Individual-Level Entrepreneurial Behaviors: Essays on Employees' Entrepreneurial Behavior, Entrepreneurial Entry and Women's Entrepreneurial Intentions

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Table of Contents

List of Tables

List of Figures

List of Abbreviations

AIC	Akaike information criterion
ANOVA	Univariate analysis of variance
APS	Adult population survey
AVE	Average variance extracted
b/B	Coefficient value
BDS	Business Dynamics Statistics
BootLLCI	Bootstrapped lower level confidence interval
BootULCI	Bootstrapped upper level confidence interval
CEO	Chief executive officer
cf.	Confer
CFA	Confirmatory factor analysis
CFI	Comparative fit index
CI	Confidence interval
CLT	Construal level theory
CMB	Common method bias
CMV	Common method variance
CPS	Current population survey
CR	Composite reliability
df	Degrees of freedom
e.g.	Exempli gratia / for example
et al.	Et alii / and others
ETP	Entrepreneurship Theory and Practice
GDP	Gross domestic product
GEM	Global Entrepreneurship Monitor
GGGI	Global Gender Gap Index
GGGR	Global Gender Gap Report
i.e.	Id est / that is
I1-I10	Interviewee 1-10
IT	Information technology
JBV	Journal of Business Venturing
M	Mean value
Max	Maximum value
Min	Minimum value
n	Sample size
NAICS	North American Industry Classification System
No.	Number
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary least squares
p	Significance level
p.	Page
PCF	Perceived construal fit
PLS	Partial least squares

r	Intercorrelation
R^2	R-squared
RFT	Regulatory focus theory
RMSEA	Root mean square error of approximation
ROT	Real options theory
SD	Standard deviation
SE	Standard error
SEJ	Strategic Entrepreneurship Journal
SIPP	Survey of Income and Program Participation
SMEs	Small and medium-sized enterprises
SOC	Standard Occupational Classification
t	Time
t	T-statistics
TLI/NNFI	Tucker-Lewis Index/ Nonnormed Fit Index
U.E.	Uncertainty in entrepreneurship
U.P.E.	Uncertainty in paid employment
WEF	World Economic Forum
WTAE	Willingness to act entrepreneurially
α	Cronbachs's alpha
Δ	Delta
χ^2	Chi squared
%	Percent

A. Introduction

1 Focus of the Dissertation

Entrepreneurship is frequently described as the pursuit and exploitation of entrepreneurial opportunities (Shane and Venkataraman, 2000; Shane, 2003), but individual-level entrepreneurial behaviors can have many forms. On the one hand, individuals can be entrepreneurial within companies by engaging in innovative and proactive behaviors as well as by exhibiting a willingness to take risks (De Jong et al., 2015). On the other hand, individuals can pursue entrepreneurial endeavors by establishing their own businesses and abandoning their paid employment as an alternative career path (Klyver et al., 2020). The two types of individual-level entrepreneurial behaviors can contribute to a country's innovative development both indirectly, through assisting companies to become more entrepreneurial, and directly, through the creation of new businesses. In sum, individuals' engagement in entrepreneurial behaviors provides companies with a competitive edge over their competitors (Elert and Stenkula, 2020; Ireland et al., 2009) and it is one of the major drivers of a country's economic and innovative growth (Ács et al., 2008; Goltz et al., 2015).

However, there are many factors that keep individuals from engaging in entrepreneurial behaviors and influence their entrepreneurial decision-making (Shepherd et al., 2015). In companies, entrepreneurial activities are highly related to ambiguity and stress (Hmieleski and Baron, 2008; Monsen and Boss, 2009) and engaging in entrepreneurial activities can even have negative consequences for employees if the entrepreneurial endeavor fails (Afsar et al., 2017; De Jong et al., 2015). Further, behaviors which aim at changing the status-quo and pursuing new opportunities involve high risks and thus are in conflict with employees' tendency to prefer security (Sauermann, 2018). Similarly, choosing to become self-employed and establishing your own business as an alternative to being in paid employment also involves uncertainty.

Consequently, individuals may refrain from entering full-time entrepreneurship and choose to keep their paid employment while simultaneously taking a first step into entrepreneurship if they perceive that there is a high uncertainty associated with their entrepreneurial endeavor (Folta et al., 2010; Wennberg et al., 2006). Finally, an impediment to forming entrepreneurial intention (i.e., a willingness to become self-employed in the future), which particularly pertains to female entrepreneurship, is women's tendency to lack self-confidence and to underestimate their individual-level resources' value (Brush, 2006; Goltz et al., 2015; Vracheva and Stoyneva, 2020). Thus, to increase individuals' engagement in entrepreneurial behaviors, we need to understand what motivates individuals in different situations to pursue entrepreneurial activities and how various cognitive processes and determinants shape their decision-making and intention formation. This dissertation adds to our understanding by exploring three distinct research areas: (1) employees' entrepreneurship within companies, (2) individuals starting their own companies while being employed and (3) the particularities of female entrepreneurship.

In the context of companies seeking to increase entrepreneurship, prior research investigates several antecedents of employees' entrepreneurial behavior, such as the organizational structure and climate (Hornsby et al., 2009; Ireland et al., 2009; Kang et al., 2016; Monsen et al., 2010). Further, particularly leader communication, such as the communication of entrepreneurial visions and goals, can be a useful tool to positively influence employees (Rigtering et al., 2019). Entrepreneurial visions do not only provide inspiration, but also convey the entrepreneurial direction of the company (Ireland et al., 2009; Preller et al., 2020), increasing individuals' willingness to act entrepreneurially (Afsar et al., 2017; Bateman and Crant, 1993). Entrepreneurial goals comprise specific instructions, which can help reduce the uncertainty and ambiguity associated with entrepreneurial tasks (Gawke et al., 2018; Reid et al., 2018). As such, entrepreneurial goals provide clear instructions and guidelines, and lower employees' reluctance to engage in entrepreneurial behaviors. Further, research suggests that

the influence of motivational factors, such as leader communication, may differ depending on individuals' goal orientations, such as individuals' regulatory foci (Ahmadi et al., 2017; McMullen et al., 2009).

In the context of independent entrepreneurs, a highly important aspect influencing individuals' decision-making is uncertainty (e.g., Kihlstrom and Laffont, 1979; Parker et al., 2005). Particularly exogenous uncertainty pertaining to the entrepreneurial venture, which individuals cannot change, influences how individuals become entrepreneurs. If uncertainty in entrepreneurship is high, individuals prefer to keep their paid employment while engaging in entrepreneurial endeavors, an entry mode coined hybrid entrepreneurship (Folta et al., 2010; Wennberg et al., 2006). Keeping the paid employment provides security, which gives entrepreneurs time to test their entrepreneurial ideas and to wait until uncertainty resolves, before fully engaging in entrepreneurship and abandoning the paid employment (Folta et al., 2010; Raffiee and Feng, 2014). In addition, initial evidence suggests that individuals' paid employment may also be subject to uncertainty (Berkhout et al., 2016; Sorgner and Fritsch, 2018), which can further affect entrepreneurial decision-making.

In the context of female entrepreneurship, a highly important issue is women's tendency to lack confidence in their resources' value (Brush, 2006; Goltz et al., 2015; Vracheva and Stoyneva, 2020), which keeps them from forming entrepreneurial intentions. Specifically, recent research highlights that women exhibit lower entrepreneurial intentions than men (Cardella et al., 2020; Elam et al., 2019), resulting in a wide gap in entrepreneurship participation between women and men. Thus, a pertinent question is how to close this gender gap in entrepreneurship. Changing women's views of their individual-level resources could be key to encouraging them to engage in entrepreneurial endeavors. In this regard, prior research also highlights the important role of the institutional environment, and specifically of gender equality of the institutional environment, to help change women's perceptions and attitudes

(Pathak et al., 2013; Shinnar et al., 2012; Zhao and Yang, 2020). By understanding how women form entrepreneurial intentions and how they can be supported and encouraged, research can take a step toward closing the gender gap in entrepreneurship.

In sum, the current dissertation explores three different types of entrepreneurial behaviors, i.e., *employees' willingness to act entrepreneurially*, individuals' choice between the *hybrid and full-time mode of entry* into entrepreneurship and *women's entrepreneurial intention* formation. First, by drawing on insights from construal level theory, this dissertation focuses on untangling the cognitive process how leader communication influences employees' willingness to act entrepreneurially and how individuals' promotion and prevention foci moderate this relationship. Second, by applying real options reasoning, this dissertation investigates how uncertainty in entrepreneurship and uncertainty in paid employment influence individuals' choice between the hybrid and full-time mode of entry. Specifically, by delineating hybrid entrepreneurship as a portfolio consisting of two underlying options, this dissertation theoretically establishes how the two uncertainties can influence the portfolio value jointly and in isolation. Third, this dissertation explores how different types of individual-level resources influence women's intention formation and how these relationships depend on the gender equality of the institutional environment.

Overall, the findings of this dissertation contribute to a more nuanced understanding of cognitive processes in entrepreneurship in general (Shepherd et al., 2015). It adds to research on antecedents of entrepreneurial behavior within organizations (Hornsby et al., 2009; Ireland et al., 2009; Kang et al., 2016; Kuratko et al., 2005); it advances our understanding of the concept of hybrid entrepreneurship (Folta et al., 2010; Raffiee and Feng, 2014; Schulz et al., 2021), which is the most common entry mode into entrepreneurship worldwide (Klyver et al., 2020; Minniti, 2010); and it provides crucial insights for closing the gender gap in

entrepreneurship and for leveraging women's untapped potential as future entrepreneurs (De Bruin et al., 2007; Shepherd et al., 2015).

This dissertation draws on different methodologies and datasets. In study 1, the primary analysis was an online experiment conducted with German employees, who were recruited via a fieldwork agency. The data was analyzed using a moderated mediation model and bootstrapped indirect effects were calculated to test the hypothesized relationships. In addition, to validate the findings, complementary qualitative evidence was collected in the form of semi-structured interviews with ten German employees. Further, the study includes extensive external validity and construct validity tests. The second study relies on secondary data from the U.S. Current Population Survey (CPS) and the U.S. Survey of Income and Program Participation (SIPP). The data was analyzed using hierarchical logistic regressions. To account for potential sample selection effects, a Heckman selection model was estimated. It models both the choice of entering into entrepreneurship as opposed to staying in paid employment in a first step and the choice between the hybrid and full-time mode of entry as a second step. The third study combines secondary data from the Global Entrepreneurship Monitor (GEM) with information from the Global Gender Gap Report (GGGR) provided by the World Economic Forum (WEF). The primary analysis was a hierarchical logistic regression. Further, a robustness check was conducted to control for women's opportunity motives.

2 Research Gaps

Individuals' entrepreneurial behavior is a very diverse research field and over the years, researchers have made significant progress in contributing to our understanding and have accumulated an ever growing body of knowledge. However, there still remain certain unexplored aspects, which the present dissertation seeks to close.

The first gap the dissertation seeks to close concerns employees within organizations and how they can be encouraged to show a willingness to act entrepreneurially. This is an important question for companies seeking to be more entrepreneurial, as their employees take center stage and all members across all hierarchies need to pitch in to implement the company's goals (Corbett, 2018; Wales et al., 2011). While recent research argues that there are various motivational factors designed to encourage their employees' entrepreneurial behavior (e.g., reward and incentive systems or the organizational environment) (Hornsby et al., 2009; Ireland et al., 2009; Kang et al., 2016; Monsen et al., 2010), research largely neglects taking a cognitive perspective. However, to understand why employees engage in entrepreneurial behavior, we need to know how motivational stimuli are presented to them and how they receive them.

Working entrepreneurially can expose employees to uncertainty, ambiguity, and stress (Hmieleski and Baron, 2008; Monsen and Boss, 2009; Reid et al., 2018). Moreover, failed entrepreneurial behavior can negatively affect employees' careers (De Jong et al., 2015; Kuratko et al., 2005). Given these impediments it is especially relevant for companies to understand how their employees can be successfully encouraged. Leader communication is a promising avenue to influence employees (Rigtering et al., 2019). In leader communication situations, leaders from different hierarchical levels convey different motivational messages to their followers, such as entrepreneurial visions (i.e., abstract motivational statements (Berson et al., 2015)) and entrepreneurial goals (i.e., concrete expectations of work behavior (Latham, 1979)). However, the cognitive process underlying the relationship between leader communication and employees willingness to act entrepreneurially is still unexplored. Further, employees' personal motivation and goal orientations are very diverse (Ahmadi et al., 2017; McMullen et al., 2009) and they can make employees more or less receptive to motivational messages. Therefore, there is a need to understand the relationship between leader

communication, employees' perception and their willingness to act entrepreneurially on a cognitive level. In sum:

> *RQ1:* How does the communication of entrepreneurial visions and goals by leaders from different hierarchical levels shape employees' underlying cognitive process, which ultimately influences their willingness to act entrepreneurially?

The second gap this dissertation seeks to fill concerns individuals' choice how to enter into entrepreneurship, that is, their choice between the hybrid and full-time mode of entry into entrepreneurship. Worldwide, the majority of entrepreneurs choose to become hybrid entrepreneurs, that is, they keep their paid employment while simultaneously starting an entrepreneurial venture instead of directly entering into entrepreneurship full-time (Klyver et al., 2020; Minniti, 2010). However, up to now, there is little research on what determines the choice between the hybrid and full-time mode of entry. Previous research suggests hybrid entry is particularly common when uncertainty pertaining to the entrepreneurial venture is high (Wennberg et al., 2006), as hybrid entry allows individuals to 'test the entrepreneurial waters' while keeping the security of the paid employment (Folta et al., 2010; Raffiee and Feng, 2014) before fully immersing into entrepreneurship at a later point in time. However, research neglects that hybrid entry does not only consist of the option to enter into entrepreneurship but also of the option to abandon the paid employment. This means that hybrid entry is in fact a portfolio consisting of two options and prior real options research argues that the value of a portfolio is determined by the uncertainties underlying the single options within the portfolio (Anand et al., 2007; Trigeorgis, 1993).

So far, entrepreneurship research builds on the assumption that the uncertainty in paid employment is frequently very low and thus not relevant for individuals' entry decision (e.g., Kihlstrom and Laffont, 1979; Parker et al., 2005; Raffiee and Feng, 2014). Yet we know from

research on labor economics that uncertainty in paid employment can be an important factor driving individuals' employment change (Dillon, 2018; Liu, 2019), suggesting that it may also play an important role for individuals' entry mode choice into entrepreneurship. Therefore, the hybrid entrepreneurship literature lacks insight how the uncertainty in entrepreneurship as well as the uncertainty in paid employment can both jointly and in isolation affect individuals' choice of how to enter entrepreneurship, leading to the second research question:

> *RQ2:* How do uncertainty in entrepreneurship and uncertainty in paid employment jointly and in isolation influence individuals' choice between hybrid and full-time entry into entrepreneurship?

The last research gap the dissertation addresses concerns women's intentions to become entrepreneurs. Specifically, we know that in developed countries significantly fewer women engage in entrepreneurial activities than men (Cardella et al., 2020; Elam et al., 2019). However, women are an integral part of the labor force (Aldrich and Cliff, 2003) and their underrepresentation in entrepreneurship means that countries miss out on economic development by neglecting women's potential as future entrepreneurs (Guzman and Kacperczyk, 2019). Therefore, it is important to understand what factors can help motivate women to engage in entrepreneurial endeavors, that is, what factors increase their entrepreneurial intentions to be able to close the gender gap in entrepreneurship.

Previous entrepreneurship research identifies individual-level resources such as social, human, and financial capital as particularly relevant for entrepreneurship (Boudreaux and Nikolaev, 2019; De Clercq et al., 2013). However, as of yet, there is still little research focusing on how these resources affect women and which environments may be particularly conducive to foster female entrepreneurship. Generalizing results from mixed-gender samples can be problematic, as we know that women assess their own resources and the environment differently than men

(Tonoyan et al., 2020; Zhao and Yang, 2020). While recent research suggests that the gender equality of the institutional environment can influence women's entrepreneurial attitudes and perceptions (Pathak et al., 2013), it is not yet explored how gender equality can affect women's view of their individual-level resources. Therefore, it is high time to investigate the relationship between individual-level resources and women's entrepreneurial intention formation and to explore how gender equality can change this relationship, leading to the third research question:

> *RQ3:* How do women's individual-level resources influence the formation of women's entrepreneurial intentions and how does gender equality of the institutional environment affect this relationship?

3 Research Objectives

3.1. Overview of the Studies

This dissertation comprises three distinct papers investigating different types of individual-level entrepreneurial behaviors and their determinants. Table A-1 gives an overview of the most important characteristics of each study. All studies have distinct research questions and contributions and draw on methodological approaches and theory, which are most pertinent to explore the hypothesized relationships.

Table A-1: Characteristics of the Three Studies Included in this Dissertation

	Title	Research Objective	Contribution	Theoretical Perspective	Core Constructs	Methodology	Sample
Study 1	All hands on deck – How leader communication encourages employees' willingness to act entrepreneurially	Examining how construal fit/misfit situations influence employees' entrepreneurial behavior mediated by employees' perceived misfit and moderated by their regulatory focus.	Untangling the cognitive process through which leader communication influences employees' willingness to act entrepreneurially. Introducing employees' promotion focus as an important boundary condition of the direct relationship.	Construal Level Theory; Regulatory Focus Theory	Dependent Variable: Employees' Willingness To Act Entrepreneurially Independent Variable: Construal Fit/Misfit Mediator: Perceived Construal Fit Moderators: Promotion & Prevention Focus	Experiment, Moderated Mediation Model Semi-Structured Interviews	Primary Data: 719 German employees recruited via a fieldwork panel 10 interviews with German employees
Study 2	Sitting on the fence – Untangling the role of uncertainty in entrepreneurship and paid employment for hybrid entry	Examining how uncertainty in entrepreneurship and uncertainty in paid employment jointly influence whether individuals choose hybrid entry over full-time entry into entrepreneurship.	Theoretically delineating that hybrid entry is a portfolio consisting of two distinct underlying options. Showing the importance of uncertainty in paid employment for both the decision whether and how to enter into entrepreneurship in a two-stage model.	Real Options Theory	Dependent Variable: Hybrid Entry Independent Variable: Uncertainty in Entrepreneurship Moderator: Uncertainty in Paid Employment	Hierarchical Logistic Regression, Heckman Selection Model	Secondary Data: 6,673 individual-level observations from the US
Study 3	Individual-level resources and women's entrepreneurial intentions – The moderating role of gender equality	Examining the relationship between individual-level resources (social, human, and financial capital) and women's entrepreneurial intentions moderated by gender equality in developed countries.	Contributing to an in depth understanding of how individual-level resources affect women's entrepreneurial intentions. Expanding the understanding how gender equality of the institutional environment can affect women's perceptions of their resources.	Theory on Individual-Level Resources; Institutional Theory	Dependent Variable: Women's Entrepreneurial Intention Independent Variable: Individual-Level Resources Moderator: Gender Equality	Hierarchical Logistic Regression	Secondary Data: 147,807 individual-level observations from 36 OECD countries

3.2. Study 1: All hands on deck – How leader communication encourages employees' willingness to act entrepreneurially

The first study included in my dissertation examines the relationship between leader communication of entrepreneurial goals and visions and employees' willingness to act entrepreneurially, which is mediated by employees' perceived fit and moderated by their regulatory foci, i.e., their promotion and prevention focus.

The study draws on construal level theory (Berson et al., 2015) to describe how construal fit and misfit situations can affect individuals' perceived construal fit, which represents individuals' receptiveness to the communicated message (March, 1994; Weber et al., 2004). This perception of construal fit ultimately affects whether individuals are willing to embrace the communicated message and engage in the prescribed entrepreneurial behavior. In other words, perceived construal fit affects employees' willingness to act entrepreneurially. Further, the study builds on rationale of amotivation (Johnson et al., 2010) arguing that individuals with low regulatory foci can especially profit from fitting leader communication, as they lack a strong inner motivation.

The study tests the hypothesized research model with an experiment conducted with 719 German employees who were recruited via a fieldwork agency called "Consumerfieldwork". Further, complementary qualitative evidence was collected to strengthen the credibility of the findings. Specifically, the validity of the research model was explored through the collection of ten semi-structured interviews with German employees.

3.3. Study 2: Sitting on the fence – Untangling the role of uncertainty in entrepreneurship and paid employment for hybrid entry

The second study explores the relationship between uncertainty in entrepreneurship and the hybrid vs full-time mode of entry into entrepreneurship, moderated by uncertainty in paid employment.

To theoretically explore this relationship, the study applies real options reasoning (Trigeorgis, 1996; Trigeorgis and Reuer, 2017) and argues that hybrid entrepreneurship represents not only the option to grow in entrepreneurship but also the option to abandon paid employment and thus a portfolio consisting of two distinct options. An increase in uncertainty in entrepreneurship increases the value of keeping the option in entrepreneurship (Folta et al., 2010; Wennberg et al., 2006), whereas an increase in the uncertainty in paid employment decreases the value of keeping the option in paid employment. Real options theory further suggests that the exercise of one option in a portfolio can erode the value of the second option (Trigeorgis, 1996). We build on this rationale to argue that the exercise of one of the options in the hybrid portfolio makes it more likely that the other option will be exercised as well, as the value of keeping the second option instead of exercising it decreases. It follows that an increase in uncertainty in paid employment, which makes the exercise of the option to abandon the paid employment more likely, weakens the positive effect of uncertainty in entrepreneurship on hybrid entry and thus makes the exercise of the option to grow in entrepreneurship more likely as well.

The study explores the proposed relationship with secondary data obtained from the U.S. CPS and the U.S. SIPP. Specifically, the transitions of 6,673 full-time employees into entrepreneurship are studied. Further, in a Heckman selection model, first, the choice of 1,778,273 employed individuals between entry and staying in employment is investigated and

second, the choice between hybrid and full-time entry is analyzed to control for potential selection effects.

3.4. Study 3: Individual-level resources and women's entrepreneurial intentions – The moderating role of gender equality

The third study investigates the relationship between women's individual-level resources, i.e., their social, human, and financial capital, and women's entrepreneurial intention formation. Further, it explores how gender equality of the institutional environment moderates this relationship.

The study draws on theorizing about individual-level resources (Boudreaux and Nikolaev, 2019; De Clercq et al., 2013) to argue that both social and human capital positively influence women's entrepreneurial intentions by increasing their confidence in their ability and suitability to pursue business opportunities (Cardella et al., 2020; Cetindamar et al., 2012). Further, drawing on research on women's aversion to financial risk, the study suggests that financial capital decreases women's entrepreneurial intentions by making the pursuit of a financially risky career in entrepreneurship less attractive (Dohmen et al., 2011; Lee et al., 2011). The study further draws on institutional theory (North, 1990; Williamson, 2000), to explain how the institutional environment more generally and gender equality of the institutional environment more specifically can alter women's perceptions of the value of their individual-level resources (Estrin and Mickiewicz, 2011; Pathak et al., 2013).

The study explores the proposed relationships with secondary data for 36 highly developed OECD countries obtained from the GEM and combines it with information provided by the GGGR. The final sample consists of 147,807 employed women. A robustness check with 87,128 women investigates if there are differences between the intention formations of potentially opportunity- vs necessity-driven women.

4 Additional Remarks

In the following, I briefly outline the publication state of the single studies. Table A-2 further gives an overview of the contributions of the authors and the conferences where Gertraud Gänser-Stickler presented the papers.

Study 1: Gertraud M., Gänser-Stickler; Katrin, Burmeister-Lamp; Christian, Schwens. „All hands on deck – How leader communication encourages employees' willingness to act entrepreneurially." Unpublished working paper, currently in preparation for submission to the *Strategic Entrepreneurship Journal (SEJ)* – previously under revision in the journal "*Entrepreneurship Theory and Practice (ETP)*" and rejected after three rounds of revisions.

