributes concern agency (e.g., men should be athletic, Prentice & Carranza, 2002). Similarly, not all agency attributes are gender related (e.g., “hedonism,” Jorgenson, 1981). Therefore, I eliminated articles that did not explicitly measure the agentic construct. Following this conservative protocol, I was left with 63 articles. These 63 articles yielded 147 unique English adjectives and phrases (see Appendix B) used to operationalize agency, and a list of these articles is included in Appendix D.

Method

I recruited 452 currently employed participants from Prolific Academic, an online panel which provides high quality data for academic research (for details, see Peer, Brandimarte, Samat, & Acquisti, 2017). Participants were presented with a list of 49 items, and asked to consider their current supervisor, or the most recent supervisor they

had, and rate their agreement about whether their supervisor displayed these traits and behaviors at work on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*).

Results and Discussion

I did not have missing data because I required all participants to answer each question, and performed EFA (with oblique rotation) to obtain the factor structure. I dropped items with loadings below .40 or with cross loadings of more than .40 on multiple factors (Hair, Black, Babin, Anderson, & Tatham, 1998). Multiple rounds of analyses were conducted, during which items with loadings below .40 were dropped from subsequent analyses. The number of factors to be extracted was guided by a scree test. I chose a six-factor solution (all eigenvalues > 1) containing 25 items because it accounted for a substantial amount of total variance explained (74.82%), had factors with strong internal consistency (> .80), and was conceptually interpretable. Six distinct factors emerged and I labelled them dominant agency, ambitious agency, self-assured agency, independent agency, competent agency and hardworking agency. Please see Table 1 for loadings, communality, means, and standard deviations for items.

Appendix F: Test-Retest Reliability and Measurement Invariance (Study S2)

This study aims to examine the test-retest reliability and measurement invariance of the agency measure across gender and across time. Currently, limited research has examined if agency items are measured similarly across gender (e.g., measurement invariance). A lack of measurement invariance would preclude meaningful interpretation of existing research about gender biases within the gender and leadership literature.

Further, to the extent that a construct is supposed to be stable over time, it is important to show good test-retest reliability. Although agency is thought to be a relatively stable trait (Uchronski, 2008), it can be sensitive to situational influences, such as having career success (Abele, 2003), or interacting with subordinates (vs. supervisors, Moskowitz, Suh, & Desaulniers, 1994). Some indirect evidence from personality research also suggests that certain agency factors may be more trait-like than others. For example, both competence and hardworking have been described as trait-like by personality researchers (e.g., Peabody & Goldberg, 1989). Conversely, some agency factors such as ambition (Judge & Kammeyer-Mueller, 2012) were more variable across situations. However, past research tends to focus on perceptions of the self (vs. interpersonal perceptions). Limited research has examined whether interpersonal perceptions of agency are stable across situations and time. Finally, I considered longitudinal invariance of the agency measure, which examines whether agency is measured similarly over time. A lack of longitudinal measurement invariance challenges the validity of existing gender and

leadership research about whether perceptions of women's agency have changed over time (Duehr & Bono, 2006; Eagly et al., 2019).

Method

I recruited 375 employees with full or part time working experience from Prolific Academic at Wave 1 and contacted the same participants to complete the survey two weeks later. A total of 310 participants were recruited at Wave 2 (an attrition rate of 17%). In both waves, participants evaluated the same current direct supervisor on the 25 agency items.

Results and Discussion

Reliabilities of the six agency factors for Wave 1 and Wave 2, respectively were competent agency_{t1} = .93; competent agency_{t2} = .94; self-assured agency_{t1} = .86, self-assured agency_{t2} = .90; hardworking agency_{t1} = .91, hardworking agency_{t2} = .93; independent agency_{t1} = .84, independent agency_{t2} = .86; dominant agency_{t1} = .92, dominant agency_{t2} = .94; ambitious agency_{t1} = .82 ambitious agency_{t2} = .86. Test-retest correlations were: competent agency = .70, self-assured agency = .61, hardworking agency = .72, independent agency = .55, dominant agency = .74, ambitious agency = .60. I note that the test-retest correlations of independent agency, self-assured agency, and ambitious agency factors were lower than that of competent agency, hardworking agency, and dominant agency factors. This is consistent with previous research showing that dominance (Buss & Perry, 1992), competence, and hardworking (Peabody & Goldberg, 1989) are relatively stable across time, whereas independence (Brennan & Shaver, 1995),

ambition (Judge & Kammeyer-Mueller, 2012), and self-assurance (Bearden, Hardesty, & Rose, 2001; Lenney, 1977) are more variable.

Next, I tested measurement invariance across: (a) participant gender (men, $N = 239$ vs. women, $N = 136$), (b) leader gender (men, $N = 252$ vs. women, $N = 123$), and (c) time. Finally, I merged data from all studies (Studies 1 to 4 and Study S1) that employ similar study procedures (subordinate evaluates supervisor on agency) and tested measurement invariance across (c) online ($N = 1,863$) vs. non-online samples ($N = 776$).