Study 2: Gertraud M., Gänser-Stickler; Matthias, Schulz; Christian, Schwens (2022). "Sitting on the fence – Untangling the role of uncertainty in entrepreneurship and paid employment for hybrid entry." *Journal of Business Venturing*, 37(2). https://doi.org/10.1016/j.jbusvent.2021.106176.[1]

Study 3: Gertraud M., Gänser-Stickler. "Individual-level resources and women's entrepreneurial intentions – The moderating role of gender equality." Unpublished working paper.

Both study 1 and study 2 involved three co-authors, whereas study 3 is a single author paper by Gertraud Gänser-Stickler. Gertraud Gänser-Stickler contributed to study 1 by: writing the original draft as well as writing revised versions and editing (Entrepreneurship Theory and

[1] Owing to JBV's publishing guidelines, study 2's formatting in the current dissertation differs from the published version.

Practice (ETP) submission rejected in third revision round), conceptualizing the paper, collecting the data, and conducting the formal analysis. Katrin Burmeister-Lamp contributed by: supporting in the writing of the original draft and the revised versions, conceptualizing the paper, and providing supervision. Christian Schwens contributed by: supporting in the writing of the original draft and the revised versions, conceptualizing the paper, and providing supervision.

Gertraud Gänser-Stickler contributed to study 2 by: writing the original draft as well as writing reviews and editing, conceptualizing the paper, collecting the data, and conducting the formal analysis. Matthias Schulz contributed by: supporting in the writing of the original draft as well as the revised versions and editing, conducting formal analysis, and conceptualizing the paper. Christian Schwens contributed by: supporting in the writing of revised versions, and providing supervision.

Table A-2: State of Publication of the Three Studies Included in the Dissertation

	Current State	Conferences	Share of Contributions	
Study 1	Unpublished working paper; prepared for submission to *Strategic Entrepreneurship Journal (SEJ)*	Babson College Entrepreneurship Research Conference, Dublin, Ireland, June 06th - 09th , 2018 22th Annual Interdisciplinary Conference on Entrepreneurship, Innovation, and SMEs (G-Forum), Stuttgart, Germany, October 10th - 12th, 2018	Gertraud M. Gänser-Stickler Katrin Burmeister-Lamp Christian Schwens	70% 15% 15%
Study 2	Published in *Journal of Business Venturing (JBV)*	24th Annual Interdisciplinary Conference on Entrepreneurship, Innovation, and SMEs (G-Forum), Online Conference, September 28th – October 2nd, 2020 -nominated for best paper award	Gertraud M. Gänser-Stickler Matthias Schulz Christian Schwens	50% 40% 10%
Study 3	Unpublished working paper	None	Gertraud M. Gänser-Stickler	100%

B. Study 1: All hands on deck – How leader communication encourages employees' willingness to act entrepreneurially

1 Introduction

The entrepreneurial behavior of employees across all hierarchies is crucial for firms to be able to continuously adapt to fast-changing environments (Elert and Stenkula, 2020; Ireland et al., 2009). While prior research examines different antecedents of how to foster entrepreneurial behavior among employees (Hornsby et al., 2009; Ireland et al., 2009; Kang et al., 2016; Monsen et al., 2010), recent work highlights the importance of leader communication (Rigtering et al., 2019). In leader communication, firms' visions (i.e., abstract motivational statements of a firm's direction (Baum and Locke, 2004; Gupta et al., 2004)) and personal goals (i.e., concrete expectations of work behavior (Latham and Locke, 1991; Locke et al., 1981)) are commonly used forms by leaders from different hierarchical levels to influence employees' behavior. However, prior entrepreneurship research largely neglects taking a cognitive perspective on how individuals perceive leader communication of visions and goals to foster entrepreneurial behavior. This gap is surprising since we have long known that differences in individuals' underlying cognitive processes and their interpretation of information determine how they ultimately behave (Dutton and Jackson, 1987; Grégoire et al., 2011; Kuratko et al., 2021; Walsh, 1995). Thus, an important remaining question is *how the communication of entrepreneurial visions and goals by leaders from different hierarchical levels shapes employees' underlying cognitive process, which ultimately influences their willingness to behave entrepreneurially*.

Drawing on insights from construal level theory (CLT) (Berson et al., 2015; Trope and Liberman, 2010), this paper maps out the cognitive process underlying the relationship between leader communication of entrepreneurial visions and goals and employees' willingness to act entrepreneurially (WTAE). While the majority of prior research examining employees'

entrepreneurial behavior studies behavioral outcome variables (e.g., participation in intrapreneurship activities (Gawke et al., 2019)), others derive entrepreneurial behavior from the firm-level concept of entrepreneurial orientation (Blanka, 2019). In line with the latter research, we conceptualize WTAE along three dimensions: innovation, proactivity and willingness to take risks (De Jong et al., 2015). The concept represents "a range of behaviors that entrepreneurial workers may [italics added] engage in" (De Jong et al., 2015: 984). While De Jong et al. (2015) coin this concept 'entrepreneurial behavior', we decided to borrow the label WTAE from Brundin et al. (2008), as we deem it to better capture our concept's intentional focus. Thus, our study aligns with prior research considering intention and motivation to act to be the strongest predictors of actual behavior (Kautonen et al., 2015; Schlaegel and Koenig, 2014; Tumasjan and Braun, 2012).

To map out the cognitive process underlying the relationship between leader communication of entrepreneurial visions and goals and employees' WTAE, we specifically examine how this relationship is *mediated by employees' perceived construal fit* (Berson and Halevy, 2014; Berson et al., 2015). Employees form mental representations (construals), i.e., they categorize how abstractly (high-level construal) or concretely (low-level construal) they perceive leader communication. Perceived construal fit results from the evaluation of construal (mis)fit situations and refers to whether employees perceive a fit between *what* (abstract level vs. concrete level) and by *whom* (socially distant vs. close leader) a message encouraging entrepreneurship is communicated (Berson and Halevy, 2014; Vanderstukken et al., 2019), creating a feeling of rightness (or wrongness). This perception ultimately shapes the willingness to comply with the prescribed behavior.

However, employees differ with regard to their personal motivation and goals (Ahmadi et al., 2017; McMullen et al., 2009), which makes it unlikely that perceived construal fit influences all employees alike. Therefore, we combine the concept of construal fit with regulatory focus

theory (RFT) (Higgins, 1998), which is concerned with individuals' goal orientation, to argue that employees' chronic regulatory foci moderate the relationship between perceived construal fit and employees' WTAE. Specifically, the influence of external stimuli such as leader communication is stronger for individuals with weak regulatory foci, who appear amotivated and lack direction (Johnson et al., 2010), than for individuals with strong regulatory foci. We test our research model on data obtained from an experiment with 719 employees. To further validate our results, we collected qualitative evidence from semistructured interviews with employees.

Our study offers two contributions. First, we advance prior research examining different antecedents of employees' WTAE (and related concepts) (Hornsby et al., 2009; Ireland et al., 2009; Kang et al., 2016; Kuratko et al., 2005) by untangling the underlying cognitive process through which leader communication influences employees' WTAE. That is, by investigating the effect of leader communication (cf. Rigtering et al., 2019) of visions and goals, we take a cognitive perspective, as has been highlighted by prior research (cf. Chen et al., 2018; Kuratko et al., 2005; Marvel et al., 2007), and advance the literature by shifting the focus toward employees' receptiveness of antecedents. Thus, we show that it is insufficient to examine an antecedent's effect to foster entrepreneurship without considering how the respective antecedent was communicated and, in turn, perceived on the side of the employees.

Second, in line with few prior studies (e.g., Chen et al., 2018; Tumasjan et al., 2013), we demonstrate the applicability of CLT in the entrepreneurship context. We continue and advance the existing discussion by identifying regulatory focus as a boundary condition of the perceived construal fit and WTAE relationship. Our finding that individuals who lack a promotion focus are particularly susceptible to fitting/misfitting communication can inform research on how to foster entrepreneurship among employees (Blanka, 2019; Moser et al., 2017). Furthermore, the finding that prevention focus did not exhibit the hypothesized effect suggests that it was not as

salient at the examined stage of the entrepreneurial process, which is in line with prior studies (Brockner et al., 2004; Tuncdogan et al., 2015) and offers opportunities for future research.

2 Theory and Hypotheses

Being willing to act entrepreneurially means going beyond formal work requirements and showing independent initiative (Gawke et al., 2019; Kang et al., 2016). WTAE encompasses, first, being willing to act innovatively, which ranges from introducing incremental efficiency enhancing changes to routines to searching for and exploiting new opportunities (Kuratko et al., 2005). Second, it encompasses being willing to act proactively, which varies from improving the situation for oneself to identifying threats to the company (De Jong et al., 2015) as well as questioning the status quo (Elert and Stenkula, 2020). Third, it encompasses being willing to take risks, which means that employees are aware of the risk of failure and its ensuing consequences but are nonetheless willing to behave entrepreneurially (Gawke et al., 2018).

Risk is an integral part of not only entrepreneurship but also WTAE because employees need to be willing to shake up the status quo and overcome resistance to promote change. Furthermore, employees are aware that failed entrepreneurial initiatives may negatively impact their own careers (Afsar et al., 2017; De Jong et al., 2015). Thus, WTAE can cause stress and ambiguity (Hmieleski and Baron, 2008; Monsen and Boss, 2009). However, when firms want to be entrepreneurial, employees' willingness is crucial because their WTAE determines whether they actually engage in entrepreneurial behavior (Ateş et al., 2020; Wallace et al., 2016). Nonetheless, particularly in large established firms, employees highly value job security (Sauermann, 2018), and thus, they may be deterred by the associated risk (Douglas and Fitzsimmons, 2013; Monsen et al., 2010).

Consistent with the recent study by Rigtering et al. (2019), who suggest that managerial communication is an important link between a firm's entrepreneurial strategy and employees'

WTAE, the present study focuses on leader communication as a central lever for influencing employees' WTAE (O'Reilly et al., 2010; Rigtering et al., 2019). This notion is in line with studies indicating that employees' behavior can be positively influenced through leader communication (Baum and Locke, 2004; Ireland et al., 2009). Specifically, we investigate employees' underlying cognitive process in terms of how they perceive communication of visions and goals by leaders from different hierarchical levels and how their perceptions ultimately affect their WTAE.

We draw on CLT (Berson et al., 2015), a framework that classifies individuals' thought processes into different types of mental representations, so-called construals. According to CLT, the perception of objects, situations or persons can be rather abstract and vague (high-level construal) or concrete with many details (low-level construal) (Trope and Liberman, 2010). Whether an object, situation or person is thought of in abstract or concrete terms depends on the individual's perceived *psychological distance* from the object, situation or person, as well as the abstractness of the representation. For example, the language used in describing the target (e.g., vague vs. concrete) can affect the associated construal level (Joshi et al., 2016). Psychological distance can be perceived in different dimensions: temporal, spatial and social distance as well as hypotheticality, which are interrelated and can separately, jointly or even contrastingly affect the associated construal level (Trope and Liberman, 2010). When people think of situations that lie in the distant future, spatially distant objects, socially distant others or hypothetical events, they perceive them as being abstract. In contrast, when people refer to temporally proximate events, spatially close objects, socially close persons, or concrete objects, they think about specifics and details (Trope and Liberman, 2010). An example of a concrete mental representation is playing tennis, where the individual thinks about a specific action. An example of an abstract mental representation is doing sports, which has many possible interpretations.

We argue that individuals' construal-level perceptions play a particularly important role in the organizational context and, especially, for leader communication of visions and goals for two reasons. First, social distance between leaders and followers is omnipresent within companies. Second, the messages communicated by leaders are subject to construal interpretation, as we outline in detail in the following.

Working in a company, individuals interact with their coworkers and their superiors (Popper, 2013), and *social distance* affects every social interaction. Due to the hierarchical nature of companies, employees are confronted with leaders from different hierarchical levels and with different social statuses (O'Reilly et al., 2010). Typically, employees feel more removed from hierarchically distant leaders, e.g., the manager/CEO, than from close leaders, e.g., a team/project leader (Berson and Halevy, 2014). Consequently, employees may have a more informal and open relationship with close leaders with whom they have day-to-day interactions. In contrast, distant leaders such as CEOs, whom employees might not know personally or from whom they only receive impersonal communication, can appear socially further removed, and the interaction may be more formal. Hence, employees' psychological distance and associated construal level vary with the perceived distance from the leader. While hierarchy is one particularly salient aspect creating social distance in the organizational context, it is not the exclusive factor eliciting social distance. For instance, similar backgrounds in terms of education can create closeness (Liviatan et al., 2008), while personal dislike can create distance. Furthermore, the frequency of interaction and spatial proximity can affect social distance (Trope and Liberman, 2010). In our study, we focus on the aspect of hierarchy as creating social distance.

Furthermore, in the course of leader communication, leaders convey different messages to employees. These messages vary in their level of abstractness (construal level). Visions and goals are commonly used motivational tools that archetypically represent opposite levels of

abstractness (Berson et al., 2015; Carton and Lucas, 2018). While there is a multitude of other forms of organizational communication (cf. Peus et al., 2013), we specifically focus on the communication of visions and goals. Visions are motivational statements of a company's direction, highlighting the company's core values and setting guidelines for behavior by creating a compelling image of the future (Baum and Locke, 2004; Carton and Lucas, 2018; Gupta et al., 2004). Typically, visions are crafted by companies' leaders (Preller et al., 2020), and they are a common leadership tool used to motivate employees to change (Christensen et al., 2006). As visions often refer to *hypothetical end states* that may or may not be realistically achievable, conjure up an idealized *temporally distant future* (Ateş et al., 2020), and frequently use vague language and abstract images, they enhance the likelihood that employees will perceive company visions as being abstract (high construal level) (Berson et al., 2015; Trope and Liberman, 2010; Venus et al., 2019).

In contrast, goals focus on more specific aspects of work behavior (Latham and Locke, 1991; Locke et al., 1981), such as setting performance standards, giving concrete instructions or providing deadlines. Goals typically focus employees' attention directly on a desired activity (Locke and Latham, 2002). The focus on specific targets, concrete tasks and references to aspects that lie in the near future (i.e., *temporally proximate*) makes goals *less hypothetical* and more feasible; thus, it increases the likelihood that employees will perceive goals as being more concrete (low construal level) (Berson et al., 2015; Trope and Liberman, 2010).

Recent research shows that in an entrepreneurial context, visions and goals are particularly pertinent forms of communication (Simsek et al., 2015). An entrepreneurial vision provides inspiration while highlighting the entrepreneurial direction of the company and the commitment to entrepreneurial processes (Ireland et al., 2009; Preller et al., 2020). In particular, aspects such as action orientation, exploration and risk taking are essential elements of an entrepreneurial vision (Ruvio et al., 2010). Moreover, in startups and large corporations,

entrepreneurial visions help mobilize a "supporting cast" that is committed to pursuing an opportunity (Fisher et al., 2020; Gupta et al., 2004: 242; Simsek et al., 2015), and they are crucial to persuade stakeholders such as investors and employees to embrace innovation (Van Balen et al., 2019). Furthermore, empirical evidence shows that a vision can increase employees' WTAE (Afsar et al., 2017; Bateman and Crant, 1993). Goals in an entrepreneurial context, e.g., encouraging entrepreneurial initiatives such as exploiting new opportunities or introducing new products (Gupta et al., 2004; Ireland et al., 2003), are also highly valuable (Baum and Locke, 2004). They help to reduce the increased stress and anxiety that occur due to the high requirements and challenges imposed on employees in a highly dynamic and uncertain environment (Gawke et al., 2018; Reid et al., 2018).

To uncover how communication of leaders from different hierarchies can encourage employees' WTAE, we draw on the concept of *construal fit* (Berson et al., 2015; Wiesenfeld et al., 2017). A construal fit occurs if the abstractness of different aspects (such as the abstractness of a message and the social distance from its communicator) are aligned (Berson and Halevy, 2014; Vanderstukken et al., 2019). Pollack et al. (2020: 926) recommend investigating the fit concept "to successfully match entrepreneurial leadership with organizational followers". Herhausen et al. (2020) show how construal fit can be important for employees' organizational identification, while Vanderstukken et al. (2019) show that leaders are perceived as being more effective in construal fit situations. Furthermore, experienced fit is a strong predictor of individuals' willingness to engage in actual behavior (Ahmadi et al., 2017; Cable and DeRue, 2002; Higgins, 2005; Wiesenfeld et al., 2017).

Referring to the context of leader communication and employees' WTAE, a *construal fit* occurs if the *abstractness of the entrepreneurial message* (abstract vision/concrete goal) and the *social distance* from the leader (distant/close leader) are aligned (Berson et al., 2015). To create a construal fit, socially distant leaders should communicate abstract visions, while socially

proximal leaders should communicate concrete goals (see Figure B-1). Construal fit creates a situation that employees perceive as being consistent.

Figure B-1: Construal Fit/Misfit Situations in Leader Communication

Message Abstractness / *Social Distance*	Abstract Vision	Concrete Goals
Distant Leader	Construal Fit Situation (1)	Construal Misfit Situation (2)
Close Leader	Construal Misfit Situation (3)	Construal Fit Situation (4)

Investigating how employees perceive leader communication is crucial to understanding how it affects their willingness to engage in a prescribed behavior (Cable and DeRue, 2002). Prior research indicates the need to not only assess the situation objectively (fit vs. misfit) but also include people's subjective experience (perceived construal fit vs. perceived construal misfit) (Chen et al., 2018; Mischel, 2009). Berson and Halevy (2014), for instance, experimentally show that a manipulation of social distance and message content affects individuals' *perceived construal misfit*. In construal misfit situations, individuals feel that the situation is at odds with what they are used to, as it is inappropriate and uncomfortable. Camacho et al. (2003) argue that individuals experience fit violations as wrong, and they show that misfit situations can enhance emotions of guilt, while fit situations can create a feeling of rightness. Thus, construal fit has many positive consequences shaping individuals' intentions, engagement and motivation because individuals look for consistency in their environmental cues and accept congruent information more readily (Jin and He, 2013). We thus argue that compared to a construal misfit situation, a construal fit situation leads to a higher *perceived construal fit* (Berson and Halevy, 2014).

Furthermore, we argue that perceived construal fit is a predictor of the willingness to engage in a prescribed behavior. In leader communication situations, perceived construal fit delineates employees' receptiveness to the communicated message and ultimately affects their motivation to engage in the prescribed behavior. This argument is consistent with prior research on construal fit/misfit (Berson et al., 2015). For instance, Kim et al. (2009) argue that messages are more appealing and persuasive when framed as a construal fit. In addition, behavioral decisions frequently build on the recognition of the accepted behavioral patterns within organizations. Construal misfit situations violate these typical behavioral patterns, and employees will perceive such situations as being inappropriate, which will be reflected in their perceived construal misfit (March, 1994; Weber et al., 2004).

We argue that in leader communication situations of visions and goals, a construal misfit occurs if the abstractness of the message and the perceived social distance from the leader do not match, which decreases employees' perceived construal fit. They feel at odds with the situation, which reduces their readiness to comply with the prescribed entrepreneurial message. Ultimately, employees are less committed to the message, which lowers their WTAE. In contrast, a construal fit occurs if the abstractness of the message and the perceived social distance from the leader match, which has the opposite effect: It increases employees' feeling of rightness and, by increasing perceived construal fit, encourages employees' WTAE in a manner that is consistent with the communicated message. In summary, we argue:

> *Hypothesis 1. The positive relationship between construal fit and WTAE is mediated by perceived construal fit.*

Prior research reveals that employees differ with regard to their personal motivation and goals (Ahmadi et al., 2017; McMullen et al., 2009). Consequently, employees may react differently

to different contexts such as perceived construal fit and misfit. We argue that Regulatory Focus Theory (RFT) (Higgins, 1997; Higgins, 1998) allows to analyze such different reactions, as RFT explicitly focuses on explaining individuals' differences with regard to their personal motivation, attainment/avoidance and goals. RFT distinguishes between promotion and prevention focus as two individual orientations toward self-regulation and desired end states. The underlying motivational principles of RFT are that "*people are motivated to approach pleasure and avoid pain*", which is reflected in their independent promotion and prevention focus (Brockner and Higgins, 2001: 37). Researchers distinguish between the chronic/dispositional (trait-like) and situational (state-like) components of regulatory focus (e.g., Stam et al., 2010). Our study focuses on individuals' chronic regulatory foci.

Prior research has intensely studied the direct relationship between promotion focus and a range of entrepreneurial behaviors, such as opportunity identification (Brockner et al., 2004), exploration orientation (Ahmadi et al., 2017), creativity (Wu et al., 2008), entrepreneurial intention (Johnson et al., 2017) and new product development (Andriopoulos et al., 2018; Spanjol et al., 2011). These studies show that promotion-focused individuals are motivated by change and concentrate their energy on achievements and personal growth. Moreover, promotion-focused individuals are willing to take risks (Kark and Van Dijk, 2007). In contrast, a dispositional prevention focus is relevant for diligence and task execution (Brockner et al., 2004). Prevention-focused individuals are driven by duties and responsibilities and avoid potential negative outcomes (Brockner and Higgins, 2001). Thus, individuals with a weak prevention focus are less likely to engage in different kinds of entrepreneurial behavior, such as exploration behavior (Ahmadi et al., 2017), which is highly uncertain, risky and often associated with negative outcomes. Thus, promotion and prevention focus are likely to exert opposing direct effects on individuals' WTAE.

However, the focus of the present study is on the moderating role of promotion and prevention focus on the relationship between perceived construal fit in leader communication and employees' WTAE. This focus is in line with prior research that acknowledged individuals' promotion and prevention focus as important boundary conditions of processes in the work context (cf. Johnson et al., 2010; Sacramento et al., 2013). Specifically, we argue that the influence of perceived construal fit on WTAE is stronger for employees with a weak promotion or prevention focus than for employees with a strong promotion or prevention focus. In other words, promotion and prevention focus exert the same moderating influence on the relationship between perceived construal fit and WTAE. As individuals with a strong inner motivation – may it be to achieve gains or to avoid losses – are firmly grounded in their goal achievement strategies, they are less susceptible to external influences such as fitting or misfitting leader communication or other means to influence their behavior. In contrast, weak motivation or amotivation (i.e., when both foci are weak (Johnson et al., 2010)) increase the likelihood and strength of how strongly external influences shape individuals' behavior. A reason for the stronger impact of external factors may be individuals' decision difficulties (Gati et al., 1996) and their tendency for indecision (Guay et al., 2003), which are related to amotivation (Jung and McCormick, 2011).