Table 9: Test of measurement invariance across groups and time

Group	Scaling factor	Scaled χ^2	<i>df</i>	χ^2/df	<i>CFI</i>	<i>TLI</i>	<i>RMSEA</i>	$\Delta\chi^2$	Δdf	p^1	ΔCFI	
Study S1												
Participant gender												
	Configural invariance	1.14	989.04	520	1.90	0.92	0.91	0.07				
	Metric invariance	1.14	1007.9	539	1.87	0.92	0.92	0.07	18.91	19	0.46	0.001
	Scalar invariance	1.14	1030.31	558	1.85	0.92	0.92	0.07	20.71	19	0.35	0.001
	Invariant uniqueness	1.18	1061.05	583	1.82	0.92	0.92	0.07	37.17	25	0.06	0.004
Leader's gender												
	Configural invariance	1.15	956.19	520	1.84	0.93	0.92	0.07				
	Metric invariance	1.15	981.53	539	1.82	0.93	0.92	0.07	25.19	19	0.15	0.001
	Scalar invariance	1.15	1001.80	558	1.80	0.93	0.92	0.07	17.93	19	0.53	0.001
	Invariant uniqueness	1.18	1044.03	583	1.79	0.92	0.92	0.07	43.19	25	0.01	0.005
Time												
	Configural invariance	1.16	1754.08	1084	1.62	0.94	0.94	0.05				
	Metric invariance	1.16	1778.18	1103	1.61	0.94	0.94	0.05	23.48	19	0.22	0.001
	Scalar invariance	1.16	1804.27	1122	1.61	0.94	0.94	0.05	25.20	19	0.15	0.001
	Invariant uniqueness	1.17	1829.24	1147	1.59	0.94	0.94	0.05	29.63	25	0.24	0.001
All studies												
Sample invariance												
	Configural invariance	1.36	2414.50	520	4.64	0.95	0.94	0.06				
	Metric invariance	1.36	2453.67	539	4.55	0.95	0.94	0.06	37.53	19	0.01	0.001
	Scalar invariance	1.35	2571.93	558	4.61	0.95	0.94	0.06	129.15	19	0.01	0.002
	Invariant uniqueness	1.40	2592.97	583	4.45	0.95	0.94	0.06	62.20	25	0.01	0.001

Note. CFI = robust comparative fit index. TLI = robust Tucker- Lewis index. RMSEA = robust root mean square of approximation.

¹ *p* -values are associated with scaled chi-square difference tests

Table 10: Fit indices across groups

Group	Scaling factor	<i>Scaled</i> χ^2	χ^2/df	<i>CFI</i>	<i>TLI</i>	<i>RMSEA</i>
Study S1						
Participant gender						
Men	1.23	440.73	1.70	0.94	0.94	0.06
Women	1.06	556.50	2.14	0.90	0.89	0.09
Leader gender						
Men	1.24	454.06	1.75	0.95	0.94	0.06
Women	1.07	506.09	1.95	0.90	0.89	0.09
Time						
Time 1	1.25	580.11	2.23	0.94	0.93	0.06
Time 2	1.31	472.33	1.82	0.96	0.95	0.06
All studies						
Online sample	1.36	1554.43	5.98	0.95	0.95	0.06
Non-online sample	1.37	863.025	3.32	0.94	0.94	0.06

Note. CFI = comparative fit index. TLI = Tucker- Lewis index. RMSEA = root mean *df*'s are all 260.

Measurement invariance across participant gender. I first tested whether the same factor structure exists across participant gender groups (i.e., “configural invariance”). A simultaneous estimation of the 6 factor model for male and female participants indicated that this model fit the data reasonably well, $\chi^2(520) = 989.04$, $p < .001$, $\chi^2/df = 1.90$, $CFI = .92$, $TLI = .91$, $RMSEA = .07$ (see Table 9, please see Table 10 for fit indices within each group). Next, I tested metric invariance, which examines whether respondents across groups ascribe the same meaning to the latent constructs. The nested scaled chi-square test comparing the metric invariance model against the configural invariance model was not significant, $\Delta\chi^2(19) = 18.91$, $p = 0.46$, suggesting that respondents across groups did ascribe similar meaning to the latent construct. Next, I tested scalar invariance. Again, the nested scaled chi-square test (scalar vs. metric invariance model) was not significant, $\Delta\chi^2(19) = 20.71$, $p = 0.35$, supporting scalar invariance. Finally, I tested for invariant uniqueness. A nested scaled chi-square test comparing the scalar (vs. metric) invariance model was not significant, $\Delta\chi^2(25) = 37.17$, $p = 0.06$, suggesting that the same latent construct is measured identically across groups. Across nested models, decreases in CFI (ΔCFI) did not exceed .01 (Cheung & Rensvold, 2002), and the models fit the data well, $\chi^2(520 \text{ to } 583) = 989.04 \text{ to } 1061.10$, $ps < .001$, $\chi^2/df = 1.82 \text{ to } 1.90$, $CFI = .92$, $TLI = .91 \text{ to } .92$, $RMSEA = .07$, further supporting measurement invariance.