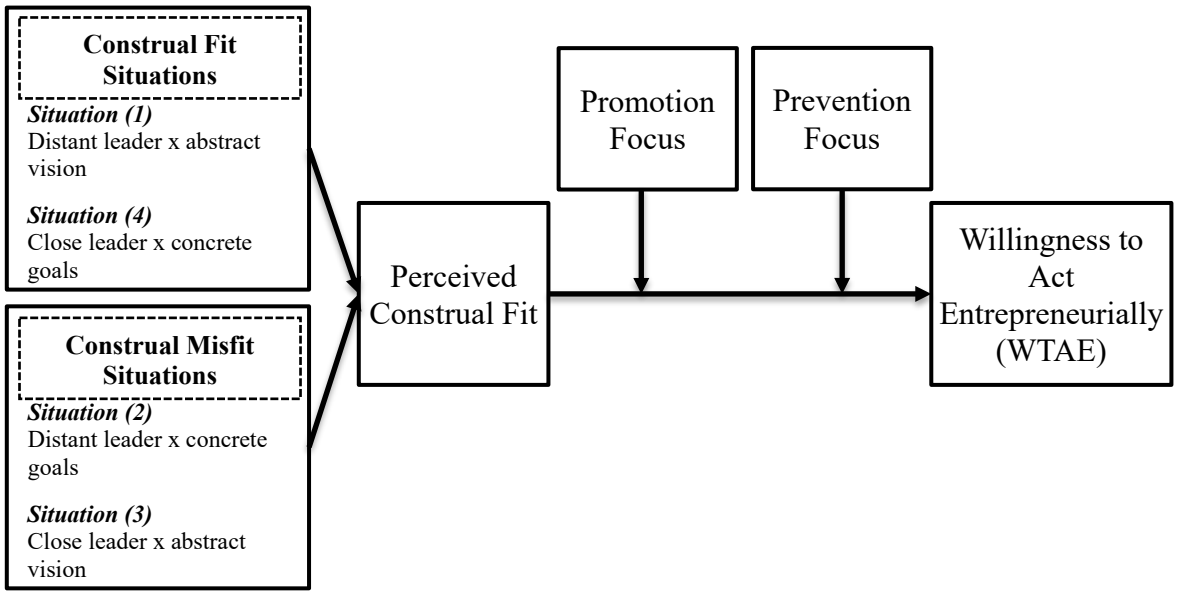
To overcome such decision difficulties, we argue that amotivated individuals look for cues in their external environment that may give them direction and guidance such as prescribed behavior. This line of argumentation is comparable with Saks (1995), who shows that external factors such as job training have a stronger effect on job performance for individuals with low levels of self-efficacy. While self-efficacy is an aspect of self-regulation concerned with individuals' capabilities, regulatory focus is an aspect of self-regulation concerned with individuals' motivation (Tumasjan and Braun, 2012). In contrast, when individuals' motivation is already high, i.e., they have a strong regulatory focus, the external motivational stimulus

through leader communication will be limited. Applying this logic to our context, we argue that employees with a weak promotion (prevention) focus benefit more from fitting leader communication than employees with a strong promotion (prevention) focus. In summary, we argue:

> *Hypothesis 2a. Promotion focus moderates the relationship between perceived construal fit and WTAE. Specifically, the influence of perceived construal fit on WTAE is stronger for employees with a weak promotion focus than for employees with a strong promotion focus.*
>
> *Hypothesis 2b. Prevention focus moderates the relationship between perceived construal fit and WTAE. Specifically, the influence of perceived construal fit is stronger for employees with a weak prevention focus than for employees with a strong prevention focus.*

In summary, Figure B-2 depicts our research model.

Figure B-2: Theoretical Model



3 Method

3.1. Procedure and Sample

We conducted an online experiment with a sample of 719 employees in German companies following a two-stage design. That is, the participants completed two anonymous questionnaires at two different points in time (t_0 and t_1) with a one-week break in between. First (t_0), in an online survey, we collected information about demographics, traits and baseline variables (t_0: gender, age, proactive personality, promotion and prevention focus). One week later (t_1), we performed the online experiment. This two-stage approach avoids any potential confounding effects between the manipulation and trait variables that we collected to test successful randomization. Although traits and orientations are stable attributes, research has shown that for certain traits and orientations, a different state can be experimentally induced (e.g., Ahmadi et al., 2017; Stam et al., 2010).

We used a fieldwork panel called "Consumerfieldwork", which offers participants fixed remuneration per survey. To ensure high-quality answers, participation in surveys is limited to twice per month. We randomly invited individuals who were currently working in companies of different sizes and from various industrial backgrounds. We further applied a stratification technique to obtain an equal representation of gender and age groups. We matched individuals' questionnaires from t_0 and t_1 via anonymized identifiers provided by the fieldwork panel.

In the survey (t_0), we administered 1,191 questionnaires. To ensure the quality of our final sample and that our sampling prerequisites were met, we proceeded as follows: First, people who were self-employed, on any kind of leave, retired or currently unemployed were screened out before the actual survey started. Second, to ensure the quality of the answers and to identify low-quality participants who are a typical problem in online samples (Ipeirotis et al., 2010; Mason and Suri, 2012), we used quality checks: "Please select the option on the far left" and

"Please select 'completely disagree' to show that you are reading the text". Fifty-nine participants did not complete the survey, and 123 failed the quality checks for attention or did not meet our sample prerequisites and were thus deleted, leaving us with 1,009 questionnaires for the experiment.

One week later (t_1), we invited these 1,009 participants to take part in the experiment. The re-response rate for the two-stage design was 92%. Of the 926 participants who responded to our invitation, 65 quit at various points in the experiment, and 42 failed the quality checks, which were the same as those used at t_0. In addition, we deleted 49 questionnaires because the respondents did not complete the questionnaire in one step, which likely threatens the experimental manipulation. As a final quality check, we examined whether the respondents spent a reasonable amount of time completing the questionnaires (min. 4 minutes) and deleted an additional 15 questionnaires. We further excluded 36 questionnaires with missing information about company size, which left us with 719 fully completed and usable questionnaires from both the survey and the experiment. The completion and dropout rates in our study are comparable to those of other experimental studies (Ahmadi et al., 2017; Hsu et al., 2017b) at 15% at t0 and 22% at t1. While in online samples, up to 30% attrition due to attention checks is not uncommon, the associated challenges warrant attention (cf. Hauser et al., 2018; Keith et al., 2017: for a detailed discussion of the issue of attrition and how to avoid it). We therefore discuss this issue in more detail in the paper's limitation section.

The participants belonged to various industries (e.g., ~22% professional services, ~13% manufacturing, ~10% healthcare), organizational sizes (~30% smallest and small firms, ~24% medium-sized firms, ~46% large firms) and organizational departments (the largest being ~16% distribution and sales, ~11% controlling, ~9% information technology (IT) services). Fifty-two percent were female, and on average, the participants were 43 years old. In terms of

education, 32% of the participants had received a professional qualification and 31% a university degree.

3.2. Experimental Design

For the experiment (t_1), we used a 2 (*social distance*: high vs. low) x 2 (*abstractness of message*: abstract vision vs. concrete goals) between-subjects design. We manipulated social distance and message abstractness with the deception approach (Hsu et al., 2017b) and used a passive role-playing design (Hsu et al., 2017a). The participants were asked to imagine themselves in hypothetical situations and were randomly assigned to one of the four scenarios.

All four scenarios described a situation wherein the person had just started working at the described company. Following a setup by Berson and Halevy (2014), we created social distance by varying the hierarchical level of the leader, the form of interaction (personal vs. impersonal), and the language used (informal vs. formal). In the *close leader scenario*, the team leader addressed the person face to face and in informal language. In the *distant leader scenario*, the CEO of the company addressed the person via email and in formal language (cf. Joshi et al., 2016; Popper, 2013). Furthermore, we manipulated the *message abstractness* by varying the temporal distance, hypotheticality, and language used (vague vs. concrete). In the *concrete goal scenario*, employees learned about concrete, personal entrepreneurial goals with a concrete deadline (cf. Förster et al., 2004; Trope and Liberman, 2010). In contrast, in the *abstract vision scenario*, employees learned about the abstract, temporally distant entrepreneurial vision of the company.

Concerning the entrepreneurial messages conveyed in the scenarios, we emphasized central elements that constitute corporate entrepreneurship, entrepreneurial visions and goals (Baum and Locke, 2004; Dess and Lumpkin, 2005; Ruvio et al., 2010). For example, all scenarios feature the aspects that employees should show initiative and exhibit a willingness to take risks.

Furthermore, the scenarios highlight that innovation and experimentation are key to gaining a competitive advantage. While the vision scenarios are inspirational, with a focus on values, the goal scenarios are more concrete, focusing on a challenging product development task, which is one example of a specific entrepreneurial task within a company.

Section "1 Experimental Scenarios" in Appendix G displays the four scenarios. To test the random distribution of the participants across the four scenarios, we conducted a univariate analysis of variance (ANOVA) for age on the experimental scenarios and found no significant effects. In addition, we conducted a χ^2 test for gender and found an even distribution over the scenarios. This result suggests that the random distribution of the participants across the four scenarios was successful. Further testing (proactive personality, promotion focus and prevention focus) also supported this result.

3.3. Measures and Measure Validation

We derived all construct measures from previous studies and used 7-point Likert scales. We calculated indexes for perceived construal fit, WTAE, and promotion and prevention focus. Following standard practice, we first conducted confirmatory factor analysis (CFA) using maximum likelihood estimation and removed items with factor loadings below .4 (Stevens, 1992).

Perceived Construal Fit (t_1). After the participants had read one of the four experimental scenarios, we measured perceived construal fit to indicate the degree to which the participants felt that the communicated message (abstract vision vs. concrete goals) matched the way it was delivered and by whom (high vs. low social distance) (Berson and Halevy, 2014). We used a 6-item scale (Berson and Halevy, 2014) describing how the scenario was perceived. The following is an example item: "The way people communicate with each other in this company seems strange". Cronbach's α was .90, suggesting good construct reliability.

Regulatory Focus (t_0). We measured dispositional promotion and prevention focus with an 8-item short version (Brenninkmeijer et al., 2010; Sacramento et al., 2013) of the chronic regulatory focus scale by Lockwood et al. (2002). Cronbach's α was .82 for promotion focus and .83 for prevention focus.

WTAE (t_1). Following prior research, we measured WTAE based on three dimensions[2]: the willingness to behave innovatively, proactively and to take risks. For the innovation dimension, similar to Moser et al. (2017), we used a scale by De Jong and Den Hartog (2010). To measure the willingness to act proactively, we used a scale by Frese et al. (1997), as it considers aspects that are a crucial part of entrepreneurial action, such as self-starting behavior and persistence in overcoming barriers (Krauss et al., 2005). For the risk-taking dimension, we used a scale developed by Stull and Singh (2005) that was recently validated (e.g., Edú Valsania et al., 2016). In accordance with current research on scale purification (Wieland et al., 2017), we removed two (reverse-coded) risk-taking items with poor factor loadings. Prior research (Weijters and Baumgartner, 2012) suggests that reverse-coded items often result in low reliability and poorly fitting factor models and should thus not be included. We also estimated our model by including all five risk-taking items, which resulted in the same results as those obtained from the purified model (see section "6 Robustness Tests" in Appendix G, Table G-1). Cronbach's α for the overall WTAE scale was .94.

Control Variables (t_0). In our survey (t_0), we included variables to test randomization and to use as controls in our moderated mediation model. Consistent with prior research on entrepreneurial behavior (Afsar et al., 2017; De Jong et al., 2015), we included variables that can influence individuals' WTAE. We controlled for age and its squared term (measured in

[2] We did not use the previously established scale for entrepreneurial behavior by De Jong et al. (2015), as it was constructed for a study exclusively conducted in a research and consultancy context. In our sample, we have employees from a more diverse industry background. Thus, we assumed that a broader set of entrepreneurial behaviors is more expedient for our study. However, as a robustness check, we estimated our model with the scale by De Jong et al. (2015) and obtained similar results (cf. section "Robustness Checks" for further details).

years). While age increases the experience and ability of the individual, risk aversion increases with age, leading to an inverted U-shaped relationship (De Jong et al., 2015). We controlled for proactive personality (Bateman and Crant, 1993), a stable personal disposition, which is positively related to innovation and proactive behaviors (Parker and Collins, 2010; Parker et al., 2006). Moreover, we controlled for the individual's type of education (up to industrial training = 1, professional qualification = 2, university degree = 3), the individual's work experience (measured in years), and a position variable indicating whether the person is an operational-level employee or has management responsibilities. Prior research shows that employees with a higher hierarchical status, higher education, and more experience can exhibit more WTAE due to easier access to organizational resources (De Jong et al., 2015; Kuratko et al., 2005). We also controlled for gender (female = 0, male = 1) (Afsar et al., 2017) and for the size of the firm (small, medium, and large[3]) as well as for 14 industries following the NAICS.

Measurement Validation. We examined the factor structure of our model by comparing the fit of different structural models (see Table B-1) in a CFA.[4] A four-factor model in which the included items of the focal constructs loaded onto their intended factors exhibited very good fit (χ^2 = 959.79; χ^2/df = 2.45; RMSEA = .05, TLI/NNFI = .95, CFI = .96) (Bentler, 1990; Browne and Cudeck, 1993; Hu and Bentler, 1999). Compared to reduced models and a model in which all items loaded onto a single factor, the four-factor model exhibited a superior fit, with the lowest Akaike information criterion (AIC) and a χ^2-difference test confirming this result.

[3] The classification is consistent with the European Commission cutoff values for small and medium-sized enterprises (SMEs) (i.e., staff headcount: small < 50, medium < 250, large > 250).
[4] Modification indexes suggested nine pairs of items with correlated measurement errors, which we included in our model (Byrne, 2016). Following standard procedure, we included only the correlations within the constructs.

Table B-1: Analysis of the Factor Structure

Model	χ^2	*p-value*	*df*	χ^2/df	$\Delta\chi^2$	*p-value*	*Δdf*	RMSEA	TLI/NNFI	CFI	AIC
					Baseline model						
4-fators	959.79	0.00	391	2.45				0.045	0.95	0.96	1,107.79
3-factors	1,576.43	0.00	394	4.00	616.63	0.00	3	0.065	0.90	0.91	1,718.43
2-factors	3,058.54	0.00	396	7.72	2,098.75	0.00	5	0.097	0.78	0.80	3,196.54
1-factor	5,424.95	0.00	397	13.66	4,465.16	0.00	6	0.133	0.59	0.62	5,560.95

Note: 4-factors: perceived construal fit, promotion focus, prevention focus, willingness to act entrepreneurially (WTAE); 3-factors: perceived construal fit, WTAE, promotion focus & prevention focus; 2-factors: perceived construal fit, WTAE & prevention focus & promotion focus; 1-factor: all items loading on one factor; χ^2: Chi-Square; *df*: Degree of Freedom; RMSEA: Root Mean Square Error of Approximation; TLI: Tucker-Lewis Index/Non-Normed Fit Index; CFI: Comparative Fit Index; AIC: Akaike Information Criterion

To investigate whether a unidimensional construct (De Jong et al., 2015) is appropriate for capturing WTAE, we further analyzed the factor structure. We first inspected the intercorrelations between the three dimensions (r = .44, p = .00 risk taking & innovation; r = .51 p = .00 risk taking & proactivity; r = .80 p = .00 proactivity & innovation). Then, we analyzed a second-order structure of WTAE in a CFA. As proactivity and innovation were highly correlated, we combined them into a single factor. The results for the CFA with WTAE as a second-order factor of risk taking and a combined innovation/proactivity factor (χ^2 = 959.27, χ^2/df = 2.6, RMSEA = .05, TLI/NNFI = .95, CFI = .96, AIC 1,109.27) showed only minor differences from our CFA with a unidimensional WTAE construct (see Table B-1: 4-factor model). This result and the high intercorrelations support our decision to treat WTAE as a unidimensional factor.

Table G-2 in section "2 Measurement" in Appendix G depicts the CFA factor loadings of the four-factor model, the exact wording of the core constructs, and Cronbach's α, composite reliability (CR) and average variance extracted (AVE) values. The standardized factor loadings of all items were statistically significant (p < .00) and above .4, indicating convergent validity (Stevens, 1992). The CR of the constructs exceeded .6, supporting internal consistency (Bagozzi and Yi, 1988). We also examined discriminant validity and compared the AVE with the squared interfactor correlations. For all constructs, the AVE exceeded the cutoff value of .5, and the squared interfactor correlations supported convergent and discriminant validity (Fornell and Larcker, 1981).

Common Method Bias (CMB). To reduce potential CMB, we first adopted a two-step study design (Podsakoff et al., 2003) that introduced a temporal separation between the study variables, reducing the likelihood of potential bias. Second, the moderated mediation makes CMB unlikely, as the participants could not anticipate such a complex model when completing the questionnaires (Chang et al., 2010). Third, experiments in which some variables are

manipulated are less subject to CMB. To further increase our confidence that CMB is not an issue, we performed Harman's one-factor test with our latent variables of interest (Podsakoff and Organ, 1986); the results showed that a single factor accounted for only 31% of the variance extracted. Finally, a common latent construct approach with our four latent constructs (Richardson et al., 2009) supported our assumption that CMB is not an issue in our study.

3.4. Construct and External Validity of the Experiment

Following recent suggestions on how to improve the quality and reliability of experimental studies (Grégoire et al., 2019), we conducted several measures, which we briefly outline in the following (for an overview, see Table B-2). First, we conducted a pilot test with colleagues to ensure that the experimental manipulations, which we constructed in line with a setup described in Berson and Halevy (2014), as well as the translated items are easily comprehensible. Second, following some minor adaptions, we conducted a pretest with a student sample to test the robustness of our hypothesized effects. Based on the results from this pretest, we then conducted our main analysis with the employee sample. Third, with a Clickworker sample, we qualitatively validated the construct validity of our manipulations (i.e., whether leader distance, message abstractness and fit were indeed perceived as intended). In addition, in this study, we sought to test whether our four scenarios are realistic to confirm external validity. Finally, to ensure that the manipulations had the intended effects in the main experimental study and to identify inattentive respondents, we included manipulation checks. In the following, we describe each measure in detail.

Table B-2: Overview of Validity Measures Undertaken

Measure	Sample	Issues Addressed	Aim
Pilot test	Colleagues (n=6)	*Construct Validity/ Comprehensibility*	Construction of manipulations similar to previous experiment by Berson & Halevy (2014) Testing the comprehensibility of the translated scales and the manipulations
Pretest	Student Sample (n=87)	*Construct Validity/ Robustness Test*	Testing whether manipulations had the intended effects: testing interactive effect of social distance and message abstractness on perceived construal fit
Validation Study	Clickworker Sample (n=48)	*Construct Validity/ External Validity*	Did manipulations have intended effect concerning leader distance, message abstractness and perceived fit? Testing scenarios' realism
Manipulation Checks	Main Study Sample (n=719)	*Construct Validity*	Were the participants attentive? Did the participants perceive leader distance and message abstractness as intended?

Pilot and Pretest. Following recent suggestions to improve and test construct and external validity of our experimental design (Grégoire et al., 2019), we used several validation approaches. First, concerning construct validity, we used a setup and constructed our four manipulations of social distance and message abstractness as described in the section "Experimental Design". Appendix A displays the scenarios of the main study. The experimental setup follows Berson and Halevy (2014), which makes us confident that we were able to manipulate and elicit our theorized effects. Furthermore, in a pilot test (n = 6), colleagues evaluated comprehensibility challenges in our manipulations and our questionnaires. Following this first evaluation, we minorly revised the experiment before pretesting our manipulation of perceived construal fit with a student sample.

The pretest (n = 87) was a pen and paper experiment at a German university. The participants were business and economics students or enrollees in an interdisciplinary business education course. Sixty-nine percent of the student sample were women, and on average, the participants

were 22 years old; 71% were currently enrolled in an undergraduate program, and the rest were enrolled in an MSc program. We measured perceived construal fit as described in the preceding section. In an exploratory factor analysis, we retained four items with sufficiently large factor loadings (≥ .5) (Tabachnick and Fidell, 2001) loading onto a single factor (Bagozzi and Yi, 1988). Cronbach's α was .78, indicating good construct reliability. In addition, we calculated the AVE and CR, which both exceeded .5, supporting construct consistency (Bagozzi and Yi, 1988).

To evaluate the results, we investigated the interaction effect of social distance and the message on perceived construal fit using ordinary least squares (OLS) regression. The results (see Table G-3 in section "3 Pretest" in Appendix G) showed a significant interaction effect (b = -.95; p = .06) and supported the notion that social distance moderates the influence of the message on perceived construal fit. Furthermore, graphical inspection (see Figure G-1 in section "3 Pretest" in Appendix G) revealed that construal fit situations, characterized by either a distant leader communicating an abstract vision or a close leader communicating concrete goals, lead to higher perceived construal fit as opposed to construal misfit situations. The results are a good first indicator that our experimental manipulations worked as intended, even though they are only marginally significant (likely due to the low sample size),

Validation Study. Furthermore, similar to Mueller et al. (2018), we conducted a validation study (n = 48) via the "Clickworker" crowdsourcing platform, a Western European crowdsourcing platform similar to "MTurk" (Blesse and Heinemann, 2020; Trang et al., 2020), to test whether the manipulations were perceived as intended, i.e., to test construct reliability. Specifically, 48 employees working in Germany rated our manipulated scenarios. On average, these individuals were 39 years old, and 60% were male. Furthermore, the individuals worked in companies of various sizes; 65% were purely operational employees, and 35% were from varying management levels. To establish that our scenarios were perceived as intended, every

participant received either the two vision or the two goal scenarios in a randomized order and evaluated the perceived distance from the leader, the perceived abstractness of the message and the perceived fit in the scenarios.

The results showed that the individuals perceived the CEO to be more distant than the team leader. This evaluation was based on the use of formal vs. informal language, the different hierarchical statuses of the leaders, and the communication style, which was either face to face or via email. In addition, they described the abstract vision scenarios as vaguer than the concrete goal scenarios. Furthermore, the perceived fit evaluations were in line with our expectations.

In addition, we used this validation study to inspect external validity. To evaluate whether our constructed scenarios represent real-life situations, we asked the respondents to assess the realism of the scenarios and to describe similar situations from their personal experience. In sum, the respondents rated all four scenarios as realistic, and their personal stories confirmed that the scenarios described situations that they had already experienced in their everyday work life.

Overall, the results (for more details, see section “4 Validation Study” in Appendix G) made us confident that our experiment had good construct validity, meaning that we manipulated the aspects of interest and that the respondents perceived them as intended. Furthermore, the experiment fulfills the criteria for external validity, such as ecological validity and mundane realism (cf. Grégoire et al., 2019). Although the experiences and preferences of the employees differ, we were able to identify that all four scenarios do reflect relevant and realistic situations in many companies in real life.

Manipulation Checks in the Online Experiment (t_1). In line with prior experimental studies (Hsu et al., 2019; Van Dijke et al., 2015), the participants completed manipulation checks after

reading the scenarios and before responding to our constructs of interest. To ascertain that our manipulations were read attentively, we asked "instructional manipulation checks" (cf. Hauser et al., 2018: for a critical discussion of manipulation checks and their positioning): "Please indicate which company member addressed you in the situation described above", which was an open-ended question, and "How did this person address you?", which could be answered with "via email" or "in person". To ensure that the participants perceived our scenarios as intended, we included the following manipulation checks. The first targeted social distance: "How close do you feel to this person?", rated from "very far away" to "very close". The second targeted message abstractness: "How was the text formulated?", rated from "very vaguely" to "very concretely".

The results of the instructional manipulation checks were as follows: 28 participants (3.9%) incorrectly answered how the message was communicated. These responses were evenly distributed across the abstract and concrete message scenarios. The question regarding who addressed the participant in the scenario was answered incorrectly (e.g., "I don't know") or ambiguously (e.g., "superior") by 86 participants (11.9%). The responses were also evenly distributed across the scenarios. Based on these results, we are confident that the majority of participants properly understood our scenarios.[5] Further, the manipulation check for perceived social closeness showed that the mean value in the socially close scenario ($M = 3.99$; $SD = 1.31$) was significantly higher ($t(717) = 7.28$, $p = .00$) than that in the socially distant scenario ($M = 3.26$; $SD = 1.41$). The manipulation check for the perceived abstractness of the message (very vague to very concrete) provided support that our manipulation worked, with a significantly higher mean level ($t(717) = -8.35$, $p = .00$) in the goal setting scenario ($M = 5.69$;

[5] As a robustness check, we tested our moderated mediation model with a reduced sample (i.e., excluding the participants who provided incorrect answers in the manipulation checks). Our results remain stable.

SD = 1.23) than in the vision communication scenario (M = 4.86; SD = 1.45). Further information is displayed in Appendix E.

4 Results

Table B-3 displays the descriptive statistics and a Spearman correlation matrix. We first inspected whether our experimental manipulations had the proposed effects. Testing the direct influence of social distance on perceived construal fit in an ANOVA reveals a barely significant effect (b = -.21, p =.05). In contrast, an ANOVA between message abstractness and perceived construal fit reveals a significant negative effect (b = -.67, p = .00), indicating that the concrete goal scenario significantly decreases the respondents' perceived construal fit, which is a finding that was not included in our theorizing. Regressing the interaction effect of the abstractness of the message and social distance on perceived construal fit using OLS shows a significant interaction effect (b = -.71, p = .00), providing preliminary support for the first part of our research model (see Table B-4). Section "5 Additional Results" in Appendix G displays and describes further bivariate and multivariate results.

Table B-3: Descriptive Statistics and Spearman Nonparametric Correlations

	Variable	*Mean*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1	Message [a]	0.50	0.50											
2	Social Distance [b]	0.50	0.50	0.00 (.97)										
3	WTAE	5.23	0.90	0.07 (.08)	-0.05 (.20)									
4	Perceived Construal Fit	4.28	1.40	-0.25 (.00)	-0.78 (.04)	0.29 (.00)								
5	Promotion Focus	4.32	1.17	0.04 (.31)	-0.03 (.40)	0.26 (.00)	-0.03 (.48)							
6	Prevention Focus	3.34	1.31	0.06 (.14)	-0.03 (.44)	-0.79 (.03)	-0.12 (.00)	0.40 (.00)						
7	Age	42.92	12.12	0.00 (.95)	0.02 (.52)	-0.01 (.73)	-0.20 (.00)	-0.24 (.00)	-0.3 (.00)					
8	Gender [c]	0.48	0.50	0.04 (.28)	-0.03 (.39)	0.03 (.41)	-0.02 (.66)	0.02 (.58)	-0.10 (.01)	0.24 (.00)				
9	Proactive Personality	4.98	0.88	0.02 (.68)	-0.03 (.44)	0.48 (.00)	0.02 (.62)	0.46 (.00)	-0.03 (.42)	-0.03 (.44)	0.00 (.94)			
10	Education	1.93	0.83	0.00 (.91)	-0.01 (.80)	-0.02 (.56)	0.02 (.60)	0.13 (.00)	-0.03 (.51)	-0.04 (.25)	0.09 (.02)	0.08 (.03)		
11	Work Experience	19.63	12.39	-0.01 (.86)	0.02 (.56)	0.02 (.53)	-0.16 (.00)	-0.20 (.00)	-0.28 (.00)	0.87 (.00)	0.18 (.00)	0.02 (.64)	-0.2 (.00)	
12	Management Position [d]	0.37	0.48	-0.01 (.75)	-0.03 (.48)	0.17 (.00)	0.03 (.44)	0.12 (.00)	-0.09 (.01)	0.14 (.00)	0.29 (.00)	0.25 (.00)	0.24 (.00)	0.14 (.00)

Note: n = 719. p-values in parenthesis. a: 1 = goals, 0 = vision. b: 1 = high distance, 0 = low distance. c: 1 = male, 0 = female. d: 1 = with management responsibilty, 0 = purely operational. WTAE - willingness to act entrepreneurially.

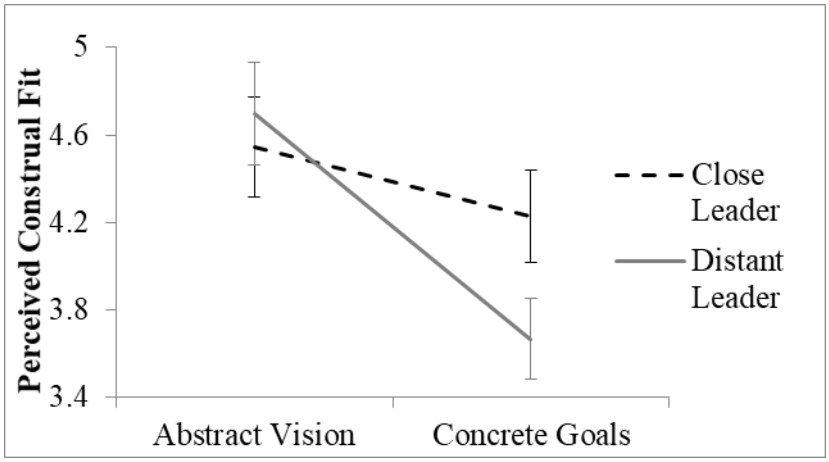
Table B-4: OLS Regression Predicting Perceived Construal Fit

	Perceived Construal Fit			
	b	SE	t	p-value
Intercept	4.54	0.10	45.21	0.00
Main effects				
Social Distance[a]	0.15	0.14	1.05	0.29
Message[b]	-0.31	0.14	-2.22	0.03
Two-way interaction				
Message x Social Distance	-0.71	0.20	-3.54	0.00
Model				
R^2	0.08			
F-value	20.31	0.00		

Note: n = 719. a 1 = high distance, 0 = low distance. b 1 = goals, 0 = vision.

We further graphically inspected the interactive effect. Figure B-3 shows that in line with our rationale, visions communicated by a distant leader create a higher perceived construal fit than visions communicated by a close leader. In contrast, goals communicated by a close leader induce a higher perceived construal fit than goals communicated by a distant leader. In addition, the communicated vision has a significant main effect on perceived construal fit – independent of whether it is communicated by a distant (fit situation) or a proximal leader (misfit situation). In a post hoc analysis (see p. 29f), we delve more deeply into this issue. In summary, these results show that our manipulation was successful, encouraging further analysis.

Figure B-3: Effect between Social Distance and the Message with 95% CIs



Following the procedure by Hayes and Preacher (2014) and Hayes (2017), we then conducted a moderated mediation analysis to test whether combinations of social distance and message abstractness influence individuals' WTAE mediated by perceived construal fit (hypothesis 1) and whether the results vary by the moderator promotion/prevention focus (hypotheses 2a/2b). Therefore, we first conducted moderated mediation regressions for the mediator perceived construal fit and the outcome variable WTAE (see Table B-5). The first result column replicates the OLS results from Table B-4 and shows that the interaction effect of social distance and message abstractness significantly influences the mediator perceived construal fit. Model 1 (second result column) depicts the results with the moderator promotion focus. The mediator perceived construal fit (b = .40, p = .00) and moderator promotion focus (b = .29, p = .00) significantly increased WTAE. Moreover, there is a significant interaction effect between perceived construal fit and promotion focus (b = -.05, p = .00). At the mean of the moderator promotion focus, a one-unit increase in perceived construal fit leads to a .20-unit increase in WTAE. For high levels of promotion focus (+1 SD), the marginal effect is a .14-unit increase, whereas for low levels (-1 SD), the marginal effect is a .25-unit increase, illustrating that the effect varies with the moderator. The effect strength is comparable to the effect of proactive personality on WTAE (b = .43, p = .00). In other words, the marginal effect of perceived

construal fit increases WTAE by 2.8% for an individual with an average promotion focus (at the mean). In comparison, the marginal effect of proactive personality leads to a 6.2% increase in WTAE. Our effect sizes are comparable to those in Brundin et al. (2008), who also investigated WTAE (effects ranged from 7% to -1.3%). Furthermore, previous studies identified an individual's proactive personality to be one of the strongest predictors of entrepreneurial behavior (cf. 5.4% in De Jong et al., 2015) and other motivational factors such as job autonomy to have lower effects (cf. 3.4% in De Jong et al., 2015). Overall, these results lend preliminary support for hypothesis 1, i.e., that mediation exists, and for hypothesis 2a, i.e., that the effects vary with the moderator promotion focus.

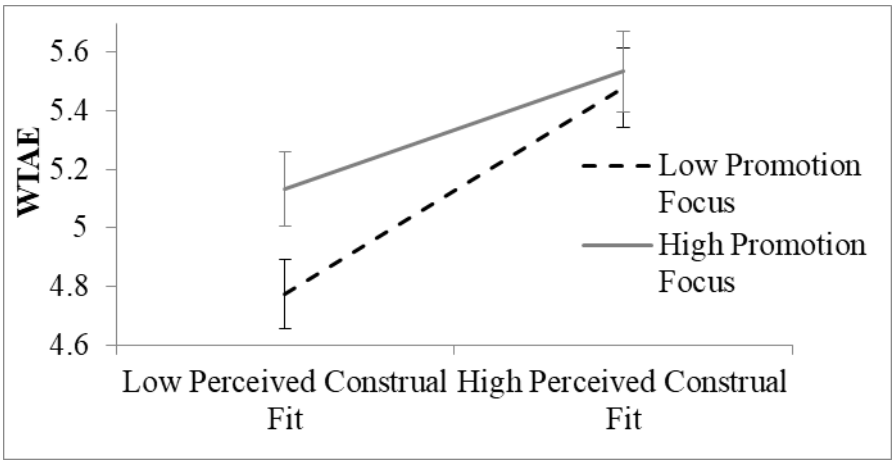
Table B-5: Moderated Mediation Regression Results

	MEDIATOR				OUTCOME							
	PCF				WTAE Model 1				WTAE Model 2			
	b	SE	t	p-value	b	SE	t	p-value	b	SE	t	p-value
Intercept	4.54	0.10	45.21	.00	1.12	0.56	2.01	.04	1.81	0.51	3.52	.00
Main effects												
Social Distance [a]	0.15	0.14	1.05	.29	-0.11	0.08	-1.40	.16	-0.11	0.08	-1.38	.17
Message [b]	-0.31	0.14	-2.22	.03	0.14	0.08	1.79	.07	0.14	0.08	1.80	.07
Perceived Construal Fit					0.40	0.07	5.63	.00	0.23	0.05	4.64	.00
Promotion Focus					0.29	0.07	3.98	.00	0.09	0.03	2.92	.00
Prevention Focus					-0.03	0.03	-1.01	.31	0.02	0.06	0.30	.76
Two-way interactions												
Message x Social Distance	-0.71	0.20	-3.54	.00	0.14	0.11	1.27	.20	0.15	0.11	1.33	.18
Perceived Construal Fit x Promotion Focus					-0.05	0.02	-3.00	.00				
Perceived Construal Fit x Prevention Focus									-0.01	0.01	-0.72	.47
Controls												
Age					0.00	0.02	-0.02	.99	0.00	0.02	0.01	.99
Age Squared					0.00	0.00	0.46	.64	0.00	0.00	0.43	.67
Gender [c]					-0.02	0.06	-0.40	.69	-0.02	0.06	-0.37	.71
Proactive Personality					0.43	0.04	11.36	.00	0.43	0.04	11.30	.00
Education					-0.09	0.04	-2.56	.01	-0.10	0.04	-2.66	.01
Work Experience					0.00	0.00	-0.52	.60	0.00	0.00	-0.60	.55
Management Position [d]					0.07	0.06	1.02	.31	0.08	0.06	1.24	.22
Company Size2 (medium sized)					-0.12	0.08	-1.58	.12	-0.12	0.08	-1.50	.13
Company Size3 (large)					-0.01	0.07	-0.19	.85	0.00	0.07	-0.02	.98
Model												
Industry Dummies					yes				yes			
R^2	0.08				0.37				0.36			
F-value	20.31	.00			13.89	.00			13.43	.00		

Note: n = 719. Dependent Variables: PCF - Perceived Construal Fit; WTAE - Willingness to Act Entrepreneurially. a 1 = high distance, 0 = low distance. b 1 = goals, 0 = vision. c 1 = male, 0 = female. d 1 = with management responsibility, 0 = purely operational.

To gain a better understanding of the moderating effect of promotion focus (hypothesis 2a), we also visually inspected the interaction effect of high (+1 SD) and low levels (-1 SD) of perceived construal fit and promotion focus. Figure B-4 illustrates that compared to a weak promotion focus, a strong promotion focus leads to higher WTAE. Furthermore, the graph shows that particularly for employees with a weak promotion focus, a high perceived construal fit is important for increasing WTAE, which is in line with hypothesis 2a.

Figure B-4: Interaction Effect between Promotion Focus (+/-1 SD of the Mean) and Perceived Construal Fit (+/- 1 SD of the Mean) with 95% CIs



To finally support hypotheses 1 and 2a, we conducted a full moderated mediation analysis by using the PROCESS macro by Hayes and Preacher (2014) and Hayes (2017). We calculated the conditional indirect effects with bootstrapped confidence intervals (CIs) (5,000 iterations) at different levels of the moderator promotion focus (16th, 50th, and 84th percentiles) based on the regression results in Table B-5 (Mediator PCF and WTAE Model 1). Table B-6 presents the group comparisons of the indirect effects.

Table B-6: Conditional Indirect Effects of Construal Fit/Misfit Situations on WTAE at the 16th, 50th, and 84th Percentiles of the Moderator Promotion Focus with 90% CIs

Group Comparisons	Moderator Promotion Focus	Indirect Effect	SE	BootLLCI	BootULCI
Abstract Vision	3.25 (Low)	0.04	0.04	-0.02	0.10
Distant Leader (1)	4.25 (Median)	0.03	0.03	-0.02	0.08
vs Close Leader (2)	5.50 (High)	0.02	0.02	-0.01	0.06
Concrete Goal	3.25 (Low)	0.14	0.04	0.08	0.20
Close Leader (4)	4.25 (Median)	0.11	0.03	0.06	0.17
vs Distant Leader (3)	5.50 (High)	0.08	0.03	0.04	0.13
Close Leader	3.25 (Low)	0.08	0.04	0.02	0.14
Abstract Vision (2)	4.25 (Median)	0.06	0.03	0.02	0.11
vs Concrete Goal (4)	5.50 (High)	0.04	0.02	0.01	0.09
Distant Leader	3.25 (Low)	0.25	0.05	0.18	0.34
Abstract Vision (1)	4.25 (Median)	0.21	0.04	0.15	0.27
vs Concrete Goal (3)	5.50 (High)	0.15	0.04	0.09	0.21

Note: n=719. Construal Fit (1) = Abstract Vision x Distant Leader; Construal Misfit (2) = Abstract Vision x Close Leader; Construal Misfit (3) = Concrete Goal x Distant Leader; Construal Fit (4) = Concrete Goal x Close Leader. WTAE - willingness to act entrepreneurially.

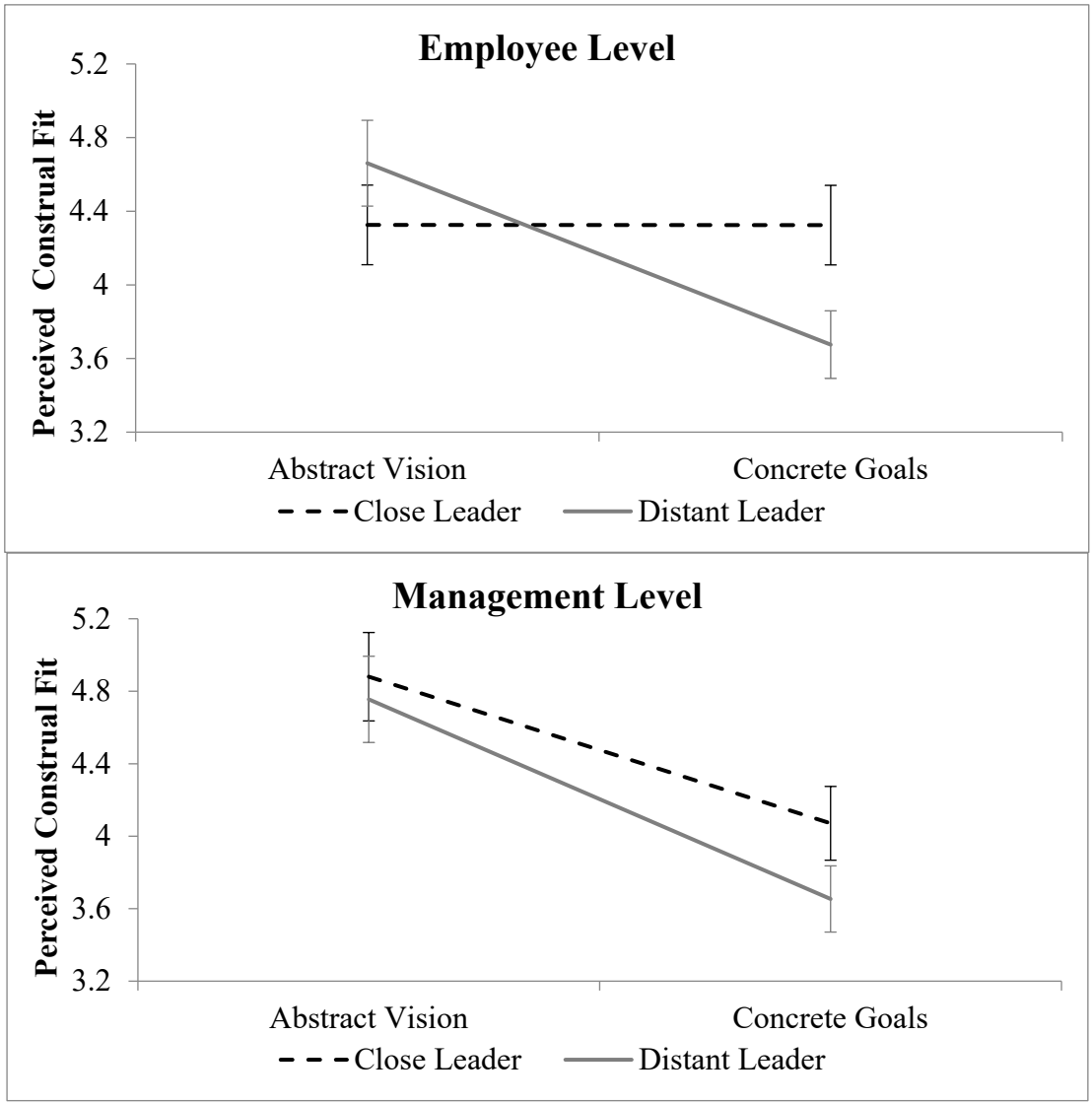
As expected from the graphical inspection, with regard to whether abstract visions are communicated by a distant (1) leader or a close (2) leader, there is no significantly different effect (at median promotion focus: indirect effect = .03: 90% CI = [-.02, .08]). In contrast, as opposed to concrete goals communicated by a distant leader (3), concrete goals communicated by a close leader (4) lead to a significantly higher WTAE (at median promotion focus: indirect effect = .11: 90% CI = [.06, .17]), supporting our theory. Furthermore, WTAE is higher (at median promotion focus: indirect effect = .06: 90% CI = [.02, .11]) when a close leader communicates an abstract vision (2) as opposed to concrete goals (4). Finally, as hypothesized, WTAE is higher (at median promotion focus: indirect effect = .21: 90% CI = [.15, .27]) when a distant leader communicates an abstract vision (1) as opposed to concrete goals (3). In summary, the results support hypothesis 1, i.e., construal fit/misfit situations influence WTAE, mediated by perceived construal fit. Table B-6 further shows that the size of the indirect effects

of all situations decreases with an increasing level of promotion focus (analyzed at the 16th [low], 50th [median], and 84th [high] percentiles). These results lend support to hypothesis 2a, i.e., that the influence of perceived construal fit on WTAE is stronger for employees with a weak promotion focus.

We also analyzed the moderated mediation model with prevention focus as a moderator (see Model 2, Table B-5). While perceived construal fit (b = .23, p = .00) significantly increases WTAE, neither the moderator prevention focus (b = .02, p = .76) nor the interaction effect between perceived construal fit and prevention focus (b = -.01, p = .47) significantly affects WTAE. A further investigation of the moderation effects reveals that the effect of perceived construal fit on WTAE has a similar impact for low (-1 SD: b = .20, p = .00), mean (b = .20, p = .00) and high levels (+1 SD: b = .18, p = .00) of prevention focus, comparable in size to the effect at the mean of the moderator promotion focus. Thus, we find no support for hypothesis 2b since the effect of perceived fit is independent of the level of prevention focus. The indirect effects are equal to those displayed in Table B-6 at the median of the moderator promotion focus.

As our results show that vision communication had a strong direct effect on perceived construal fit, irrespective of the social distance of the communicator, we performed an additional analysis. Appendix E displays further bivariate results. Since our sample includes employees from various hierarchical levels with varying degrees of management responsibilities, we split our sample into two groups, i.e., employees with management responsibilities (267 employees) vs. purely operational employees (452 employees). Purely operational employees include salespersons, call center agents and accountants. Figure B-5 shows the graphical results of the OLS regression of perceived construal fit on the interaction effect of social distance and the abstractness of the message for the split samples.

Figure B-5: Interaction Effect between Social Distance & the Message for Split Samples with 95% CIs



The operational employees support our theorizing that compared to construal misfit situations, construal fit situations lead to a higher perceived construal fit. In contrast, managerial employees prefer abstract vision to concrete goal communication. The analysis of conditional indirect effects based on the split-sample moderated mediation regressions further supports these results. For operational employees, the communication of an abstract vision leads to a higher WTAE (at median promotion focus: indirect effect = .07: 90% CI = [.01, .14]) if communicated by a distant leader (1) as opposed to a close leader (2). Furthermore, a concrete goal leads to a higher WTAE (at median promotion focus: indirect effect = .14: 90% CI = [.08,

.21]) if communicated by a close leader (4) as opposed to a distant leader (3). Additionally, there was no significant difference (at median promotion focus: indirect effect = .00: 90% CI = [-.06, .06]) whether a close leader communicated an abstract vision or concrete goals. In contrast, WTAE is significantly higher (at median promotion focus: indirect effect = .21: 90% CI = [.14, .31]) when a distant leader communicates an abstract vision as opposed to concrete goals.

These results suggest that particularly distant leader communication can have a highly motivating or demotivating effect on employees' WTAE. The evaluation of the conditional indirect effects for the manager sample reveals that both vision scenarios lead to more WTAE than the goal scenarios. For managers, only the abstractness of the message has an influence on WTAE, irrespective of the social distance of the communicator.

4.1. Robustness Checks

We conducted several robustness checks to ensure the validity of our findings (Munafò et al., 2017). First, estimation of the original model without the control variables resulted in similar estimates, lending support to the stability and credibility of our results. Second, we estimated our model excluding individuals employed in the public sector, such as public administration and social insurance, who are potentially accustomed to higher job security (see section "6 Robustness Tests" in Appendix G, Table G-6). Again, our results are similar to those presented in Table B-5. Third, we used an alternative measure of employees' WTAE based on the entrepreneurial behavior scale by De Jong et al. (2015). The scale was highly correlated with our measure ($r = .80$; $p = .00$) and exhibited good internal reliability (Cronbach's $\alpha = .90$) and convergent validity (loadings above .5; loading onto a single construct). The moderated mediation regressions using this measure showed results similar to ours, supporting our results (see section "6 Robustness Tests" in Appendix G, Table G-7). Fourth, we investigated our moderated mediation model by separately analyzing the willingness to act innovatively, to act

proactively and to take risks (see section "6 Robustness Tests" in Appendix G, Tables G-8 – G-11). For all three constructs, the results were similar to those for the unidimensional WTAE construct, further supporting our treatment of WTAE as a unidimensional construct. Finally, we calculated a partial least squares (PLS) model (see section "6 Robustness Tests" in Appendix G, Table G-12) using the Stata package by Rönkkö (2016), and the results were similar to those obtained by the individual regressions.