Measurement invariance across leader gender. I tested and found support for measurement invariance across leader gender (Table 9). This is shown by the well-fitting

models, $\chi^2(520 \text{ to } 583) = 956.19 \text{ to } 1044.03$, $ps < .001$, $\chi^2/df = 1.79 \text{ to } 1.84$, $CFI = .92 \text{ to } .93$, $TLI = .92$, $RMSEA = .07$. Although the nested scaled chi-square test for invariant uniqueness was significant ($ps > .01$), the well-fitting models and lack of significant loss in fit (e.g., ΔCFI did not exceed .01) across the nested models support measurement invariance across leader gender.

Measurement invariance across online vs. non-online samples. I tested and found support for partial measurement invariance across online (vs. non-online) samples.

Although the models were well-fitting, $\chi^2(520 \text{ to } 583) = 2414.50 \text{ to } 2592.97$, $ps < .001$, $\chi^2/df = 4.45 \text{ to } 4.64$, $CFI = .95$, $TLI = .94$, $RMSEA = .06$, the scaled chi-square difference tests were all significant ($ps > .01$) between the respective nested models. However, there was no significant loss in fit (e.g., ΔCFI did not exceed .01) across the nested models, which previous research have used to support measurement invariance (e.g., Stewart, Bing, Davison, Woehr, & McIntyre, 2009). Therefore, overall the results suggest partial invariance.

Measurement invariance across time. Next, I examined measurement invariance across Time 1 and Time 2. Using paired t -tests, I found that the variance and the means of 23 out of the 25 agency items did not differ significantly across time. The exception was that two items (status-seeking and capable) pertaining to the ambitious agency and the competent agency factors, respectively, were significantly different across time ($ps < .05$). The means for the other 23 items were not significantly different across time. I do not think that the finding that these two items were significantly different is concerning.

Since I conducted 25 paired samples *t*-test for each item, I should apply a Bonferroni correction to correct for inflated probability of obtaining false positives when I perform multiple tests on a single set of data (Holm, 1979). After applying the Bonferroni correction, none of the items are significantly different across time ($ps > .002$).

I then considered longitudinal invariance (Schaubroeck & Green, 1989; Vandenberg & Self, 1993). Consistent with previous research (Schaubroeck & Green, 1989; Vandenberg & Lance, 2000; Vandenberg & Self, 1993), I included additional model specifications for longitudinal invariance: (1) I covaried like items across time (e.g., aspire to be leader at Time 1 and aspire to be leader at Time 2); (2) I covaried like factors across time (e.g., Ambitious at Time 1 and Time 2); (3) I covaried unlike factors within and across the two time points. For example, ambitious agency at Time 1 was correlated with competent agency measured at both Time 1 and Time 2. On the whole, I found support for configural invariance, metric invariance, scalar invariance, and invariant uniqueness across time points. This is shown by the well-fitting models, $\chi^2(1084 \text{ to } 1147) = 1754.08 \text{ to } 1828.81$, $ps < .001$, $\chi^2/df = 1.59 \text{ to } 1.62$, $CFI = .94$, $TLI = .94$, $RMSEA = .05$, non-significant scaled chi-square difference tests ($ps > .17$), and the lack of significant loss in fit (e.g., ΔCFI did not exceed .01) across nested models.

In sum, the results support measurement invariance across participant gender, leader gender, sample type, and time, and bolster existing conclusions about gender biases (e.g., Rudman et al., 2012), and those about changes in women's agency over time (Eagly et al., 2019).

Appendix G: Common Method Variance (Study S2)

The goal of this study was to examine the predictive validity of agency for gender and leadership. As alluded to earlier, agency is characterized by self-assertion, which may manifest in self-promotion and self-elevation in organizational settings. Therefore, agency should have predictive validity for important leadership outcomes, such as leader promotability. I propose that agentic-ability as well as agentic-motivation should be associated with more positive leadership-related outcomes. Consistent with this notion, hardworking, competence (Epitropaki & Martin, 2004; Judge, Bono, Ilies, & Gerhardt, 2002), ambition (Hogan et al., 1994; Kirkpatrick & Locke, 1991), independence (Daus & Joplin, 1999), self-assurance and self-confidence (House & Howell, 1992) have all been associated with more positive leadership evaluations. It is unclear if agentic-influence (i.e., dominant agency) will be positively associated with leadership evaluations as the items for dominant agency had negative connotations (please see the General Discussion).

I also address common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003) in this study. I tested if subordinates' perceptions of their own agency could predict supervisors' beliefs about the subordinates' promotability. To do so, I recruited supervisors and asked them to contact one subordinate to complete the survey. The subordinate assessed self-perceived agency, whereas the supervisor evaluated the subordinate on perceived promotability.

Method

Data were collected from 161 supervisors recruited from Prolific Academic, an online research panel.¹⁵ All participants were asked to invite a subordinate to respond to the agency scale. Subordinates were asked to respond to the agency measure, but were asked to consider their own behaviors at work and rate their agreement about whether they themselves displayed the agency traits or behaviors. Supervisors evaluated their subordinates on 3-item measure of perceived promotability (Thacker & Wayne, 1995). All items were assessed on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*).

Results and Discussion

All the means, standard deviations and correlations among variables are found in Table 11.

¹⁵ I asked 314 supervisors to send the survey to their subordinate, but only 161 supervisors eventually did.