4.2. Complementary Qualitative Evidence

As every method has its advantages and limitations, the use of multiple methods to investigate a research phenomenon can help to increase the credibility of the results (Webb et al., 1966). Thus, to validate our findings, we followed prior studies corroborating quantitative evidence with complementary qualitative insights (Fuchs et al., 2019; Patton, 2002) and conducted ten semistructured interviews (see section "7 Complementary Qualitative Evidence" in Appendix G for detailed information) with German employees. The aim of the interviews was to let respondents recount their personal leader communication experiences and investigate whether their narrations reflect our research model and as a second step to ask respondents whether they concur with our research model.

We invited employees from different industry backgrounds, with an average of five years of work experience and with varying management responsibilities. While the interviews reveal many situations closely resembling our hypothesized relationships, they also help gain a deeper understanding of the complex interrelated influences that ultimately affect employees' perception of leader communication and their subsequent actual behavior in a real work environment.

Specifically, we found that abstract visions communicated by distant leaders often inspired employees and made them reflect on their overall contribution to their company (I5): "*You take a scenic flight over many topics, as a rule, with really rather comprehensive visions. This*

motivates me as a rule because I believe it helps me to generate a context: Where are we, where do we want to go? […] How does my daily work contribute to this? And I think this is definitely important". Furthermore, the interviewees described how abstract visions broadened their horizon (I10): "*An abstract vision that is communicated in an inspiring manner, leads to a wider spectrum of solutions, I would say, or even expands my solution horizon, and you question yourself and say, okay, are there maybe newer or other solutions that I do not see yet?*"

In contrast, abstract visions communicated by a close leader had a very different effect (I8): "*I was absolutely demotivated, but also, I was stressed because you had the feeling, okay, irrespective of how, you cannot make it right, you cannot reach these goals, you do not know, how the goals are evaluated now, what is really expected*". Such visions even elicited frustration in the respondents (I3): "*Somebody talks about heaven, the next three to four years, whereas I think: You owe me an answer for a project, concerning the next three weeks. What are we talking about?*"

Concerning the effect of concrete goals communicated by a close leader, the respondents viewed them positively and described how they affected their behavior (I7): "*So, I think that I was more self-confident in what I was doing. Especially because I roughly knew what was expected, it was probably easier for me starting from there to identify, okay, what makes sense, where can I expand this, where not.*"

In contrast, distant leader communication of concrete goals elicited stress and even fear in the employees and strongly affected their work behavior (I3): "*I was panic-stricken with fear to complete this work task. This terribly stressed me during the first weeks. And it was the only thing I kept thinking about: My god, I still have to do this […] I tried to fulfill the task, but not very innovatively or proactively but rather, in an intimidated fashion, so to speak, what I had to, I did of course. Because of a sense of obligation*". Another respondent reported the

following (I10): "*In principle, this was my second conversation with him. […] This certainly achieved that, at the beginning, I was not as efficient, as effective at work as I could have been*".

5 Discussion

We examined how leaders from different hierarchies influence employees' WTAE through abstract vs. concrete communication and how this relationship is mediated by employees' perceived construal fit. Moreover, we argued that strongly promotion- and prevention-focused employees are less affected by perceived construal fit in their WTAE. Our empirical findings widely lend support to our theory. However, we also found some notable exceptions from our theoretical delineations. In the following, we discuss our results in detail.

5.1. Theoretical Implications

We advance prior research on antecedents of employees' entrepreneurial behavior and related concepts. Specifically, we know from prior literature that aspects such as the organizational architecture and support systems (Hornsby et al., 2009; Ireland et al., 2009; Kuratko et al., 2005), culture (Kang et al., 2016) and the work environment (De Jong et al., 2015) foster employees' entrepreneurial behavior. We contribute to this literature by examining the process by which leader communication of visions and goals increases perceived construal fit which, in turn, fosters employees' WTAE. In this regard, investigating leader communication of visions and goals (cf. Rigtering et al., 2019) allows us to obtain a better understanding of the process how antecedents could affect entrepreneurial behavior (and related concepts). Thereby, we shift the focus from antecedents to employees' receptiveness of antecedents, which is in line with and advances previous studies underlining the importance of employees' perceptions (Chen et al., 2018; Kuratko et al., 2005; Marvel et al., 2007) and the role of cognition in entrepreneurial processes (Grégoire et al., 2011; Kuratko et al., 2021). Furthermore, our findings could help resolve inconsistencies in the literature. For instance, while Marvel et al.

(2007) describe that corporate entrepreneurs often perceive work design as a source for demotivation, other studies ascribe it a strongly motivational influence (De Jong et al., 2015; Kuratko et al., 2005). We show that examining antecedents to foster entrepreneurial behavior without considering how they are communicated may render an incomplete picture of *how* they are perceived (and, hence, how they ultimately impact behavior). We therefore encourage future research to further examine the motivational process to increase our understanding of how companies can foster entrepreneurial behavior among employees.

Furthermore, the finding that both vision situations lead to more WTAE than the two goal situations in a subsample of employees with management responsibilities may particularly inform prior research focusing on employees at higher hierarchical positions and their role in fostering entrepreneurship in firms (Hornsby et al., 2009; Kuratko et al., 2005; Ren and Guo, 2011). Higher-level employees have distinguishing characteristics such as greater resource availability and decision-making latitude, and they are highly involved in strategy formation and its translation to lower organizational levels (Rigtering et al., 2019). In addition, current research shows that leaders who have a high leader self-identity are more likely to communicate abstractly than concretely (Venus et al., 2019). This finding suggests that managerial employees prefer more autonomy and, thus, less concrete instructions. A respondent with management responsibilities, which we interviewed, illustrates this point (I5): "*I do not necessarily need [concrete goals] because in case of doubt, I can make my own goals*". The interviewee further elaborated on the importance of visions for projects (I5): "*That's as a rule, the first thing I do, to check, do we have a vision […]? If not, then we need them. And if you don't have this […] then everything from top to bottom is in empty space. And you have no possibility of deriving a concrete goal, and then, you really leave a lot of people behind*". Overall, these aspects explain why managerial employees might perceive vision communication more favorably than goal communication. In this regard, our results suggest

the need to even further untangle the complexities concerning how a message is communicated as well as how employees perceive leader communication to obtain an even more nuanced picture of the influence on employees from various hierarchical levels.

While entrepreneurship research drawing on CLT is still rare with some notable exceptions (Chen et al., 2018; Tumasjan et al., 2013), we further demonstrate the applicability of this theory in entrepreneurship research. Specifically, we contribute to this emerging literature by examining promotion and prevention focus as boundary conditions for the relationship between perceived construal fit and WTAE. Our findings suggest that particularly employees with a weak promotion focus, who may appear amotivated (Johnson et al., 2010), strongly react to communication to foster entrepreneurship. This implies that targeting motivation schemes at employees who are reluctant to engage in entrepreneurial behavior can be fruitful. Thus, we advance previous research that emphasizes the necessity to recruit particularly entrepreneurially minded employees for entrepreneurial companies (Blanka, 2019; Moser et al., 2017) and show that individuals who lack a motivation to engage in entrepreneurship can also be encouraged to do so by leader communication of visions and goals. In contrast to our theorizing, prevention focus showed no significant results. One explanation could be that the entrepreneurial context, which strongly emphasizes change and advancement, appeals to employees' promotion focus more prominently. Thus, prevention focus was less salient in this context, which is in line with prior research in the entrepreneurial context suggesting that one focus can be more important in a situational context than the other (Ahmadi et al., 2017; Johnson et al., 2017; McMullen et al., 2009). This implies that at this stage of the entrepreneurial process, where the intention to be innovative and proactive was emphasized, a prevention focus or lack thereof was less relevant (cf. Brockner et al., 2004; Tuncdogan et al., 2015). We thus encourage future research to explore whether a prevention focus as opposed to

a promotion focus is more relevant at the exploitation stage, where the focus is on diligence and avoidance of errors and increase of efficiency.

5.2. Practical Implications

As a first important insight for practitioners, the results of our study reveal that leader communication of visions and goals can be an important lever for firms to encourage entrepreneurship within their organizations. However, as an important caveat, decision-makers must pay particular attention to who communicates what to whom. "Conflicting" communication may create construal misfit situations for employees, which in turn could mean that the communicated message does not achieve the intended effect and may even discourage employees. However, leaders *can* increase employees' WTAE by creating construal fit situations. In this regard, as a more general recommendation, we suggest that socially distant leaders should communicate abstract messages, while socially close leaders should focus on concrete messages. Furthermore, we caution that leaders be aware of their audience when formulating communication strategies. First, operational employees react differently from employees with management responsibilities. Second, the way leader communication affects employees' WTAE depends on followers' promotion focus. Therefore, companies are advised to systematically take stock of the promotion (and prevention) focus of their employees and to design their leader communication accordingly. Overall, our study points to mechanisms through which leaders can increase employees' WTAE while taking into account the fact that employees differ with regard to both their hierarchical level within the company and their individual goal orientations.

5.3. Limitations and Future Research Implications

Our paper has several limitations that suggest avenues for future research. First, although we conducted our experiment with employees, their statements in the hypothetical scenario and

actions in a real work context, where they face actual and not hypothetical consequences, could differ. In addition, our WTAE measure captures only the intention to behave entrepreneurially. However, in line with previous research (Schlaegel and Koenig, 2014; Tumasjan et al., 2013), we assume that intention is a good predictor of actual behavior. Nonetheless, conducting an in-depth investigation of our theorized model in a real organizational setting or developing an entrepreneurial behavior measure that is usable in an active role-playing experiment to substantiate our results would be valuable. In addition, we acknowledge that it can be challenging for experimental studies to capture the aspect of risk associated with entrepreneurial behavior (cf. Grégoire et al., 2019). While not directly captured in our experiment, through our qualitative interviews, we gained insight into this issue (I6): "*I'm encouraged to be proactive. This, of course, is associated with taking risks. Everything you do not coordinate is not 100% certain that it is right*". Thus, employees seem inherently aware that entrepreneurial behavior may result in challenging, stressful, and even negative situations in their work life. Future research could investigate the deterring influence of an uncertain environment and determine whether messages with different construal levels can help mitigate employees' perception of uncertainty.

Second, manipulating the construal level involved a trade-off between increasing realism and decreasing confounding effects. We used different aspects to manipulate the construal level: To manipulate the abstractness of the message, we used temporal distance, hypotheticality, and the language used (vague/abstract vs. concrete/detailed). With our experimental design, we could not discern whether hypotheticality or temporal distance drives the results, as doing so would require two distinct scenarios. However, to increase the external validity of the scenarios by presenting the participants with situations that they can easily relate to, we decided to combine all aspects and tested the overall concept of a vision. Similarly, we manipulated leaders' social distance in three ways (hierarchical distance: CEO vs. team leader;

communication channel: personal vs. email communication; the language used: formal vs. informal language), and discriminating between these dimensions was not possible. Particularly, the communication channel used might be a distinct category from hierarchical and social distance. While respondents in the validation study confirmed that the different channels increased social distance, holding the channel fixed may have been preferable. However, finding an externally valid scenario in which it is equally likely that both a very distant and a very close leader choose the same communication channel (e.g., the CEO communicating personally with the employee) seems challenging. We believe that external validity is a very important issue when designing suitable manipulations, particularly when the aim is to measure individuals' perceived fit. Nonetheless, future research could unravel which construal level aspect has the strongest effect or whether all aspects jointly influence employees' perceived construal fit.

Third, following Chen et al. (2018), one could argue that more abstract communication leads to thinking about action, while more concrete communication leads to actually taking action. However, we could not fully capture this issue in our experimental setup, and therefore, we refrained from hypothesizing the main effects of visions and goals on WTAE. Specifically, we do not know whether our respondents perceived WTAE as an abstract concept or as a concrete concept, which can strongly depend on whether they were engaged in similar behavior themselves. While we cannot answer this question with the experiment, we found preliminary evidence in our complementary qualitative evidence of this effect (cf. section "7 Complementary Qualitative Evidence" in Appendix G). In particular, the respondents indicated that vision communication led them to think about their contribution to the company's overall goals and had motivational and inspirational value. In comparison, they indicated that goal communication had much more direct consequences for their actual behavior. We encourage

future research to delve more deeply into this issue and specifically investigate the main effects of concrete and abstract messages.

In addition, we want to acknowledge that our results suggest that there may also be a fit between the message and the hierarchical level of the follower, which we did not theoretically account for in our model. While nonmanagerial employees seem to perceive goals and visions equally, when communicated by a close leader, managerial employees react more strongly to abstract vision communication. This suggests that they perceive a fit/misfit according to their own hierarchical level. Based on this interesting finding we encourage future research to investigate how employees' hierarchical levels, their traits and other characteristics shape behavior and intention throughout the company.

Finally, we have several challenges concerning our experimental design, warranting a critical discussion. First, we used a crowdsourcing sample for our study. Crowdsourcing platforms can be compelling sources for researchers and make it possible to collect a greater sociodemographic variance than other sampling methods (Woo et al., 2015). In addition, there is no indicator that crowdsourcing respondents are less honest or attentive than respondents from other samples (Keith et al., 2017). However, participants are monetarily incentivized or may have experience with similar questionnaires and thus be more susceptible to the researcher's aim. We chose a fieldwork panel typically used for marketing surveys, which, unlike student or "MTurk" samples, makes our participants less likely to have encountered similar constructs prior to our study. Thus, our respondents may be less likely to be biased by recognition or experience effects. However, we cannot exclude such a possibility. Furthermore, while such samples allow easy access to a broad cross-section of the population, there are doubts as to the generalizability of the collected data. Particularly, when using attention checks to increase the quality of the sample, the representativeness may be reduced, as "women, older adults, professionals, and students are more likely to answer attention check questions

correctly" (Keith et al., 2017: 14). While we could not identify any changes in the sample composition based on comparisons of demographics, we cannot fully rule out such a possibility. Last, the positioning of our manipulation checks, immediately after participants had read the scenarios, can be problematic. Recent research (Hauser et al., 2018) argues that manipulation checks may act as a mediating effect and influence participants' thinking. While we believe that our manipulation checks did not reveal the (more complex) interactive relationship between the variables of interest and ultimately perceived construal fit, we agree that positioning the manipulation checks at the end has advantages. We caution readers to interpret our findings in light of this limitation and encourage future research to be aware of the issue of placement of manipulation checks.

6 Conclusion

Our paper sought to examine how leader communication of goals and visions shapes the underlying cognitive process of employees that ultimately influences their WTAE. We validated our theory with an experiment supplemented by qualitative evidence, and our theoretical predictions were widely supported. Based on our findings, we discussed unique new insights informing the literature on employee entrepreneurial behavior as well as the applicability of CLT and the concept of construal fit in entrepreneurship research more generally. Our study holds important implications for practice and future research.

C. Study 2: Sitting on the fence – Untangling the role of uncertainty in entrepreneurship and paid employment for hybrid entry

1 Executive Summary

The phenomenon of hybrid entrepreneurship, where employees start a business while maintaining their main job in paid employment, is highly prevalent. In fact, worldwide, the majority of individuals who become entrepreneurs begin as hybrid entrepreneurs, rather than quitting their paid employment to enter full-time entrepreneurship. While research on hybrid entrepreneurship gains traction, research on what drives individuals to start their businesses using the hybrid rather than the full-time mode of entry is still in its infancy.

A main advantage of hybrid entry over full-time entry is that hybrid entry allows individuals to test the 'entrepreneurial waters' while still having the security of a paid job. Entrepreneurship is generally acknowledged as being associated with a high degree of uncertainty, so hybrid entry allows individuals to deal with this uncertainty by taking the first steps in entrepreneurship while maintaining paid employment and its associated benefits and security. Prior research corroborates this notion, showing that increased uncertainty in entrepreneurship stimulates hybrid entry, rather than full-time entry.

However, by focusing on how the hybrid mode of entry enables an individual to deal with the uncertainty of entrepreneurship, the literature largely ignores the uncertainty that employees can experience in their paid employment. Put differently, the decision to continue paid employment is as inherent in the phenomenon of hybrid entrepreneurship as the decision to enter entrepreneurship as a second job. However, by focusing solely on the role of uncertainty in entrepreneurship, the literature largely overlooks that hybrid entrepreneurship encompasses both decisions.

To address this gap, this paper examines how uncertainty in entrepreneurship *and* uncertainty in paid employment individually and jointly influence an individual's choice to enter hybrid entrepreneurship, rather than full-time entrepreneurship. Applying real options reasoning, we argue that hybrid entrepreneurship is a portfolio of two real options—an option to grow in entrepreneurship and an option to abandon paid employment—that simultaneously determine the portfolio's value. We argue in a baseline hypothesis, as this hypothesis has been tested before, that uncertainty in entrepreneurship fosters individuals' choice to use a hybrid mode of entry, rather than a full-time mode of entry. In contrast, we argue that uncertainty in paid employment makes a hybrid mode of entry less likely than full-time entry, as it decreases the value of maintaining the option in paid employment. Finally, drawing on suggestions from real options theory on interaction effects in real options portfolios, we argue that the positive impact of uncertainty in entrepreneurship on the likelihood that an individual chooses the hybrid mode of entry decreases with increasing uncertainty in paid employment.

We validate our theory using a monthly panel-dataset from the U.S. Current Population Survey (CPS) spanning the years from 2006 to 2019. We supplement these data with data from the Study of Income and Program Participation (SIPP), which allows us to predict individual-level measures of uncertainty in entrepreneurship and paid employment.

Our study contributes to the growing field of hybrid entrepreneurship by illuminating the importance of considering uncertainty in paid employment. The study's insights suggest that previously established determinants of the hybrid mode of entry, such as uncertainty in entrepreneurship, should be disentangled in light of our findings. Further, we advance the more general entrepreneurship literature by showing that entry into entrepreneurship, independent of the mode of entry, is more likely with increasing uncertainty in paid employment.

2 Introduction

The majority of entrepreneurs worldwide start their businesses alongside their main jobs in paid employment, rather than fully immersing themselves into entrepreneurship (Klyver et al., 2020; Minniti, 2010), a mode of entry called hybrid entrepreneurship (Folta et al., 2010). Related research suggests that individuals choose hybrid, rather than full-time, entry to gain a first foothold in entrepreneurship while simultaneously maintaining the security of their paid jobs (Folta et al., 2010; Raffiee and Feng, 2014). By providing the security of a paid job, hybrid entrepreneurship allows individuals to cope with uncertainty in entrepreneurship, which we define as the level of unpredictability of an individual's future earnings in entrepreneurship. Accordingly, studies consistently determine that the hybrid mode of entry is more likely than the full-time mode of entry when *uncertainty in entrepreneurship* increases (Wennberg et al., 2006).

While prior studies emphasize the role of uncertainty in entrepreneurship in an individual's choice between hybrid and full-time entry (Folta et al., 2010; Raffiee and Feng, 2014; Wennberg et al., 2006), they largely overlook the role of *uncertainty in paid employment* in terms of the unpredictability of an individual's future earnings in paid employment. However, if uncertainty in entrepreneurship affects the decision between hybrid and full-time entry into entrepreneurship, uncertainty in paid employment is also likely to play a role. That the decision to keep one's paid employment is inherent in hybrid entrepreneurship suggests that, by focusing only on uncertainty in entrepreneurship, research ignores another critically important dimension of the hybrid entrepreneurship phenomenon. What's more, individuals' evaluations of these uncertainties may depend on each other, that is, the effect of uncertainty in entrepreneurship on the choice between hybrid and full-time entry may depend on the level of uncertainty in paid employment. Understanding the effect of uncertainty on individuals' choice of entry mode is not only meaningful theoretically but is also relevant to practice, as it informs

policymakers, who frequently aim to smooth uncertainty's impact on the economy, regarding how to craft policies for full-time as well as hybrid entrepreneurs (Schulz et al., 2016). In summary, there is a need to determine how uncertainty in entrepreneurship *and* paid employment individually and jointly determine an individual's decision to start a business as a hybrid entrepreneur, rather than full-time.

We apply real options reasoning to determine how uncertainty in entrepreneurship and paid employment individually and jointly drive employees' choice between hybrid and full-time entrepreneurship. We argue that hybrid entrepreneurship represents a portfolio of two options with distinct upside potential that simultaneously determine the portfolio's value: an option to abandon the current paid employment and an option to grow in entrepreneurship. Specifically, we pursue three objectives: First, in using a baseline hypothesis, we follow prior real options reasoning on hybrid entrepreneurship (Folta et al., 2010; Wennberg et al., 2006) and argue that uncertainty in entrepreneurship increases the value of holding the right (but not the obligation) to grow in entrepreneurship, making hybrid entry more likely than full-time entry. Second, going beyond existing knowledge, we argue that uncertainty in paid employment reduces the value of holding the right (but not the obligation) to abandon one's paid employment, making hybrid entry less likely than full-time entry. The underlying rationale is that individuals cannot easily profit from the upside potential in their current paid employment, as wage increases are largely determined by their employers (Guerra and Patuelli, 2016). Third, drawing on suggestions from real options theory that real options interact negatively if exercising one option erodes the value of the other option (Trigeorgis, 1996), we explain how uncertainty in paid employment negatively moderates the relationship between uncertainty in entrepreneurship and the hybrid mode of entry.

We tested our hypotheses using data from the U.S. Current Population Survey (CPS) spanning the years from 2006 to 2019, which we combined with data obtained from the Study of Income

and Program Participation (SIPP). We used the SIPP to predict individual-level measures of uncertainty in entrepreneurship based on individuals' states of residence and occupations and of individual-level measures of uncertainty in paid employment based on individuals' states of residence, occupations, and the industry volatility in their paid employment. Our final dataset contains 6,673 full-time employees who transitioned to either hybrid or full-time entrepreneurship. In a robustness check, we account for potential sample selection effects in a Heckman model by extending this sample with full-time employees who did not transition to entrepreneurship.

We contribute to hybrid entrepreneurship research (Folta et al., 2010; Raffiee and Feng, 2014; Schulz et al., 2021), by explaining theoretically and validating empirically that the impact of uncertainty in entrepreneurship on the entry mode decision depends heavily on the individual's level of uncertainty in his or her paid employment. We stress that hybrid entrepreneurship should be considered as a portfolio of two options: the option to grow in entrepreneurship and the option to abandon paid employment. By delineating how these two options differ in their upside potential and interact because of their high probability of joint exercise, our theory can serve as a basis for future research on hybrid entrepreneurship.

Our study also contributes to research on uncertainty in entrepreneurship (McKelvie et al., 2011; Townsend et al., 2018). The empirical results from our Heckman selection model challenge the widespread notion that uncertainty in paid employment plays a negligible role in the decision between entering and not entering into entrepreneurship (Kihlstrom and Laffont, 1979; Parker et al., 2005; Raffiee and Feng, 2014). We find that entry into entrepreneurship, including hybrid and full-time entry, is less likely with increasing uncertainty in entrepreneurship but more likely with increasing uncertainty in paid employment. Thus, we inform entrepreneurship research that, as opposed to what is commonly assumed, uncertainty

in paid employment does influence the decision concerning whether to enter into entrepreneurship at all.

3 Theory and Hypotheses

3.1. Real Options Theory and Hybrid Entrepreneurship

Real options reasoning relies on logic and heuristics to analyze decision making from the lens of real options theory (Trigeorgis and Reuer, 2017). Real options theory is a prominent framework that illustrates how firms and individuals choose investment strategies under conditions of uncertainty (Dixit, 1992; Oriani and Sobrero, 2008). Real options theory stresses that uncertainty drives the value of an investment by entailing a high upside potential in terms of expected future payoffs (Carruth et al., 2000; Folta, 2007), along with a high downside potential (Dixit, 1992; Trigeorgis and Reuer, 2017). Whereas the upside potential of uncertainty provides an incentive to discover and exploit new investment opportunities, its downside potential can lead to severe losses, especially if the investment incurs irreversible sunk costs (Kellogg, 2014). According to real options theory, this tension between the upside and downside potential of uncertainty can be resolved by creating and maintaining real options that provide the right, but not the obligation, to invest in or divest oneself of assets. Thus, individuals can maintain options to invest or divest and wait to exercise them at an optimal later point depending on the development of uncertainty and the related upside and downside potentials of the options' underlying assets (Trigeorgis and Reuer, 2017).

Generally, the decision between hybrid and full-time entry can be represented as a two-stage process in which individuals first decide whether to enter entrepreneurship at all and, in the second stage, decide whether to enter as a hybrid or full-time entrepreneur. We focus on the

second stage.[6] Prior research theorizes hybrid entry as the creation of an option to grow in entrepreneurship (Folta et al., 2010; Raffiee and Feng, 2014). By making an initial incremental investment in entrepreneurship, hybrid entrepreneurs limit the downside that can be associated with full-time entry, as they postpone full commitment in terms of giving up their paid jobs (Folta et al., 2010). At the same time, with hybrid entry, individuals can gain a first foothold in entrepreneurship before making a full-time commitment (Folta et al., 2010; Marshall et al., 2019; Raffiee and Feng, 2014). From this perspective, entry into hybrid entrepreneurship refers to the *creation* of a real option to grow in entrepreneurship, while entry into full-time entrepreneurship refers to the *exercise* of the real option in entrepreneurship (Folta et al., 2010; Raffiee and Feng, 2014).

The real-options qualities of the hybrid mode of entry make that mode particularly useful in uncertain business environments (Folta et al., 2010; Wennberg et al., 2006). Generally, greater uncertainty increases the upside potential in entrepreneurship for both hybrid and full-time entrepreneurship by promising considerable potential returns and more opportunities for both modes of entry. However, the same increases in uncertainty also suggest a greater potential downside (Chintakananda and McIntyre, 2014; O'Brien and Folta, 2009). Fully committing to entrepreneurship means investing all of one's personal employment-related resources, such as one's time and abilities, in the new venture—in addition to what is often a substantial financial investment (Wu and Knott, 2006). However, people are often reluctant to commit when outcomes are uncertain because they fear negative economic developments that can erase their investments of time and money (Wu and Knott, 2006). Furthermore, uncertainty increases the possibility of business failure and subsequent spells in unemployment if labor markets are

[6] The question concerning whether uncertainty in paid employment also affects the first-stage decision is empirical; that is, as entry in the first stage includes the hybrid entry mode, the argument of a "push effect" away from paid employment (Berkhout et al., 2016) does not apply. Hence, we address this issue empirically when we test the robustness of our results to potential selection effects.

weak. Such business failure and unemployment can have severe personal consequences for the individual, for instance leading to significant debts and loss of status and reputation (Hyytinen and Rouvinen, 2008; Ucbasaran et al., 2013). By creating the option to grow in entrepreneurship, hybrid entrepreneurship allows beginning entrepreneurs to make an incremental investment into entrepreneurship, thereby gaining a first foothold, and to wait until uncertainty about the future resolves before exercising the option to grow in entrepreneurship (Folta et al., 2010). Thus, hybrid entry limits the possibility of incurring irreversible costs and facing unemployment in case of venture failure while keeping the flexibility to exercise the option to grow and to exploit the upside potential of entrepreneurship at a later time (Folta et al., 2010; Raffiee and Feng, 2014). In line with prior research (Wennberg et al., 2006), then, we argue that higher levels of uncertainty in entrepreneurship make hybrid entry more likely:

Baseline Hypothesis 0. Uncertainty in entrepreneurship makes entry into hybrid entrepreneurship more likely than entry into full-time entrepreneurship.

3.2. Uncertainty in Paid Employment and the Hybrid Portfolio

While prior research on hybrid entrepreneurship focusses on the role of uncertainty in entrepreneurship (e.g., Wennberg et al., 2006), similar studies on the uncertainty in an individual's paid employment are largely missing. However, the hybrid entry decision implies not only creating an option to grow in entrepreneurship (an investment option) but also maintaining the option to abandon the current paid employment (a divestment option). Hence, hybrid entrepreneurship refers to holding a portfolio of two options that are not currently exercised. Real options theory highlights that, in such portfolios with multiple options, all options determine the portfolio's value through their underlying uncertainties (Anand et al., 2007; Trigeorgis, 1993). Generally, entrepreneurship research assumes that uncertainty in paid

employment is negligible (e.g., Kihlstrom and Laffont, 1979; Parker et al., 2005; Raffiee and Feng, 2014), which may explain why it refrains from applying real options theory to decisions related to paid employment. However, research from the field of labor economics reveals that uncertainty in paid employment plays a role in individuals' decisions about making job changes (Dillon, 2018; Liu, 2019). Hence, studying the hybrid portfolio's value and, thus, individuals' choice between hybrid and full-time entrepreneurship, requires considering uncertainty in both entrepreneurship and paid employment. In the following, we draw on real options theory to investigate the role of uncertainty in paid employment in the decision between hybrid and full-time entry into entrepreneurship.

We argue that the option to abandon paid employment implies the right, but not the obligation, to disinvest from a current paid employment. Prior studies argue that options to abandon emerge when decision makers have the right, but not the obligation, to disinvest from a project in return for its *salvage value* or the value of its *best alternative use* (Trigeorgis, 1996). This argument is in line with prior research on options to abandon business units in return for their salvage value (Damaraju et al., 2015; Labaki and Hirigoyen, 2020). However, individuals who abandon their paid jobs are unlikely to retrieve any salvage value. Instead, we argue that abandoning paid employment provides value through an opportunity for a better alternative use, as employees have the possibility to use their newly available time to pursue more valuable employment opportunities. Thus, employees always implicitly hold the option to abandon their paid employment, which they can exercise in favor of their time and talent's best alternative use in better employment opportunities.

A unique characteristic of the option to abandon paid employment is that its upside potential is bounded by the decision making of the individual's employer. In contrast to the self-employed, employees cannot easily profit from the upside potential of uncertainty in the current paid employment in terms of higher wages, as wage increases are largely determined by the

employer (Guerra and Patuelli, 2016). Hence, while uncertainty about a firm's future profits provides a high upside potential for the employer, the employee still depends on promotions, benefits, and wage increases to profit from this upside potential. In fact, prior research indicates that, even in good times, employers are reluctant to raise wages because of wage rigidities (Babecky et al., 2009; Elsby, 2009; Hall and Lazear, 1984). Thus, in contrast to the self-employed, employees can participate in the upside potential in their paid employment only to a limited extent.[7]

While greater uncertainty in paid employment only partially increases the upside potential of paid employment, uncertainty's influence on the downside potential is similar to that of uncertainty in entrepreneurship. In bad times, firms may resort to lay-offs instead of wage cuts, which are usually difficult to enforce (Holden, 2004; Sverke and Hellgren, 2002). Furthermore, particularly in countries that have comparatively weak unemployment insurance, greater uncertainty in paid employment implies greater downside potential because of the risk of unemployment which, similar to the downside potential of self-employment, can have severe consequences if local labor markets are weak (Holden, 2004). This refers not only to a loss of income, but also to the loss of status and reputation (e.g., Darity and Goldsmith, 1996). Table C-1 summarizes our arguments regarding the similarities and differences of uncertainty in entrepreneurship and paid employment with regard to their upside and downside potentials.

[7] Employees may respond to such wage rigidities by leaving their current paid job, thus also exercising the option to abandon paid employment.

Table C-1: The Upside and Downside Potential of Uncertainty in Entrepreneurship and Uncertainty in Paid Employment

	Upside Potential	Downside Potential
Uncertainty in Entrepreneurship	Considerable potential returns and opportunities	Unemployed and unable to find new work, significant debts, loss of status and reputation
Uncertainty in an individual's Paid Employment	Wage increase limited because of rigidities at the level of the employer	Unemployed and unable to find new work, loss of status and reputation

In sum, similar to uncertainty in entrepreneurship, which increases the downside potential of entrepreneurship, uncertainty in paid employment increases the downside potential of paid employment. However, in contrast to uncertainty in entrepreneurship, uncertainty in paid employment increases the upside potential of an individual's current paid employment only to a limited extent. Hence, the attractiveness of maintaining the option to abandon the current paid employment, instead of exercising it, *decreases* with increasing uncertainty in paid employment. Therefore, we argue that increasing uncertainty in paid employment makes the hybrid portfolio of holding both real options less valuable than entry into full-time entrepreneurship.

> *Hypothesis 1. Uncertainty in paid employment makes entry into hybrid entrepreneurship less likely than entry into full-time entrepreneurship.*

According to real options theory, a portfolio's value is determined not only by the isolated effects of the options but also their potential interactions (Trigeorgis, 1993; Trigeorgis and Reuer, 2017). Consider, for example, a portfolio AB that consists of real options A and B. In this portfolio, interactions occur if the probability of *jointly exercising* both options is high, that is, if the exercise of option A makes the exercise of option B more likely (Trigeorgis, 1993;

Trigeorgis, 1996).[8] In these cases, the exercise of option A can erode the value of option B, which means that the additional contribution of option B to the value of the overall portfolio AB is lower than the value of option B in isolation. Such erosion of the value of option B also implies that the impact on the portfolio's value of the uncertainty that underlies option B decreases. That is, while the uncertainty that underlies option B usually increases the value of option B and also the value of portfolio AB, this positive effect on the value of the portfolio decreases when the exercise of option A becomes more likely because of an increase in option A's uncertainty.

When we apply this rationale to our research context, option A is the option to abandon paid employment, option B is the option to grow in entrepreneurship, and portfolio AB is the hybrid portfolio, where an individual holds both options. The positive impact of uncertainty that underlies the real option to grow in entrepreneurship (B) on the value of the hybrid portfolio (AB) decreases as uncertainty in paid employment increases, as increasing uncertainty in paid employment makes exercising the option to abandon paid employment (A) more likely.

Specifically, we argue that the two options in the hybrid portfolio are highly likely to be jointly exercised. When individuals exercise the option to abandon paid employment—that is, they choose to give up their paid employment—they are more likely also to exercise the option to grow in entrepreneurship—that is, to make full-time entry into entrepreneurship—so they can leverage their newly available time and resources. Conversely, maintaining the option to abandon paid employment while at the same time exercising the option to grow in entrepreneurship is difficult because of time constraints: Exercising the option to grow in

[8] Trigeorgis (1993, 1996) examines the conditions under which real options interact in detail, but applying this more detailed rationale to our context is not straightforward for two major reasons. First, the interdependence between the real options in the hybrid portfolio does not stem from the options' belonging to the same underlying asset but from time constraints at the individual level. Second, as proposed in hypothesis 1, the real option to abandon paid employment differs substantially from conventional real options because of its limited upside potential.

entrepreneurship is likely to require more time and personal investment from the individual. However, these resources can be difficult to leverage if they are still locked in the individual's paid employment, as few people can freely reduce the amount of hours they spend working in their paid employment (Böheim and Taylor, 2004; Euwals, 2001).[9] Thus, employees are highly likely to exercise jointly the option to abandon paid employment and the option to grow in entrepreneurship.

The interdependence between the two options in the hybrid portfolio has a strong influence on how the uncertainties in paid employment and entrepreneurship jointly shape the decision to enter into hybrid or full-time entrepreneurship. When an individual exercises the option to abandon paid employment, the newly available time provides a strong incentive to also exercise the option to grow in entrepreneurship, even if uncertainty in entrepreneurship is comparatively high. Thus, the increased likelihood of exercising the option to abandon paid employment that is entailed by increased uncertainty in paid employment reduces the role of uncertainty in entrepreneurship in the decision between hybrid and full-time entry. Hence, the impact of uncertainty in entrepreneurship on the likelihood of hybrid entry weakens with increasing uncertainty in paid employment, which yields a negative interaction effect of both uncertainties on the likelihood of hybrid entry.

> *Hypothesis 2. The positive impact of uncertainty in entrepreneurship on the likelihood to enter into hybrid rather than full-time entrepreneurship weakens with an increasing uncertainty in paid employment.*

[9] This rationale suggests that part-time employees may be less affected by the interaction effects of the options in their hybrid portfolio, as they may be able to maintain the option of abandoning paid employment while exercising the option to grow in entrepreneurship. We account for this issue in our empirical analyses.

4 Methodology

4.1. Data

To test our theory, we constructed a sample that spans the years from 2006 to 2019 from the CPS, provided by IPUMS (Flood et al., 2020). Our sample does not contain data from earlier years, as the time series on quarterly gross domestic product (GDP) from the Bureau of Economic Analysis, on which we relied to generate predictions of uncertainty in paid employment, is available since 2006. Our last inclusion year was 2019, as the lagged data on state-level entry rates into entrepreneurship that we needed to test the robustness of our results with regard to selection bias are available only until 2019.

The CPS is an ongoing monthly survey of around 65,000 sample households and 130,000 individuals, wherein individuals report their current work and living situation (Couch and Fairlie, 2010). Each individual is interviewed eight times, which allowed us to investigate how the uncertainty in entrepreneurship and in paid employment in a given month affects his or her decision to transition to hybrid or full-time entry in the next month.

Consistent with our theorizing, we do not include in our data individuals who were in part-time employment before taking the step into either hybrid or full-time entrepreneurship (see Table C-2 for more details on our sampling procedure). We also followed recommendations in previous studies (Lofstrom et al., 2014; Schulz et al., 2021) to restrict our sample to individuals aged 25 to 59, as this approach mitigates confounding influences that are specific to younger individuals who are still in their qualification phase and older individuals who are approaching retirement. Further, as previous research indicates that the CPS is more reliable with regard to information on holders of multiple jobs when it is reported by the job-holders themselves (Hirsch and Winters, 2016), we restricted our sample accordingly. Applying these measures and merging the data with the predictions of uncertainty derived from the SIPP (as described

further below) yielded a sample of 1,778,273 employees. Among these, 6,673 transitioned to either hybrid or full-time entrepreneurship, so they constitute the sample for our main analyses. Comparison of mean values in our main analyses' sample for gender, age, marital status, children, educational status, and family income shows no statistically significant differences before and after the merge with predictions of uncertainty. More details on how we constructed the CPS dataset are provided in section "1 Construction of Dataset" in Appendix H.

Table C-2: Data Sampling Procedure

Steps	Procedure	Observation Number
Step 1: Initial Screening & Creating the Panel	• Joining individual monthly datafiles from January 2006 – December 2019 This corresponds approximately to 130.000 observations per month (cf. Couch and Fairlie, 2010) Dropping non-working population (unemployed, retired, disabled, not in labor force)	*22,035,353*
	• Identifying individuals within an interview cohort over the 2 years interval	*10,472,908*
	• Excluding "false matches" following Lefgren and Madrian (1999)	*10,427,988*
Step 2: Identifying Transitions	• Restricting sample to employees who in the next month are either hybrid entrepreneurs, full-time self-employed (excluding double entries), or stay in paid employment.	*5,795,819*
Step 3: Matching Panel & Uncertainty	• Matching industry information for paid employment & individual level uncertainty in entrepreneurship and paid employment (starting 2006 2nd quarter)	*5,380,268*
Step 4: Preparing Sample for Estimation	• Restricting sample to full-time employed self-respondents	*2,164,647*
	• Restricting age class of entrepreneurs to range from 25 to 59 years	*1,857,502*
	• Excluding observations with missing data in controls	*1,778,273 (Sample of Heckman model)*
	• Restricting sample to individuals who make the transition into entrepreneurship	***6,673 observations in main estimation***

In addition to the CPS, we relied on data from the SIPP from 2006 to 2013, provided by the United States Census Bureau (2014). The SIPP is a large-scale U.S. household panel survey that provides detailed monthly data about individuals' employment and earnings over twelve consecutive months (Lofstrom and Wang, 2007). The information on individuals' earnings provided by the SIPP is by far superior to that of the CPS, as the CPS provides only one or two observations on earnings for each individual with a year between observations. Hence, the data provided by the CPS are too crude to enable predictions of the monthly earnings' volatility in entrepreneurship and paid employment at the individual level. In contrast, the SIPP enabled us to generate predictions of an individual's volatility in monthly earnings in entrepreneurship and in paid employment based on information from 12 consecutive months. As described further below, we matched these predictions to individual-level observations in the CPS. As a redesign of the SIPP in 2014 significantly altered the measurement of earnings, making pre- and post-2014 data non-comparable for generating predictions of earnings variance, we considered SIPP data only until 2013. We address the robustness of this approach in a related robustness check.

4.2. Dependent Variable: Identification of Entry into Entrepreneurship

Our binary dependent variable hybrid entry captures the decision to change from paid employment either to hybrid entrepreneurship or to full-time entrepreneurship (base outcome). Consistent with our theorizing and prior research (Folta et al., 2010), we identified hybrid entrepreneurs as individuals who are employed in a paid job and self-employed in a second job (see section "2 Further Details on the Construction of the Dependent Variable" in Appendix H for more details on the construction of this variable.)

4.3. Independent Variables: Uncertainty Measures

A common approach to measuring uncertainty is to calculate the volatility of GDP growth at the industry level (Belderbos and Zou, 2009; Folta and Miller, 2002; Vassolo et al., 2004). Previous research highlights that volatility is a useful approximation for uncertainty about future payoffs in terms of demand in an industry and in a state (Bloom, 2014; Folta and Miller, 2002). However, as our definition of uncertainty as the unpredictability of an individual's future earnings in entrepreneurship and in paid employment pertains to the individual level, rather than the industry level, we adapted the measure of industry volatility to generate predictions of both uncertainties that are closer to the individual level.

To do so, we followed prior research in calculating uncertainty in an employer's industry as the four-quarter volatility of the U.S. industry-/state-level chained growth rate of real GDP. Our use of quarterly data is a significant strength because it corresponds more closely to observed economic developments than yearly aggregates do. Then, we drew on data from the SIPP to align this established measure of industry volatility more closely to the individual level. Specifically, we determined the impact of past industry volatility on future earnings uncertainty in paid employment by using a sample of full-time employees to regress the industry volatility over the past twelve months on the individuals' earnings volatility (in terms of the standard deviation of earnings) in the subsequent twelve months. As research demonstrates that uncertainty in paid employment differs across occupations (Dillon, 2018), we calculated these regressions separately for 22 major occupational groups reported in the SIPP and CPS. (See Table H-1 in section "3 Occupational Groups" in Appendix H for an overview of these occupational groups.)

Based on these regressions, we generated predictions of the earnings volatility an individual will experience in the coming twelve months based on his or her current occupation and the

state-level volatility of GDP over the past twelve months in the industry in which he or she was employed. Thus, our measure of individual uncertainty not only leverages exogenous uncertainty in the industry of an individual's paid employment but also considers an individual's occupation, which reflects his or her skill set and occupational risk (Sorgner and Fritsch, 2018). This identification strategy results in a fine-grained measure of the unpredictability of an individual's future earnings in paid employment by accounting for individuals in a specific state, in a particular industry, in a particular occupation, at a specific point in time.[10]

To generate predictions about uncertainty in entrepreneurship, we relied on information about an individual's current occupation and state of residence. Specifically, we used a sample of self-employees from the SIPP to regress occupation fixed effects interacted with state fixed effects on the twelve-months earnings volatility (in terms of the standard deviation). Then we generated predictions of uncertainty and matched them to individuals in the CPS based on their occupations and states of residence. This approach is similar to that of Berkhout et al. (2016), who determine predictions of uncertainty in entrepreneurship based on the earnings variance of self-employees within different labor market segments.

The regressions we did to predict uncertainty in entrepreneurship and paid employment used samples that entailed between 7,203 and 196,588 observations. To account for the oversampling of low-income areas in the SIPP (U.S. Census Bureau, 2001), these regressions employed the person weights provided by the SIPP. The unit of the resulting measures of uncertainty pertains to the average change in monthly earnings an individual can expect to experience in entrepreneurship or in paid employment in the next twelve months (in US$).

[10] Figure H-2 in section "4 Variation of Uncertainty in Paid Employment over Time" in Appendix H shows how this measure varies across states, industries, and occupations.

4.4. Control Variables

Following previous studies on entrepreneurial entry, we included several demographic characteristics in our study. We controlled for age (Folta et al., 2010), expecting that an increase in age would lead to more hybrid entrepreneurship, as people tend to become more risk-averse with age (Davidsson and Honig, 2003; Shane, 2003). We also controlled for gender (female = 1, male = 0), marital status (married = 1, other = 0), and the number of children below the age of 18 living in the household. Prior studies suggest that women are more risk-averse than men are and that female entrepreneurs are more likely to hold jobs on the side (Minniti, 2010). Studies also suggest that married people with children and lower household incomes may prefer hybrid entrepreneurship to supplement their income (Folta et al., 2010), so we included a variable to control for the family income (four quartiles of family income). In addition, we created five dummy variables for individuals' educational attainment (1: no diploma, 2: high school degree, 3: college without degree, 4: associate or bachelor's degree, 5: master's degree/professional degree/doctorate), as previous studies suggest that highly educated individuals prefer hybrid entrepreneurial entry (Folta et al., 2010; Schulz et al., 2016).

We controlled for unobserved heterogeneity by including state, year, and month fixed effects, which capture any effects that are due to regional or macroeconomic patterns over time (Folta et al., 2010; Schulz et al., 2016). In addition, we employed 19 industry dummies to capture all aspects of changes that are specific to the industry in which the individual was employed. Finally, we controlled for survey months fixed effects by including wave dummies in our empirical model. Our fixed-effects approach ensured that our uncertainty coefficients represent changes in uncertainty over time within states and industries. All our independent and control variables are lagged by one month with regard to the dependent variable.

5 Results

5.1. Descriptive Statistics and Main Results

Table C-3 presents pairwise correlations between the variables in our study, as well as their means and standard deviations. Fifty-nine percent of the 6,673 entries into entrepreneurship in our data are entries into hybrid entrepreneurship, which is consistent with prior studies' findings that hybrid entries outnumber full-time entries (Folta et al., 2010). In our sample, the mean of uncertainty in entrepreneurship (1,697.64) is higher than the mean of uncertainty in paid employment (615.94). These values suggest that, across all observations in our sample, individuals face an average expected change in monthly earnings of $616 in their paid employment and of $1,698 in entrepreneurship. Concerning sociodemographic characteristics, those in our sample average 43 years of age, 42 percent are women, 61 percent are married, and they have an average number of one child. In terms of education, 21 percent had attained a high school degree, 16 percent had attended college without earning a degree, and 58 percent had an undergraduate or graduate degree.

We tested our hypotheses using logistic regressions and clustered standard errors at the state-industry level. Table C-4 presents the results where the outcome is entry into hybrid entrepreneurship compared to the base outcome of full-time entry into entrepreneurship. We followed a hierarchical approach, first including only the control variables in our regression (Model 1). In line with previous studies (Schulz et al., 2016), we observe a positive influence of education on hybrid entrepreneurial entry. Further, higher family income increases the likelihood that an individual will become a hybrid entrepreneur, which supports Folta et al.'s (2010) finding that hybrid entrepreneurship is not a choice favored by people who are constrained monetarily. The results also show that an increase in the number of children and being married significantly decrease the likelihood that one will become a hybrid entrepreneur.

Employees may face a greater challenge reconciling the demands of a family with full-time employment and the time required for self-employment at the same time.