Table 11: Correlations between agency and leader evaluations (Study S2)

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Ambitious agency	5.17	1.39	(.90/.90/.92)								
2. Dominant agency	3.02	1.53	.27	(.92/.92/.94)							
3. Competent agency	6.04	.77	.40	-.02	(.85/.85/.89)						
4. Self-assured agency	5.63	.94	.44	.08	.55	(.85/.85/.88)					
5. Hardworking agency	6.07	.84	.25	-.08	.32	.45	(.87/.87/.89)				
6. Independent agency	5.63	.92	.27	.04	.44	.46	.40	(.80/.81/.82)			
7. Perceived promotability	5.57	1.35	.29	-.02	.34	.25	.36	.34	(.86/.87/.89)		
8. Subordinate's gender ^a	.44	.50	-0.19	-.26	.06	-.07	.01	-.10	-.03	--	
9. Leader's gender ^a	.50	.50	-0.04	-.19	.06	.008	.14	.16	.11	.23	--

N = 161. Absolute correlations > .16 significant at the .05 level, >.22 significant at .01 level

Values in parentheses are reliabilities.

^aGender was coded 0 = Men, 1 = Women

Values in parentheses are reliabilities.

The first number is Cronbach's alpha, the second number is Omega total, the third number is Greatest Lower Bound

Table 12: Predictive validity between agency and perceived promotability (Studies S2 and S3)

Variable	Perceived promotability			
	Study S2		Study S3	
	Model 1	Model 2	Model 1	Model 2
1. One factor agency	.75***		1.04***	
2. Ambitious agency		.16 [^]		.23***
3. Competent agency		.31 [^]		.36***
4. Self-Assured agency		-.14		-.06
5. Independent agency		.23 [^]		.18*
6. Aggressive agency		-.04		-.09
7. Hardworking agency		.37**		.30***
8. Leader's gender ^a	.31	.14	-.40*	-.28 [^]
9. Subordinate's gender ^a	.05	-.06	-.11	-.06
R^2	.14	.23	.37	.57

Notes: Standardized Loadings, Study S2: $N = 160$, Study S3: $N = 209$

[^] $p < .08$, * $p < .05$, ** $p < .01$

^a Men = 0, Women = 1

I found that all agency factors, except dominant agency, had significant positive correlations with greater promotability ($ps < .01$). Dominant agency was not significantly correlated with perceived promotability ($r = -.02, p = .78$). I also found that women subordinates rated themselves as significantly lower on ambitious and dominant agency compared to men subordinates. These findings provide preliminary evidence that people discriminate between different agency factors within the context of self-perceptions (i.e., not dominant but competent).

Finally, to further establish the predictive validity of the six-factor model relative to existing one-factor conceptualizations of agency, I also conducted two separate regressions predicting perceived promotability using the one-factor measure of agency (Model 1, $R^2 = .14$) as opposed to a six-factor model of agency (Model 2, $R^2 = .23$). I found that the six-factor model of agency explained more variance than the one-factor model (see Table 12). In a regression with all six factors predicting perceived promotability, I found that ambitious, independent, competent, and hardworking agency had significant unique predictive effects ($ps < .05$).

One limitation of studies I presented so far is that I did not examine downward perceptions of agency – that is leaders' perceptions of subordinates' agency. To address the limitation, in Study S3, I examined whether leaders' perceptions of their subordinates' agency at Time 1 predicted their subsequent perceptions of the same subordinates' promotability at Time 2.

Appendix H: Downward Perceptions of Agency (Study S3)

In this study, I aim to mitigate common method bias by creating a temporal separation between participant's responses in Time 1, when participants responded to the agency measure, and in Time 2 they responded to a measure of perceived promotability. The second limitation of the studies that I have presented so far is that in all these studies, a supervisor was evaluated by a subordinate (i.e., upward agency evaluations). Since promotion and leader selection decisions are often decided by employee's supervisors, it was important to test if downward agentic perceptions of subordinates could predict supervisors' beliefs about subordinates' promotability. Therefore, in this study, I recruited supervisors and asked them to evaluate a subordinate at the workplace.

Method

Data were collected from full-time supervisors recruited from Prolific Academic, an online research panel. The sample consisted of 209 supervisors. I recruited 319 supervisors at Time 1, and 209 supervisors completed the measures at Time 2. All participants were asked to recall a subordinate at work. At Time 1, they were asked to evaluate this subordinate using the agency scale. Four days later, at Time 2, I measured perceived promotability using a 7-point 3-item measure (Thacker & Wayne, 1995).

Results and Discussion

All the means, standard deviations and correlations among variables are found in Table 13.

Table 13: Correlations between agency and leader evaluations (Study S3)

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
1. Ambitious agency	4.39	1.60	(.89/.89/.91)								
2. Dominant agency	3.00	1.63	.26	(.93/.93/.96)							
3. Competent agency	5.50	1.22	.18	-.22	(.93/.93/.95)						
4. Self-assured agency	5.19	1.20	.37	.30	.38	(.88/.88/.91)					
5. Hardworking agency	5.31	1.47	.31	-.22	.77	.35	(.94/.94/.94)				
6. Independent agency	4.97	1.42	.38	-.004	.64	.60	.64	(.92/.92/.94)			
7. Perceived promotability	4.91	1.56	.40	-.18	.64	.31	.67	.58	(.89/.89/.94)		
8. Subordinate's gender ^a	.54	.50	-.08	.12	.09	.07	.11	.02	-.03	--	
9. Leader's gender ^a	.56	.50	-.06	.08	.005	.10	.02	-.0008	-.12	.41	--

* $p < .05$, ** $p < .01$, $N = 209$. Absolute correlations $> .13$ significant at the .05 level, $> .23$ significant at .01 level

^aGender was coded 0 = Men, 1 = Women

Values in parentheses are reliabilities. The first number is Cronbach's alpha, the second number is Omega total, the third number is Greatest Lower Bound

As can be seen from Table 13, all agency factors (measured at Time 1), except dominant agency, were significantly positively correlated with promotability measured at Time 2 ($ps < .001$). Dominant agency was significantly negatively correlated with promotability ($r = -.18, p = .01$). Consistent with the previous studies, I did not find that male or female subordinates were perceived differently on agentic factors, nor were women subordinates perceived as less promotable than men subordinates.

Finally, to further establish the predictive validity of the six-factor model relative to the one-factor model, I also conducted two separate regressions predicting perceived promotability using the one-factor measure of agency (Model 1, $R^2 = .37$) as opposed to a six-factor model of agency (Model 2, $R^2 = .57$), and I found that the six-factor model of agency performed significantly better than the one-factor model (see Table 12). Consistent with Study S2, in the regression with all six factors predicting perceived promotability, I found that ambitious, independent, competent, and hardworking agency had significant unique predictive effects ($ps < .05$).

Appendix I: An Experimental Test of Agentic Advantage (Study S4)

Study 4 provided suggestive evidence that women are advantaged or disadvantaged depending on the type of agency they are perceived to possess. However, it was a correlational study, and therefore I could not make causal inferences about the role of agency perceptions in shaping leader evaluations. In this study, I employed a vignette describing either a highly competent (vs. ambitious or dominant) male or female leader. I chose to manipulate these three types of agency because they are representative of the three facets of the motivation-influence-ability (MIA) model.

Drawing on positive expectancy violation theory, I propose that agentic-rewards may be driven by people's stereotypic beliefs about women's agency. According to expectancy violation theory, people generally react to positive stereotype violations in two ways – assimilation and contrast (Jussim, Coleman, & Lerch, 1987). Schaumberg and Flynn (2017, p. 1862) draw on an “assimilation account of expectancy violation” and found that “positive expectancy violations... can be “added to” existing stereotypes... [and thus] the violator can benefit from “the best of both worlds;” he or she is assumed to possess positive stereotypical qualities by nature of his or her group membership, and positive counterstereotypical qualities by nature of his or her idiosyncratic expression of these traits.” As a result, Schaumberg and Flynn (2017) found that self-reliant women

(vs. men) are perceived as more effective because they are judged as being both agentic (i.e., self-reliant) and communal, whereas self-reliant men are perceived only as agentic.

However, in addition to an assimilation effect described by Schaumberg and Flynn (2017), a contrast effect might also occur¹⁶. According to the contrast account of expectancy violation, when a person's behaviors violate other's expectations, evaluations of the person will become more extreme in the direction of the valence of the expectancy violation (Jussim et al., 1987). Put simply, a person who is not expected (vs. is expected) to possess a positive quality will be evaluated more favorably when she or he demonstrates the quality. For example, a successful Black (vs. White) American is evaluated more favorably because people are less likely to expect that Black Americans in general are successful (Jussim et al., 1987). Indeed, Bettencourt and colleagues (1997) have found the resulting evaluation extremity was driven by how "unexpected" and "fitting" the positive expectancy violating behavior was perceived.

Therefore, consistent with the contrast account of positive expectancy violations, I predict that because qualities like independence, ambition, competence, self-assuredness

¹⁶ Both the contrast and "assimilation" accounts may operate in tandem to explain why female (vs. male) leaders who are competent, independent, self-assured, and hardworking are judged as more effective. Put simply, highly competent (vs. ambitious or dominant) female (vs. male) leaders are evaluated as more effective because these women (vs. men) are evaluated more extremely on leader evaluations (due to a contrast effect) as well as more communal than men (due to an assimilation effect).

and hardworkingness are perceived as positive and desirable (Prentice & Carranza, 2002), female (vs. male) leaders who demonstrate these qualities should therefore be evaluated more favorably, but this effect should only occur when people do not expect (vs. do expect) women to possess these agentic qualities. To assess people's expectations about whether women in general possess these positive types of agency, I used a measure of descriptive stereotypic expectations about women's agency, which captures people's beliefs about how in general women *are* like (Gill, 2004). I expected that people's stereotypic beliefs about women's agency will interact with leader gender and the experimental manipulation of agency, such that people will perceive that the highly competent female (vs. male) leader as significantly more effective when they hold the general expectation that women, in general, are less competent than men. Further, I predicted that the agentic advantage effect should be uniquely elicited by stereotypic beliefs about women's competence (vs. ambition or dominance) because agency factors may also be distinct within the context of descriptive gender stereotypes.