Table C-3: Descriptive Statistics and Correlations

	Variable	*Mean*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1	Hybrid Entry[a]	0.59	0.49	1.00											
2	Uncertainty in Paid Employment[b]	615.94	193.13	0.04	1.00										
3	Uncertainty in Entrepreneurship[b]	1697.64	1188.63	0.03	0.27	1.00									
4	Female	0.42	0.49	0.09	-0.13	-0.01	1.00								
5	Married	0.61	0.49	0.03	0.06	0.03	-0.04	1.00							
6	Children	0.96	1.18	-0.01	0.00	0.01	0.01	0.35	1.00						
7	Age	43.40	9.56	0.00	0.00	-0.01	0.02	0.11	-0.11	1.00					
8	High School Degree	0.21	0.41	-0.13	-0.16	-0.09	-0.10	-0.03	-0.03	0.02	1.00				
9	College without Degree	0.16	0.37	0.01	-0.07	-0.03	0.01	-0.02	0.01	-0.02	-0.22	1.00			
10	Undergraduate Degree[c]	0.40	0.49	0.10	0.12	0.04	0.04	0.04	0.00	-0.06	-0.42	-0.36	1.00		
11	Graduate Degree[d]	0.18	0.38	0.10	0.15	0.11	0.07	0.01	-0.01	0.07	-0.24	-0.20	-0.38	1.00	
12	Family Income	2.70	1.09	0.16	0.27	0.13	-0.01	0.33	0.12	0.12	-0.20	-0.08	0.14	0.24	1.00

Note: n = 6,673. Correlations greater than |.03| are significant at $p \leq 0.01$ [a] 1 = entry into hybrid entrepreneurship, 0 = entry into full-time entrepreneurship. [b] average expected change of monthly earnings in the next twelve months (in US$). [c] Bachelor's or Associate Degree. [d] Master's or Professional Degree or Doctorate.

Table C-4: Logit Results: Entry into Hybrid Entrepreneurship vs. Full-Time Entry into Entrepreneurship

	Model 1			Model 2			Model 3			Model 4		
Variables	B	SE	*p*	B	SE	*p*	B	SE	*p*	B	SE	*p*
Constant	-0.78	(0.44)	0.08	-0.75	(0.44)	0.09	-0.77	(0.44)	0.08	-0.69	(0.44)	0.12
Female	0.09	(0.06)	0.15	0.09	(0.06)	0.15	0.09	(0.06)	0.16	0.09	(0.63)	0.15
Married	-0.13	(0.07)	0.05	-0.13	(0.07)	0.05	-0.13	(0.07)	0.05	-0.13	(0.07)	0.06
Children	-0.07	(0.03)	0.01	-0.07	(0.03)	0.01	-0.07	(0.03)	0.01	-0.07	(0.03)	0.01
Age	0.00	(0.00)	0.12	0.00	(0.00)	0.12	0.00	(0.00)	0.12	0.00	(0.00)	0.14
High School Degree[a]	0.85	(0.16)	0.00	0.85	(0.16)	0.00	0.85	(0.16)	0.00	0.85	(0.16)	0.00
College without Degree[a]	1.29	(0.16)	0.00	1.29	(0.16)	0.00	1.30	(0.16)	0.00	1.29	(0.16)	0.00
Undergraduate Degree[a,b]	1.40	(0.16)	0.00	1.39	(0.16)	0.00	1.41	(0.16)	0.00	1.39	(0.16)	0.00
Graduate Degree[a,c]	1.34	(0.17)	0.00	1.33	(0.17)	0.00	1.35	(0.18)	0.00	1.35	(0.18)	0.00
Family Income	0.26	(0.03)	0.00	0.26	(0.03)	0.00	0.26	(0.03)	0.00	0.25	(0.03)	0.00
Uncertainty in Entrepreneurship (U.E.)[d]				0.03	(0.04)	0.40	0.04	(0.04)	0.34	0.09	(0.04)	0.02
Uncertainty in Paid Employment (U.P.E.)[d]							-0.03	(0.04)	0.45	-0.03	(0.04)	0.47
Interaction U. E. x U. P. E.										-0.08	(0.02)	0.00
Fixed Effects:												
Month dummies (11)	Yes			Yes			Yes			Yes		
Year dummies (13)	Yes			Yes			Yes			Yes		
State dummies (50)	Yes			Yes			Yes			Yes		
Industry dummies (19)	Yes			Yes			Yes			Yes		
Wave dummies (5)	Yes			Yes			Yes			Yes		
Pseudo R-squared	0.1700			0.1702			0.1702			0.1716		
AIC	7,706			7,707			7,708			7,698		
Log-pseudo-likelihood	-3,745			-3,744			-3,744			-3,738		
Number of observations	6,673			6,673			6,673			6,673		

Notes: Logit model with clustered standard errors (clustered at the state x industry level). [a] Compared against omitted category no diploma. [b] Bachelor's or Associate Degree. [c] Master's or Professional Degree or Doctorate. [d] Standardized values.

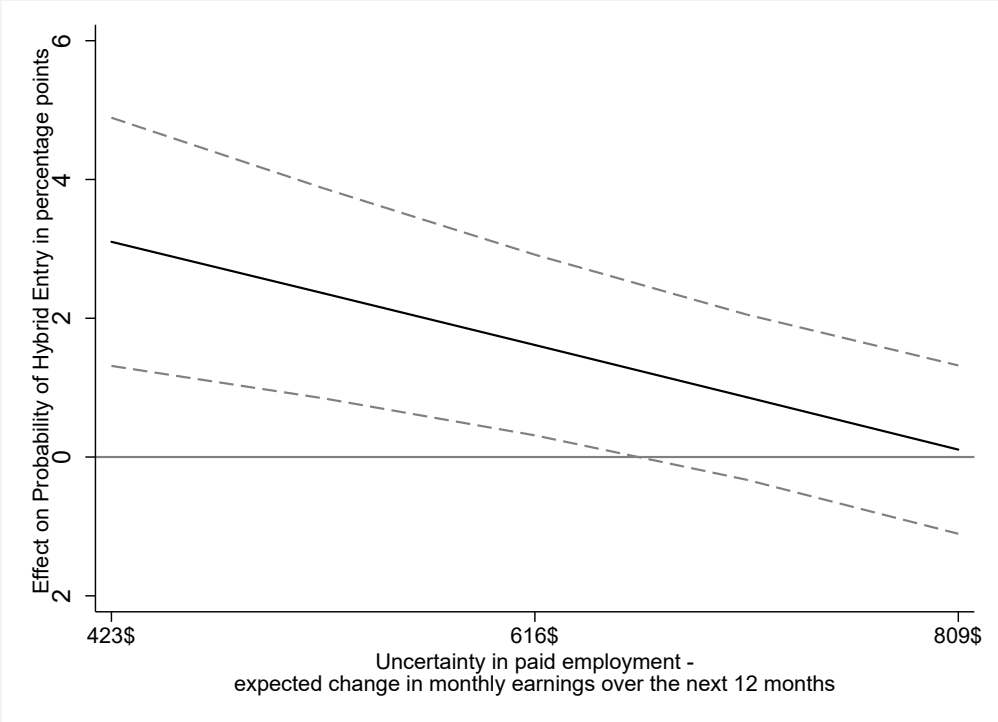
In a second step, we included the direct effects of uncertainty in entrepreneurship and paid employment in Model 2 and Model 3, consecutively. Our results in both Models 2 and 3 do not show a statistically significant direct effect of uncertainty in entrepreneurship or in paid employment. Further, the pseudo R-squared and Akaike Information Criterion (AIC) remain nearly unchanged. Therefore, we did not find support for hypotheses 0 or 1. Adding the interaction between the two uncertainties in Model 4 shows a statistically significant interaction effect (B = -.08, p = .00), lending support to hypothesis 2. Thus, an increase in uncertainty in paid employment reduces the positive effect of uncertainty in entrepreneurship on hybrid entry, which substantiates our theorizing that looking at the uncertainties in isolation is not sufficient. Accordingly, Model 4 also shows a better fit with regard to the pseudo R-squared and AIC than the three previous models. Further, a likelihood-ratio test shows that Model 4 is significantly superior to the other models (p < .00 for all comparisons).

Since the regression coefficient is not sufficient to determine the presence of an interaction effect in nonlinear regressions, we follow prior research (Fini et al., 2021; Gupta et al., 2020) in calculating the "secondary component" of the interaction, as Bowen (2012) proposes. This secondary component indicates the degree to which an interaction effect suggests a moderating effect beyond the structural moderating component that also exists in the baseline model of a nonlinear regression (see Bowen (2012) for a more detailed explanation). The results show that the secondary component of the interaction effect is negative and statistically significant (B = -.02, p = .00), which lends further support to hypothesis 2.

To probe more deeply into the results of the interaction effect, we also calculated and plotted how the marginal effect of uncertainty in entrepreneurship varies for low and high values of uncertainty in paid employment (Figure C-1). We observe that, when the average expected change in monthly wages for paid employment is $423 (1 SD below the mean), the average marginal effect of uncertainty in entrepreneurship on the probability that an individual will

become a hybrid entrepreneur is 3.1 percentage points. This positive impact is also highly statistically significant (p = .00). In turn, when the average expected change in monthly wages in paid employment is $616 (mean value), the average marginal effect of uncertainty in entrepreneurship is only 1.6 percentage points (p = .01). When the average expected change in monthly wages for paid employment is $809 (1 SD above the mean), the average marginal effect of uncertainty in entrepreneurship approaches zero and becomes insignificant (p = .81). Hence, the influence of uncertainty in entrepreneurship on the decision between hybrid and full-time entry largely depends on uncertainty in paid employment.

Figure C-1: Average Marginal Effects of Uncertainty in Entrepreneurship for different degrees of Uncertainty in Paid Employment (+/- 1SD of the Mean) with 95% CIs



To illustrate the meaningfulness of these changes in the individual-level probability of choosing the hybrid mode of entry over the full-time mode of entry, we used estimated transition rates and employment data from the U.S. In their study on employment transitions in the U.S., Beckhusen (2014) shows that approximately 0.1 percent of employees transition to full-time self-employment. Based on this estimate, we calculated that, of the 125,889,000 individuals employed in the U.S. in 2005, excluding the self-employed (Hipple, 2010; U.S. Bureau of Labor Statistics, 2020), almost 126,000 employees transitioned into full-time self-employment. According to our estimate that full-time self-employment makes up 41 percent of transitions into entrepreneurship, approximately 181,300 individuals transitioned into hybrid entrepreneurship in 2005—that is, 307,300 entries transitioned into full-time or hybrid entrepreneurship.

With these entry rates, we can calculate to what extent uncertainty in entrepreneurship and paid employment affected the ratio of hybrid to full-time entries in the timeframe we observe. Our data show combinations of uncertainty in entrepreneurship and paid employment that suggest expected changes in monthly earnings from entrepreneurship from $271 (low uncertainty in entrepreneurship) to $2,173 (high uncertainty in entrepreneurship). Furthermore, we observe expected changes in monthly earnings from paid employment from $307 (low uncertainty in paid employment) to $702 (high uncertainty in paid employment). Hence, when expected changes in monthly earnings from paid employment were at $307 (low uncertainty in paid employment), an increase in the expected change in monthly earnings from entrepreneurship from $271 to $2,173 would have increased the number of hybrid entries in 2005 by 15,620 and reduced the entries into full-time entrepreneurship accordingly. In turn, when expected changes in monthly earnings from paid employment were at $702 (high uncertainty in paid employment), an increase in the expected changes in monthly earnings from entrepreneurship from $271 to $2,173 would not have increased the ratio of hybrid to full-time entries

significantly. When these entry numbers from the year 2005 are extrapolated forward 14 years to match the timespan of our sample (2006-2019), the impact of uncertainty in entrepreneurship on the number of hybrid entries may vary from null to 180,684 new hybrid entries (and an equivalently lower number of full-time entries). These results demonstrate that the ratio of hybrid to full-time entries can vary significantly, depending on the levels of uncertainty in entrepreneurship and uncertainty in paid employment.

5.2. Robustness Checks

We used three robustness checks to validate our findings. Because of our real options lens, we focused our empirical analyses on hybrid entrepreneurs who are self-employed in their second jobs and so dedicate more time to paid employment than they do to self-employment. However, we acknowledge that some previous studies also include hybrid entrepreneurs who dedicate more time to self-employment than to paid employment (e.g., Schulz et al., 2016). We find only 61 such additional hybrid entrepreneurs in our data, but to test the robustness of our theorizing, we estimated our model including this group of hybrid entrepreneurs. The results, which are available from the authors on request, remained stable.

Second, as we can use the SIPP data to generate our predictions of uncertainty in paid employment and entrepreneurship only until 2013, our empirical analyses rest on the assumption that the impact of industry volatility on an individual's earnings volatility remained stable after 2013. To test whether our results also hold without making this assumption, we reran our empirical analyses on a reduced sample that contained data only until 2013. The results, which are available on request, demonstrate full support for H2, in line with the findings from our main analyses.

As a final robustness check, we considered how our results may be affected by the initial choice concerning whether to become an entrepreneur at all, which may also be influenced by

uncertainty in entrepreneurship and paid employment. This initial choice creates potential for sample selection effects (Certo et al., 2016) that may affect the later choice between hybrid and full-time entry. Accordingly, we followed prior research (cf. Klyver et al., 2020) in leveraging the sample of 1,778,273 employees to estimate a Heckman two-stage probit model that models a first-stage choice between entry into entrepreneurship and staying in employment and a second-stage choice between hybrid and full-time entry.

Appropriately employing a Heckman selection model requires a variable that exclusively predicts the model's first-stage decision but not its second-stage decision (Certo et al., 2016; Grimes et al., 2018) — that is, a variable that predicts whether the individual will enter into entrepreneurship but not whether he or she will enter as a hybrid or a full-time entrepreneur. We rely on the natural logarithm of lagged yearly state-level entries of new businesses, which we obtained from the 2018 Business Dynamics Statistics (BDS) dataset (U.S. Census Bureau, 2018). The underlying rationale is that these entry rates are a proxy for entrepreneurial environments that facilitate entry into entrepreneurship. While such an environment is conducive to entrepreneurial entry in the first stage, it should not influence the choice concerning whether to enter as a hybrid or a full-time entrepreneur in the second stage. Indeed, adding the exclusion restriction in the second-stage equation shows no statistically significant effect over all model specifications ($p > .2$), which provides support for this approach.

Table C-5 shows the results of the Heckman selection model of our full model (i.e., Model 4 from our main analyses, depicted in Table C-4). Concerning the robustness of our empirical analyses to selection bias, we note that the findings of the second-stage (probit) support our main results, with uncertainty in entrepreneurship having a statistically significant positive impact ($B = .04$, $p = .05$), uncertainty in paid employment having a negative, yet insignificant impact ($B = -.01$, $p = .71$), and the coefficient of the interaction term of both uncertainties being negative and statistically significant ($B = -.04$, $p = .00$). Running the Heckman selection model

on models 1, 2, and 3 of our main analyses yields results that are close to those of our main analyses (both uncertainties have the expected sign but are statistically insignificant). These results are available from the authors on request.

Table C-5: Heckman Probit Model

	First stage Heckman DV = Entry			Second stage (probit) DV = Hybrid Entry		
	B	SE	*p*	B	SE	*p*
Constant	-3.58	(0.24)	0.00	-2.02	(0.57)	0.00
Femlae	-0.10	(0.01)	0.00	0.00	(0.04)	0.96
Married	0.07	(0.01)	0.00	-0.03	(0.04)	0.41
Children	0.00	(0.00)	0.23	-0.03	(0.01)	0.02
Age	0.00	(0.00)	0.00	0.00	(0.00)	0.86
Highschool Degree[a]	0.01	(0.03)	0.69	0.45	(0.09)	0.00
College without Degree[a]	0.06	(0.03)	0.04	0.70	(0.10)	0.00
Undergraduate Degree[a,b]	0.11	(0.03)	0.00	0.78	(0.10)	0.00
Graduate Degree[a,c]	0.15	(0.03)	0.00	0.78	(0.10)	0.00
Family Income	0.00	(0.01)	0.61	0.13	(0.02)	0.00
Uncertainty in Entrepreneurship (U.E.)[d]	-0.02	(0.01)	0.00	0.04	(0.02)	0.05
Uncertainty in Paid Employment (U.P.E.)[d]	0.01	(0.01)	0.01	-0.01	(0.02)	0.71
Interaction U. E. x U. P. E.	0.00	(0.00)	0.59	-0.04	(0.01)	0.00
Entry Rates	0.21	(0.10)	0.04			
Rho	0.50	(0.17)	0.01			
Fixed Effects:						
Month (11)			Yes			
Year (13)			Yes			
State (50)			Yes			
Industry (19)			Yes			
Wave (5)			Yes			
Log-pseudo-likelihood			-46,578			
Number of observations	1,778,273			6,673		

Notes: Heckman probit model with clustered standard errors (clustered at the state x industry level). [a] Compared against omitted category no diploma. [b] Bachelor's or Associate Degree. [c] Master's or Professional Degree or Doctorate. [d] Standardized values.

Next to confirming the results of our main analyses, the results of this robustness check provide further intriguing insights: The first-stage results show not only that the impact of the state-level entry rate of new businesses is positive and statistically significant (B = .21, p = .04), as expected. It also shows that uncertainty in entrepreneurship decreases entry into entrepreneurship (B = -.02, p = .00), while uncertainty in paid employment makes entry into entrepreneurship more likely (B = .01, p = .01). This result provides additional insights into how uncertainty in paid employment also affects the first stage of entry into entrepreneurship, an issue that we discuss in more detail in the next section.

6 Discussion

This study draws on real options theory to explain that uncertainty in entrepreneurship and uncertainty in paid employment independently and jointly influence individuals' decisions between hybrid and full-time entry into entrepreneurship. While our findings lend strong support to our hypothesis that uncertainty in paid employment negatively moderates the positive impact of uncertainty in entrepreneurship on hybrid entry, we also find exceptions with regard to the direct impact of both uncertainties on hybrid entry. In the following, we discuss how these results advance entrepreneurship research.

6.1. Theoretical and Policy Implications

We add to the growing literature on hybrid entrepreneurship (Demir et al., 2020; Klyver et al., 2020; Schulz et al., 2021) by delineating the portfolio nature of hybrid entry. We extend prior theory (Folta et al., 2010; Raffiee and Feng, 2014) by explaining how the option to grow in entrepreneurship and the option to abandon paid employment differ in their upside potential and how they interact. By introducing this new portfolio perspective on hybrid entrepreneurship, we offer new avenues for future research to explore. Specifically, we encourage future research to delve more deeply into possible sources of interaction effects in a

hybrid portfolio. For example, future research may build on prior suggestions regarding real option portfolio effects that arise from the fungibility of shared resources (Vassolo et al., 2004), which may also apply in the hybrid portfolio. What is more, our empirical analysis reveals a positive correlation between both uncertainties, which may help to explain a negative interaction between two real options (Belderbos et al., 2020; Li and Chi, 2013). Overall, we stress that, because of the interaction between the two real options in the hybrid portfolio, future research on hybrid entry needs to consider both options in studying the determinants of hybrid entrepreneurship.

Our study also extends initial findings from Wennberg et al. (2006) regarding a positive impact of uncertainty in entrepreneurship on hybrid entry (opposed to full-time entry) by showing that this influence may not be universally valid: Our results show that the influence of uncertainty in entrepreneurship becomes statistically insignificant when uncertainty in paid employment is comparatively high. An explanation for this finding may be that the sample of Wennberg et al. (2006) consists of individuals from Sweden, where unemployment insurance mitigates the downside potential of paid employment more strongly than it does in the US. Hence, those in the sample of Wennberg et al. (2006) may perceive uncertainty in paid employment as low as those observations in our U.S. data that relate to low to moderate degrees of uncertainty in paid employment, where we do observe a positive impact of uncertainty in entrepreneurship on hybrid entry.

With regard to the direct effect of uncertainty in paid employment, we did not find support for hypothesis 1's proposal that uncertainty in paid employment reduces the likelihood that one will become a hybrid as opposed to a full-time entrepreneur. This result suggests that uncertainty in paid employment is not a determinant of the decision to become a hybrid entrepreneur on its own but that it becomes important only as individuals evaluate it jointly with uncertainty in entrepreneurship as part of their real options portfolio. One explanation for

this finding could be that individuals' decision making regarding how to enter entrepreneurship is first determined by characteristics of the venture. Only when they consider the uncertainty in entrepreneurship in their choice of entry mode do individuals also consider the level of uncertainty in paid employment. Future research may continue investigating the degree to which the characteristics of an individual's paid employment determine the choice between hybrid and full-time entry.

Our empirical findings from the Heckman selection model also provide insights into the role of uncertainty in paid employment in the entrepreneurial entry decision. We observe that the decision to become an entrepreneur in the first place is affected by uncertainty in paid employment, even if (unlike prior empirical evidence, e.g., Berkhout et al. (2016) and Sorgner and Fritsch (2018)) the individual also considers the hybrid entry mode. This finding stands in contrast to conventional assumptions that the role of uncertainty in paid employment in the decision to enter entrepreneurship is negligible (e.g., Kihlstrom and Laffont, 1979; Parker et al., 2005; Raffiee and Feng, 2014) and opens avenues for research on uncertainty and entrepreneurship (see Townsend et al. (2018) for an overview). For example, whether risk-averse individuals are less likely than others to enter entrepreneurship has long been the subject of debate (de Blasio et al., 2021; Hvide and Panos, 2014; Kihlstrom and Laffont, 1979; Koudstaal et al., 2016). Adding uncertainty in paid employment to this debate may provide a more nuanced picture: A higher risk aversion may also make entry into entrepreneurship *more likely* when uncertainty in paid employment increases. Hence, considering uncertainty in paid employment may significantly advance our understanding of *entry* into entrepreneurship under conditions of uncertainty.

Finally, our study has implications for policymakers, who frequently aim to smooth the impact of uncertainty in paid employment on individuals. We show that such smoothing of uncertainty in paid employment can have a twofold effect: It can decrease the likelihood of entrepreneurial

entry in the first place, and it can affect the influence of uncertainty in entrepreneurship on the decision to enter into hybrid entrepreneurship. In fact, our findings suggest that variations in entrepreneurship rates in terms of full-time entrepreneurship (Beckhusen, 2014; Hipple, 2010) may stem from individuals' opting for hybrid, rather than full-time, entry based on the levels of uncertainty in entrepreneurship and paid employment at a given point in time. Hence, in line with previous research (Schulz et al., 2016), we highlight the need to consider the choice between hybrid and full-time entry to measure the actual entry rates into entrepreneurship.

6.2. Limitations

Our study is not without limitations. While real options theory is a suitable framework for analyzing decision making under uncertainty, its application to times of severe crises that affect the whole economy, such as the current COVID-19 crisis (Cortez and Johnston, 2020), is limited. In such crises, the right granted by the real option is less valuable, as the downturn of the entire economy (such as through workplace restrictions, closures, restricted economic activity) indicates a lack of flexibility to switch between employment positions. The resulting lack of options provides a strong incentive for individuals to keep their current paid employment, independent of any change in its underlying uncertainty. While our study still has important implications for the role of uncertainty during normal times, we encourage future research to investigate in more detail the role of uncertainty in paid employment and entrepreneurship in times of severe crises.

Further, while the CPS data enable us to test our theory robustly by leveraging differences in uncertainty in paid employment across states, industries, and occupations, they constrain us in considering employer-based health insurance as a control variable, as this variable is available only for the CPS interviews conducted in March of a given year (Boudreaux and Turner, 2011; Fairlie et al., 2011). While one could argue that employer-based health insurance may make

hybrid entry more likely, how the lack of availability of this variable affects our findings depends on its correlation with uncertainty in paid employment: A positive correlation would suggest that a positive impact of uncertainty in paid employment on the hybrid mode of entry is due to not controlling for employer health insurance. A negative correlation, in turn, would indicate that the hypothesized positive impact of uncertainty in paid employment on the hybrid entry mode is underestimated in our regressions. To clarify this issue, we examined the correlation between employer-based health insurance and uncertainty in paid employment in the reduced dataset of 491 employees on which we have data about employer-based health insurance. Since the correlation between both variables is negative, we conclude that not being able to account for this variable results in underestimating our observed role of uncertainty in paid employment in the decision to undertake the hybrid mode of entry, if it affects the decision at all. We encourage future research to probe more deeply into this issue.