Method

Participants and procedure. I recruited 601 full- and part-time professionals using Amazon Mechanical Turk. Since this was a 2 (Leader Gender: male, female) X 3 (Agency Type: ambitious, competent, dominant agency) between-subjects experiment, participants were randomly assigned to one of six experimental conditions. All

participants were told that the purpose of the study was to evaluate leaders based on their performance evaluations. The vignettes used in this study were adapted from past research (Study 4, Rosette, Leonardelli, & Phillips, 2008). Participants read the performance evaluation of either a highly agentic male (“Samuel”) or female leader (“Susan”). They then read a brief performance summary of the leader, in which the leader was described as either highly ambitious, competent, or dominant. Consistent with Study 4, I expected that the highly competent female (vs. male) leader will be evaluated as most effective across the three conditions.

Leader gender manipulation. I manipulated the gender of the leader by changing the name of the leader (i.e., Susan vs. Samuel) and also explicitly noting that this person was a man or woman.

Agency manipulation. I manipulated agency type in the performance summary description. In the high ambitious agency condition, the leader was described as having “extraordinary ambition... always setting challenging and ambitious goals, seeking promotions and trying to take on new leadership responsibilities.” In the high competent agency condition, the leader was described as having “extraordinary competence and intelligence... has an incredible breadth of skill, knowledge and expertise and completes all projects in the most efficient manner,” and in the high dominant agency condition, the leader was described as having an “extraordinary and interpersonally forceful leadership

style¹⁷... is able to demand dramatic change from colleagues who are performing below expectations.”

Perceived leader effectiveness. After viewing the vignettes, participants responded to a measure of leader effectiveness using the same measure in Study 4 (Ng et al., 2008).

Stereotypic expectations about women’s agency. I assessed participant’s stereotypic expectations about women’s agency using the 25-item MIA model of agency that was developed earlier. That is, participants responded to the measure, “Most people believe that, on average, women are... competent, capable, intelligent” on a 7-point semantic scale (-3 = *less than men*, 0 = *equal to men*, 3 = *more than men*).

Perceptions of leader’s agency. To ensure that the manipulations of agency were effective,¹⁸ I assessed participant’s perceptions of leader’s agency using the 25-item MIA measure of agency. That is, participants responded to the measure, “Susan/Samuel is... competent, capable, intelligent” on a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). I expected that perceptions of leader’s ambitious agency (or agentic-motivation) will be highest in the ambitious (vs. dominant or competent) agency condition.

¹⁷ I included a manipulation of dominant agency that did not have negative connotations to examine if high dominant agency (vs. competent or ambitious agency) lowers perceived leader effectiveness when it is framed more positively.

¹⁸ These items also afford a test of whether female and male leaders are perceived differently in terms of agentic perceptions when they are described as demonstrating the same behaviors.

Perceptions of the leader's dominance will be highest in the dominant (vs. ambitious or competent) agency condition. Finally, perceptions of the leader's competence will be highest in the competent (vs. ambitious or dominant) agency condition.

Results and Discussion

Means and inter-correlations between variables can be found in Table 14. To examine if the agency manipulation was successful, I first regressed perceptions of competent agency on the multi-categorical manipulation of agency. In this regression, I also controlled for perceptions of leader's independent agency, self-assuredness agency, hardworking agency, dominant agency, and ambitious agency. I controlled for these leader agency perceptions because the competent agency manipulation could have had spillover effects on other leader agency perceptions. For example, a leader who is described as highly competent might also be perceived as highly hardworking. After controlling for the other five leader agency perceptions, I found a significant effect of the experimental manipulation of agency, $F(2, 593) = 3.81, p = .023$. Contrast analyses indicated that the leader who was described as highly competent ($M = 6.21$) was judged as more competent than the leader who was described as highly ambitious ($M = 6.08$), $b = -.11, SE = .05, p = .010$, and highly dominant ($M = 6.10$), $b = -.13, SE = .05, p = .010$.

The effect of agency experimental manipulation on perceived competent agency was not moderated by leader gender ($p = ns$), suggesting that female (vs. male) leaders were not judged as more or less competent when described as engaging in the same behaviors.

Table 14: Correlations between agency, gender stereotypes, and leader evaluations (Study S4)

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Ambitious agency stereotype	4.05	1.17															
2. Dominant agency stereotype	3.46	1.21	0.47***														
3. Competent agency stereotype	4.17	1.04	0.59***	0.32***													
4. Self-assured agency stereotype	4.09	1.16	0.63***	0.43***	0.61***												
5. Independent agency stereotype	3.94	1.19	0.62***	0.40***	0.64***	0.72***											
6. Dedicated agency stereotype	4.39	0.97	0.48***	0.30***	0.62***	0.54***	0.58***										
7. Leader's ambitious agency	6.03	0.91	-0.06	-0.12**	-0.05	-0.05	-0.06	0.07									
8. Leader's dominant agency	4.45	1.38	0.06	0.22***	0.08*	0.03	0.03	0.05	0.18***								
9. Leader's competent agency	6.13	0.94	-0.03	-0.13**	-0.04	-0.05	-0.04	0.07	0.71***	-0.02							
10. Leader's self-assured agency	5.95	0.92	-0.01	-0.14***	-0.03	-0.05	-0.05	0.07	0.73***	0.16***	0.72***						
11. Leader's hardworking agency	6.13	0.94	-0.05	-0.15***	-0.06	-0.06	-0.07	0.08*	0.70***	0.03	0.82***	0.74***					
12. Leader's independent agency	5.74	1.00	-0.04	-0.12**	-0.03	-0.04	0.01	0.05	0.58***	0.07	0.58***	0.70***	0.65***				
13. Leader's effectiveness	5.97	0.86	-0.03	-0.12**	-0.03	-0.03	-0.06	0.05	0.61***	-0.03	0.75***	0.63***	0.70***	0.52***			
14. Leader's gender ¹	0.47	0.50	-0.03	0.02	0.02	0.01	0.06	0.02	0.03	-0.04	0.08*	0.07	0.11**	0.11**	0.08		
15. Experimental manipulation of agency ²	2.00	0.82	0.04	0.06	-0.02	0.02	0.01	0.03	-0.06	-0.26***	0.07	-0.07	0.02	-0.08	0.05	0.01	

N = 601

¹Gender: 1 = female, 0 = male

²Agency manipulation: 1 = dominant agency, 2 = ambitious agency, 3 = competent agency

****p* < .001, ***p* < .01, **p* < .05

I conducted the same analyses with the agency manipulation as the independent variable, the other five leader agency perceptions as covariates, and supervisor's dominant agency as the dependent variable. I found a significant effect of agency manipulation, $F(2, 593) = 15.93, p < .001$. Contrast analyses indicated that the leader who was described as highly dominant ($M = 4.85$) was judged as more dominant than the leader who was described as highly ambitious ($M = 4.32$), $b = -.52, SE = .13, p < .001$, and highly competent ($M = 4.15$), $b = -.70, SE = .13, p < .001$. The effect agency manipulation was again not moderated by leader gender ($p = ns$). Finally, I conducted the same analyses with agency manipulation as the independent variable, other five leader agency perceptions as covariates, and supervisor's ambitious agency as the dependent variable. I found a significant effect of agency manipulation, $F(2, 593) = 9.45, p < .001$. Contrast analyses indicated that the leader who was described as highly ambitious ($M = 6.16$) was judged as more ambitious than the leader who was described as highly dominant ($M = 5.99$), $b = -.17, SE = .05, p = .002$, and highly competent ($M = 5.93$), $b = -.23, SE = .05, p < .001$. These analyses indicated that the agency manipulation was successful. Again, the effect agency manipulation on ambitious agency perceptions was not moderated by leader gender ($p = ns$).

Next, I examined the two-way interaction between leader gender and agency experimental manipulation with leader effectiveness as the dependent variable, and I found that it was not significant ($p = ns$). I probed this interaction and found that the highly competent female leader ($M = 6.12$) was evaluated as more effective than the highly competent male leader ($M = 5.92$), although this difference was trending and not significant, $b = .20$, $SE = .13$, $p = .12$. Further, as predicted, there were no gender differences in perceived leader effectiveness in the ambitious leader condition ($M_{men} = 5.86$ vs. $M_{women} = 5.98$). However, interestingly, there were also no gender differences in perceived leader effectiveness in the dominant leader condition ($M_{men} = 5.94$ vs. $M_{women} = 6.03$). This pattern of results suggests that the lack of a two-way agency manipulation and leader gender interaction may have been driven by the fact that I did not observe an agentic disadvantage or penalty in the dominant leader condition. Put simply, when dominant behaviors were framed in a more positive way, women did not appear to be perceived as less effective than men.

Next, I sought to examine the three-way interaction between the agency manipulation condition, leader gender, and participant's stereotypic expectations about the women's competent agency. Supporting my prediction, a significant 3-way interaction with perceived leader effectiveness as the dependent variable emerged, $F(2,589) = 3.96$, $p = .020$ (Figure 4). To localize the effect of the three-way interaction, I

conducted contrast analyses. The two-way interactions between leader gender and participant's stereotypic expectations about women's competence were not significant within the dominant and ambitious agency experimental condition. Within the competent agency condition, a significant interaction between leader gender and stereotypic expectations about women's competence emerged, $F(1, 589) = 4.80, p = .020$. Simple slope analyses suggested that the highly competent female leader was perceived as more effective when people did not believe (vs. did believe) that women in general are less competent than men, $b = -.19, SE = .08, p = .025$. The simple slope for the highly competent male leader was not significant, $b = .08, SE = .08, p = ns$, suggesting that the two-way interaction within the competent agency manipulation condition was largely driven by people's evaluations of the highly competent female leader¹⁹.

¹⁹ I also examined the three-way interactions between the agency manipulation condition, leader gender, and participant's stereotypic expectations about the women's ambitious as well as dominant agency. I found a significant interaction between agency manipulation condition, leader gender, and participant's stereotypic expectations about the women's ambitious agency, $F(2,589) = 3.29, p = .038$, but not dominant agency, $F(2,589) = 2.42, p = .090$. This could have been due to the fact that all six agency factors appear to be positively correlated ($r_s = .32$ to $.72$) when assessing group (i.e. people's perceptions of how men and women are like) as opposed to person perceptions (i.e., judgments of Susan or Samuel, see Table 14).

Taken together, these results provide support for the contrast account of positive expectancy violations²⁰.

²⁰ I also examined whether competent (vs. ambitious and dominant) female (vs. male) leaders are evaluated more positively because these women (vs. men) are judged as more communal. Across agency experimental conditions, I found that the female leader ($M = 4.83$) was indeed perceived as more communal than the male leader ($M = 4.60$), $b = .23$, $SE = .12$, $p = .045$, and that judgements of leader communality were positively associated with leader effectiveness, $b = .20$, $SE = .05$, $p < .001$. However, the effect of leader gender on leader communality was not moderated by the agency manipulation condition ($p = ns$), suggesting that people judge female (vs. male) leaders as more communal regardless of the type of agency they display. Indeed, mediational analyses with leader gender as the independent variable, perceived leader communality as the mediator, and leader effectiveness as the dependent variable revealed a significant indirect effect, $Coeff = .05$, $SE = .03$, 95% C.I. [.0014, .1066], suggesting that female leaders are perceived as more effective than male leaders to the extent that they are also perceived as more communal. Taken together, these findings provide support for the “assimilation” account of positive expectancy violation (Schaumberg & Flynn, 2017).

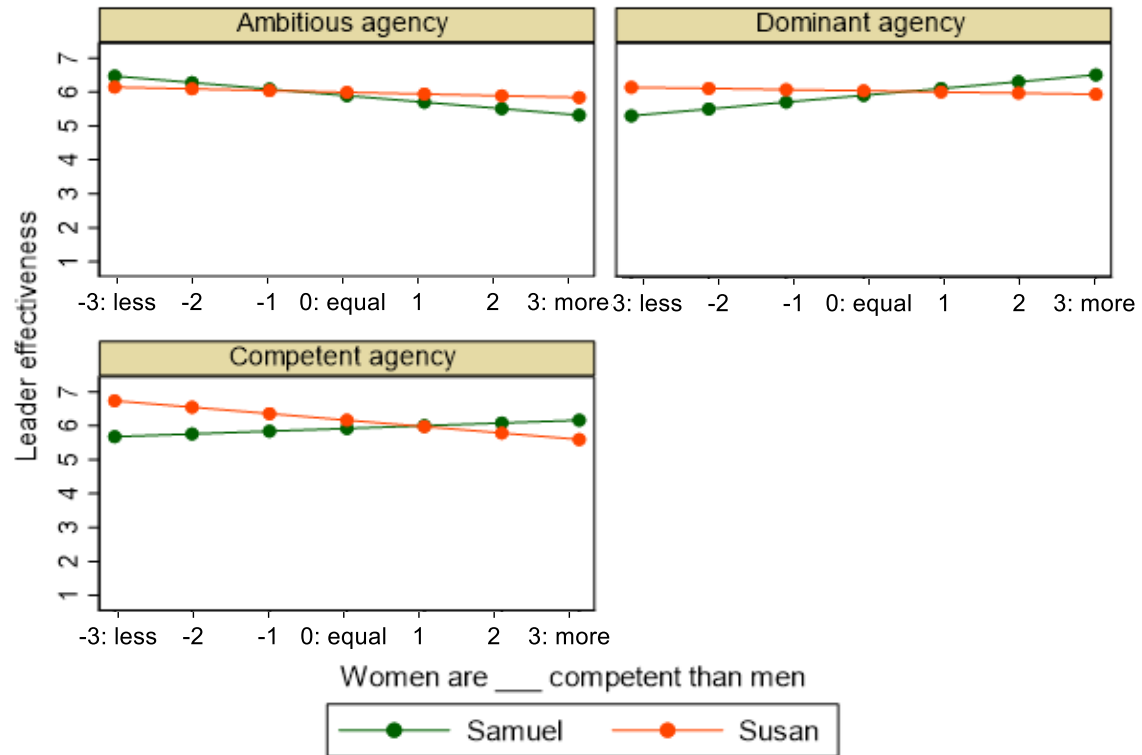


Figure 4: The three-way interaction between leader gender, stereotypical expectations of women's competence, and agency manipulation

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Biography

Anyi Ma received her B.B.A with Honors in Business from National University of Singapore in 2014. She has published two articles “Take it or leave it!” A choice mindset leads to greater persistence and better outcomes in negotiations” (Ma, Yang, & Savani, 2019) and “Compensatory control and ambiguity intolerance” (Ma & Kay, 2019) in *Organizational Behavior and Human Decision Processes*, two articles “Psychological reactance as a function of thought versus behavioral control” (Ma, Tang, & Kay, 2019) and “A control-based account of stereotyping” (Ma, Axt, & Kay, 2019) in *Journal of Experimental Social Psychology*, one article “Thought-control difficulty motivates structure seeking” (Ma, Narayanan, Landau, & Kay, 2019) in *Journal of Experimental Psychology: General*, and one article “Race matters for women leaders: Intersectional effects on agentic deficiencies and penalties” (Rosette, Koval, Ma, & Livingston, 2016) in *Leadership Quarterly*. She has received these fellowships for her academic work and research: Ottis Green Fellowship, Ernest Becker Foundation Diversity Travel Award, Kenan Graduate Fellowship, Society for Personality and Social Psychology Travel Award, Lim Kim San Fellowship, Duke Interdisciplinary Behavioral Research Center Grant.