Finally, our measure of uncertainty is not without limitations. Because of data restrictions in the SIPP, our measure varies only on the state level, which is comparably broad. In addition, we were not able to compute an individual's uncertainty in entrepreneurship based on the volatility of the entrepreneurial venture's industry, as doing so would have included information on industry choice and created concerns about endogeneity in our empirical analyses. However, even though uncertainty at the individual level may also be determined by additional (unobservable) factors, our approach follows prior studies (e.g., Berkhout et al., 2016; O'Brien et al., 2003) in assuming that such measures of uncertainty are still likely to shape individual-level uncertainty. Future research may build on our study to provide more fine-grained empirical evidence on how uncertainty in entrepreneurship and paid employment influence the decision between hybrid and full-time entry.

7 Conclusion

This study builds on a real options portfolio rationale to explain how not only uncertainty in entrepreneurship, but also uncertainty in paid employment determines individuals' decision to enter into hybrid or full-time entrepreneurship. Presenting hybrid entrepreneurship as a portfolio of a real option to grow in entrepreneurship and a real option to abandon paid employment allows us to disentangle how the separate uncertainties that underlie each real option drive the portfolio's value jointly and in isolation. Our study not only has useful implications for investigations of what drives hybrid entry but also contributes to debates on the influence of uncertainty in the entrepreneurial context.

D. Study 3: Individual-level resources and women's entrepreneurial intentions – The moderating role of gender equality

1 Introduction

Recent research identifies three individual-level resources, that is, social, human, and financial capital, as important determinants of entrepreneurial activity (Boudreaux and Nikolaev, 2019; De Clercq et al., 2013). However, many prior entrepreneurship studies neglect that women are likely to fundamentally differ from men in terms of how their resources affect their entrepreneurial intentions (i.e., their willingness to establish their own businesses) (De Bruin et al., 2007; Shepherd et al., 2015). Specifically, we know from prior research that women tend to be less confident in their individual-level resources' value (Brush, 2006; Goltz et al., 2015; Vracheva and Stoyneva, 2020). A further issue pertaining to prior entrepreneurship research is the fact that in many studies male entrepreneurs outnumber their female counterparts (Boudreaux and Nikolaev, 2019; Davidsson and Honig, 2003; Klyver et al., 2020; Marvel et al., 2007). Because of this imbalance, the previously studied effects may relate particularly to male entrepreneurs and generalizations to female entrepreneurs should be treated with great caution, as we already know that women and female entrepreneurs assess their resources as well as the environment, such as the institutional environment, differently from their male counterparts (Tonoyan et al., 2020).

Further, researchers shows that the institutional environment is key for entrepreneurial activities (Ács et al., 2008; Shane, 2003). However, how institutions can affect entrepreneurs' perceptions of their resources' value is not yet fully understood (cf. Bradley et al., 2021) and how the gender equal design of those institutions, that is, the accessibility to both men and women alike, can be helpful is not yet explored. In the context of female entrepreneurship, some notable studies investigate the role of gender equality of the institutional environment, for example, equal access to education and labor market opportunities or political

empowerment (Baughn et al., 2006; Goltz et al., 2015; Klyver et al., 2013; Thébaud, 2015; Vracheva and Stoyneva, 2020). While prior studies suggest that gender equality affects entrepreneurial attitudes and perceptions (Pathak et al., 2013), the effect of gender equality on the relationship between individual-level resources and the formation of women's entrepreneurial intentions needs yet to be explored. In developed countries, women are still highly underrepresented in entrepreneurial activities, coined *the gender gap in entrepreneurship*, (Cardella et al., 2020; Elam et al., 2019). Thus, understanding how to foster women's entrepreneurial intentions is an important first step to unlock their potential as an as of yet untapped source for economic growth and innovation (Goltz et al., 2015).

In this study, I investigate the moderating role of gender equality of the institutional environment on the relationship between social, human, and financial capital and women's entrepreneurial intentions by combining theory on individual-level resources with institutional theory. In addition, my study focuses on developed countries and, thus, rationale based on opportunity-driven entrepreneurship, because it is the most common form of entrepreneurship in developed countries (Ács et al., 2008; Ács and Varga, 2005).[11] Specifically, I delineate three baseline hypotheses: In line with prior research (Boudreaux and Nikolaev, 2019; De Clercq et al., 2013), I argue that individual-level resources play a crucial role in the formation of women's entrepreneurial intentions. However, the effects differ between social, human, and financial resources. On the one hand, both social and human capital are resources that can increase women's confidence in their ability to pursue business opportunities and hence their entrepreneurial intentions (Cardella et al., 2020; Cetindamar et al., 2012). On the other hand, drawing on research on women's aversion to financial risk, I argue that financial capital

[11] By focusing only on developed countries, the current study's findings apply particularly to opportunity-driven entrepreneurship. This approach avoids biasing the results by lumping together opportunity- and necessity-driven entrepreneurship, which have distinct push and pull drivers that differently affect both female and male prospective entrepreneurs (Dawson and Henley, 2012).

decreases women's entrepreneurial intentions, as the possession of financial capital provides security and stability, which renders the option to pursue a financially risky career in entrepreneurship less attractive (Lee et al., 2011).

Drawing on institutional theory (North, 1990; Williamson, 2000), I then argue that gender equality of the institutional environment can further increase the positive effect of both human and social capital while also reducing the negative effect of financial capital on entrepreneurial intention. Particularly, gender equality provides a supportive environment and equal opportunities for both men and women and thereby increases perceived feasibility of engaging in an entrepreneurial career (Estrin and Mickiewicz, 2011; Pathak et al., 2013). Further, gender equality helps to deconstruct perceived gender roles and stereotypes (Zhao and Yang, 2020), changing women's view of their personal skills and abilities, which they need to successfully pursue an entrepreneurial career. In addition, gender equality can alleviate women's security and stability concerns, which can keep them from pursuing a risky entrepreneurial career, as women have more opportunities and alternative options in case of business failure.

To test my hypothesized model, I used individual-level data from the Global Entrepreneurship Monitor (GEM) spanning the years 2010 to 2017. I focused on developed Organization for Economic Co-operation and Development (OECD) countries, which are at the innovation or transitioning to the innovation stage of economic development according to the World Economic Forum's (WEF) classification system. I combined individual-level observations from the GEM of currently employed women (in full and part-time employment) with information from the Global Gender Gap Report (GGGR) supplied by the WEF. Using logistic regression including year and country fixed effects, I tested my hypotheses with a sample of 147,807 women. To further validate my hypothesized research model, I conducted a post-hoc test, explicitly controlling for women's entrepreneurial opportunity motives.

This study offers two contributions to the literature on female entrepreneurship. First, this study improves our so far limited understanding of the role of individual-level resources for women's entrepreneurial intention formation (De Bruin et al., 2007; Shepherd et al., 2015). Specifically, I find support for the positive influence of social capital but only weak support for a direct positive effect of human capital on women's entrepreneurial intentions, which differs from prior literature's findings (Davidsson and Honig, 2003) and illustrates the need to take contextual conditions into account when analyzing resources (cf. Marvel et al., 2016). Further, the current study is the first to delineate a rationale of how financial capital negatively influences women's entrepreneurial intentions and to empirically validate this theory. In a robustness check with regard to opportunity related entrepreneurship, I find a notable exception to the hypothesized relationships, that is, the influence of financial capital is insignificant. This finding suggests that security and stability concerns do not hold back opportunity-driven female entrepreneurs, who are in the majority in developed countries.

Second, this study expands on the few previous works investigating the role of individual-level resources in combination with the institutional environment (Boudreaux and Nikolaev, 2019; De Clercq et al., 2013) and answers calls to investigate female entrepreneurship from a holistic perspective (Cardella et al., 2020; De Bruin et al., 2007). My findings show that only the influence of social and human capital on women's entrepreneurial intention formation crucially depends on gender equality of the institutional environment, while the influence of financial capital is independent of gender equality. Further, the fact that human capital only influences women's entrepreneurial intentions in contexts of high levels of gender equality, underlines the importance to take the context into account to avoid underestimating the role of individual-level resources for intention formation.

2 Theory and Hypotheses

Prior research advanced our understanding of female entrepreneurs and established female entrepreneurship as a research stream (Baughn et al., 2006; Cardella et al., 2020). The differentiation is important because female entrepreneurship is systematically different from male entrepreneurship (Thébaud, 2015; Tonoyan et al., 2020). Nonetheless, there still lingers the practice of characterizing women entrepreneurs only in comparison to their male counterparts, attributing women with less opportunity-oriented motives and less entrepreneurial drive (cf. Ahl, 2006; Ahl and Marlow, 2012; Merluzzi and Burt, 2021), or even excluding women completely from formal analysis (Folta et al., 2010). In addition, entrepreneurship research frequently does not distinguish between male and female entrepreneurs, although the ratio between male and female entrepreneurs is often highly imbalanced in research studies (Boudreaux and Nikolaev, 2019; Davidsson and Honig, 2003; Klyver et al., 2020; Marvel et al., 2007), which may lead to an overgeneralization of results to female entrepreneurs. Therefore, it is high time for entrepreneurship research to conduct studies that exclusively analyze women, their individual-level resources, and intentions to understand how women's potential as future entrepreneurs can be unlocked.

Women, as an integral part of the labor force (Aldrich and Cliff, 2003), and particularly female entrepreneurs are an important source of countries' economic growth (Cardella et al., 2020; Euwals, 2001). However, there is still a large gender gap in entrepreneurship, meaning that more men than women choose entrepreneurship as a career path. Prior research ascribes this gender gap in entrepreneurship to women lacking certain abilities and resources, making them less apt as entrepreneurs (Ahl and Marlow, 2012; De Bruin et al., 2007). Other research argues that the gender gap does not derive its origin from the availability of individual-level resources as particularly in developed countries the disparity between men's and women's individual-level resource endowments are small (Minniti, 2010). A possible explanation of lagging female

entrepreneurship rates is that women appear to be less confident of their resources' value (Brush, 2006; Goltz et al., 2015; Vracheva and Stoyneva, 2020). The environment in which women are socialized may further aggravate this negative perception and explain lower entrepreneurial intentions of women (Zhao and Yang, 2020). Therefore, the current study investigates how different types of individual-level resources affect women's entrepreneurial intentions.

2.1. The Role of Individual-Level Resources for the Formation of Women's Entrepreneurial Intentions

Prior entrepreneurship research highlights the crucial role of social, human, and financial capital in the entrepreneurial context (Boudreaux and Nikolaev, 2019; Cetindamar et al., 2012; De Clercq et al., 2013; Klyver and Schenkel, 2013). In the following, I first briefly outline findings of general entrepreneurship studies with regard to the three types of resources before specifically delineating the study's three baseline hypotheses. The baseline hypotheses build on rationale and findings of prior female entrepreneurship studies, although evidence exclusively focusing on female entrepreneurs is still very limited and in the case of financial capital virtually inexistent.

First, entrepreneurship specific social capital, such as being acquainted to entrepreneurs, can be highly beneficial for the formation of entrepreneurial intention. Prior research even suggests that entrepreneurial networks, connections, and role models are one of the major factors enabling individuals to become successful entrepreneurs (Davidsson and Honig, 2003; Wyrwich et al., 2016). Specifically, social capital exposes individuals to entrepreneurial environments and creates unique learning as well as networking opportunities, which individuals without such connections have yet to gain access to (Kim et al., 2006; Türk et al., 2020). Further, social capital can provide benefits such as inside knowledge of entrepreneurial

processes, increase awareness of potential opportunities, and create trust in one's own abilities (De Clercq et al., 2013; Klyver and Schenkel, 2013). Thus, social capital is a highly pertinent individual-level resource for pursuing an entrepreneurial career.

In the context of female entrepreneurship, research investigates the role of entrepreneurship specific social capital such as entrepreneurial acquaintances, friends and even family members on women's entrepreneurial intentions (Aldrich and Cliff, 2003; Caputo and Dolinsky, 1998; Kirkwood, 2007; Manolova et al., 2007). Findings suggest that women perceive entrepreneurial role models in their direct acquaintance as a strong motivational influence. Especially entrepreneurial family members can help women overcome stereotypically assigned gender roles, such as being a homemaker or child caregiver, ignite an entrepreneurial spirit, and build confidence in their own entrepreneurial abilities (Brush, 2006; Greene et al., 2013; Kirkwood, 2007). Thus, in line with previous findings, I argue that social capital has a positive effect on the formation of women's entrepreneurial intentions.

> *Baseline Hypothesis 1. There is a positive relationship between social capital and women's likelihood to form entrepreneurial intentions.*

Second, human capital, such as the individual's general education level, is also highly pertinent for the formation of entrepreneurial intention. Human capital can lead to higher opportunity recognition abilities as well as advantages in knowledge accumulation and exploitation, which are important for pursuing entrepreneurial ideas (Marvel et al., 2016). Educated individuals invest time and resources to achieve work-related goals and have high levels of determination and ambition (Alpkan et al., 2010). Therefore, individuals who invested in high education levels can usually expect high economic returns on the job market (Klyver and Schenkel, 2013; Marvel et al., 2016). In the entrepreneurial context, a high education level provides pertinent

knowledge and skills, such as problem solving, selling or communication skills, which can be advantageous when choosing to become an entrepreneur (Davidsson and Honig, 2003). Further, highly educated individuals tend to have an increased awareness and preparedness needed in entrepreneurial situations (Davidsson and Honig, 2003; Martin et al., 2013). In turn, a lack of education can act as a barrier to enter opportunity-driven entrepreneurship.

In the context of female entrepreneurship, prior findings concerning the role of human capital are mixed. On the one hand, research suggests that especially in less developed countries women with lower education levels are pushed into entrepreneurship as their only option to enter the labor market (Allen et al., 2007; Minniti, 2010). On the other hand, in developed countries, where entrepreneurship tends to be more commonly opportunity-driven, women's education levels generally tend to surpass their male counterparts and human capital is argued to be a pull factor into entrepreneurship (Tonoyan et al., 2020). Cetindamar et al. (2012) argue that the generally positive role of human capital for entrepreneurship can be even greater for women than for men. They suggest that an investment in human capital significantly affects women's available options how to participate in the job market. However, women are frequently kept from fully leveraging their skills in paid employment by the 'glass ceiling' effect, which describes women's limited career advancement possibilities (Heilman and Chen, 2003; Tonoyan et al., 2020). Thus, engaging in entrepreneurial endeavors is a very attractive avenue for women to fruitfully apply their superior knowledge and skills. Further, research argues that in the case of a business failure, women with higher education levels feel more confident in finding ensuing employment, which can further foster entrepreneurial intention by ensuring a secure fallback option (Cetindamar et al., 2012; Davidsson and Honig, 2003). Overall, a formal education can help to reduce risks associated with entrepreneurship and build confidence in one's own competencies (Raghuvanshi et al., 2017). In line with research on

women's opportunity-driven entrepreneurship, I therefore argue that human capital positively influences women's entrepreneurial intentions.

> *Baseline Hypothesis 2. There is a positive relationship between human capital and women's likelihood to form entrepreneurial intentions.*

Third, research argues that financial capital, such as the household income, can both support and hinder the formation of entrepreneurial intention (Georgellis et al., 2005a; Kim et al., 2006; Lee et al., 2011). On the one hand, having financial capital is frequently suggested to decrease the likelihood of being willing to engage in entrepreneurship. Employed individuals give up their secure source of income and frequently rely on family support such as their partners' income to found their businesses (Cetindamar et al., 2012; Folta et al., 2010). However, founding a business is a highly risky financial investment, which may or may not pay off (Georgellis et al., 2005b; Lee et al., 2011; Wu and Knott, 2006). On the other hand, entrepreneurship research argues that individuals with more financial capital can start their businesses more easily and have a financial security net to fall back on, in case the business does not succeed (Georgellis et al., 2005a).

In the context of female entrepreneurship, evidence on the role of financial capital on the formation of entrepreneurial intention is still missing. Research primarily focuses on women's access to financial capital and investigates whether women can tap into external financing sources to establish their businesses or whether they have to rely on their own wealth more strongly than men (Cetindamar et al., 2012; Guzman and Kacperczyk, 2019; Orser et al., 2006). While access to different types of financial resources may be an important determinant of whether women can actually realize their endeavor to become entrepreneurs, it does not explain women's formation of entrepreneurial intentions.

Therefore, I build on the rationale of general entrepreneurship studies on the role of financial capital and combine it with prior research on women's financial risk aversion to delineate the third baseline hypothesis. Specifically, the possession of financial capital may hinder the formation of women's entrepreneurial intentions, as a high family income reflects security and stability, which women may be reluctant to exchange for the insecurity of pursuing an entrepreneurial career.[12] In line with this reasoning, prior research suggests that women are more risk averse than men (Dawson and Henley, 2015; Koudstaal et al., 2016) and are particularly risk averse when making financial decisions. For instance, women are reluctant to choose risky financial investment strategies and prefer safe strategies to increase and safeguard their wealth (Dohmen et al., 2011; Jianakoplos and Bernasek, 1998; Minniti, 2010). Further prior research suggests that particularly financial risk-aversion strongly determines whether individuals choose self-employment as a career option (Dohmen et al., 2011). This means that women who are generally risk averse in financial matters and who have a secure household income situation may view entrepreneurship as a career path with little to gain and much to lose. Thus, building on prior findings of entrepreneurship studies and research on women's risk aversion, I argue that a high family income will make women less likely to form entrepreneurial intentions.

Baseline Hypothesis 3. There is a negative relationship between financial capital and women's likelihood to form entrepreneurial intentions.

[12] Women are more likely to rely on family support and the household income to finance the establishment of their businesses as opposed to applying for external financing sources (Cetindamar et al., 2012; Guzman and Kacperczyk, 2019; Raghuvanshi et al., 2017). Thus, for women establishing a business means that not only personal financial resources such as the personal income are invested but also the entire family income is likely to be put at stake.

2.2. The Moderating Role of Gender Equality of the Institutional Environment

Research recognizes the importance of the institutional environment for entrepreneurship (Ács et al., 2008; Shane, 2003; Williamson, 2000). Weak institutional support and adverse institutional structures can negatively affect entrepreneurship rates as individuals struggle to create new ventures when administrative burdens are high, corruption is common and governmental protection of their property is inexistent (Aidis et al., 2008). Lacking institutional support is, however, a particularly problematic issue in developing countries. Conversely, in developed countries, a generally favorable and stable institutional environment can foster a climate for innovation, reduce uncertainty, and encourage individuals to pursue entrepreneurship (Goltz et al., 2015; Stenholm et al., 2013; Urbano and Alvarez, 2014).

In addition, the quality of the institutional environment does not only affect entrepreneurship directly but can also alter individuals' access to resources, for example, by providing stable financial markets. The institutional environment can even influence individuals' perceptions, for example, by making entrepreneurship appear as a desirable and feasible career choice (Ács et al., 2008; Dheer, 2017). For instance, Cullen et al. (2014) argue that dependent on the institutional environment individuals who are entrepreneurially inclined and have entrepreneurial skills may be spurred into action to start their own business, as the institutions motivate to leverage one's resources. In sum, the institutional environment can foster entrepreneurial motivation as well as provide pertinent opportunities to put entrepreneurship-relevant resources to use and to actually engage in entrepreneurship (Boudreaux and Nikolaev, 2019; De Clercq et al., 2013; Sahasranamam and Nandakumar, 2020).

In the context of female entrepreneurship, research argues that the institutional environment can compound or help close the gender gap in entrepreneurship (Minniti, 2010). Depending on the design and setup of the institutional environment, institutions can deter or foster female

participation in entrepreneurship and the labor market more generally (Klyver et al., 2013; Thébaud, 2015). They can also be designed to meet women's specific needs, for instance, by providing extensive childcare services (as women still bear the brunt of the childcare work worldwide), which could allow women to choose entrepreneurship without being forced to trade off having a family against pursuing a fulfilling career (Merluzzi and Burt, 2021). In addition, Estrin and Mickiewicz (2011) argue that institutions can have a strong psychological impact on prospective female entrepreneurs by influencing women's perceptions of their abilities, competencies as well as of possible options and opportunities. This is an important finding, as recent research argues that particularly gender stereotypes and prescribed gender roles, which are rooted in the institutional environment, guide women's behavior (Shinnar et al., 2012; Zhao and Yang, 2020). Women tend to perceive that they lack relevant competencies and skills needed for entrepreneurship, even if they have similar resource endowments as men (Thébaud, 2010). Further, entrepreneurship is frequently believed to be a masculine domain, where in the general perception male attributes and behaviors are linked with success (Shinnar et al., 2012). These stereotypes may further contribute to women's perceived inadequacy to participate in entrepreneurial activities.

While it is important to have supportive institutions, the degree to which these institutions are similarly accessible and useful to men and women may be particularly helpful in deconstructing perceived gender norms. Therefore, recent research investigates the role of gender equality, such as equal access to education and labor market opportunities or political empowerment, as well as how gender equality can directly and indirectly affect female entrepreneurs (Baughn et al., 2006; Klyver et al., 2013; Thébaud, 2015; Vracheva and Stoyneva, 2020). For example, Pathak et al. (2013) find that gender equality can alter women's entrepreneurial attitudes, such as their fear of-failure or perceived self-efficacy, by providing a supportive environment and equal opportunities for both men and women.

However, we know little concerning the influence of gender equality of the institutional environment on the role of individual-level resources in the formation of women's entrepreneurial intentions. In general, prior studies suggest that women's lack of confidence and their higher risk-aversion keep them away from pursuing an entrepreneurial career (Cardella et al., 2020; Dawson and Henley, 2015; Wilson et al., 2007), as an entrepreneurial career is highly uncertain and needs intensive resource investments. But whether gender equality of the institutional environment can also affect women's view of their resources and thus change their attitude and foster entrepreneurial intention is not yet explored.

I argue that gender equality can positively affect women's perceptions and attitudes toward their own individual-level resources by increasing their self-reliance, their self-esteem and alleviating their view of perceived deterrents to enter entrepreneurship for two reasons. First, in a context with higher gender equality, women may have more trust in their own individual-level resources' value and are encouraged to better leverage their resources, for instance, by pursuing an entrepreneurial career. Previous research shows that growing up in a context where women's participation is possible and even fostered in every department can positively influence women's attitudes, such as their self-reliance, autonomy and self-worth and can thus help women to overcome perceived gender roles (Baughn et al., 2006; Vracheva and Stoyneva, 2020; Wilson et al., 2007). This means, gender equality can strongly affect women's self-confidence to reevaluate their resources and to actually leverage them to their best ability (Pathak et al., 2013).

Second, security and stability play an important role, when choosing a career path, especially for women. For example, risk-averse women may refrain from pursuing entrepreneurial endeavors when they have much to lose. In case entrepreneurial endeavors fail, a gender equal environment, offering opportunities to economically recover for men and women alike, can help to reduce the security concerns of potential female entrepreneurs (Pathak et al., 2013). An

inclusive labor market allows women with high abilities and skills to quickly reenter the labor market (Baughn et al., 2006; Cetindamar et al., 2012). Thus, a context of gender equal institutions reduces the opportunity costs of giving up financial security such as giving up secure employment or investing considerable amounts of the household income to pursue the entrepreneurial endeavor, as financial security may be more readily regained if the entrepreneurial venture fails. In sum, I argue that gender equality on the one hand, increases the positive effect of social and human capital on women's entrepreneurial intention formation and on the other hand, it decreases the negative influence of financial capital on women's entrepreneurial intention formation, by changing women's perceptions of their individual-level resources.

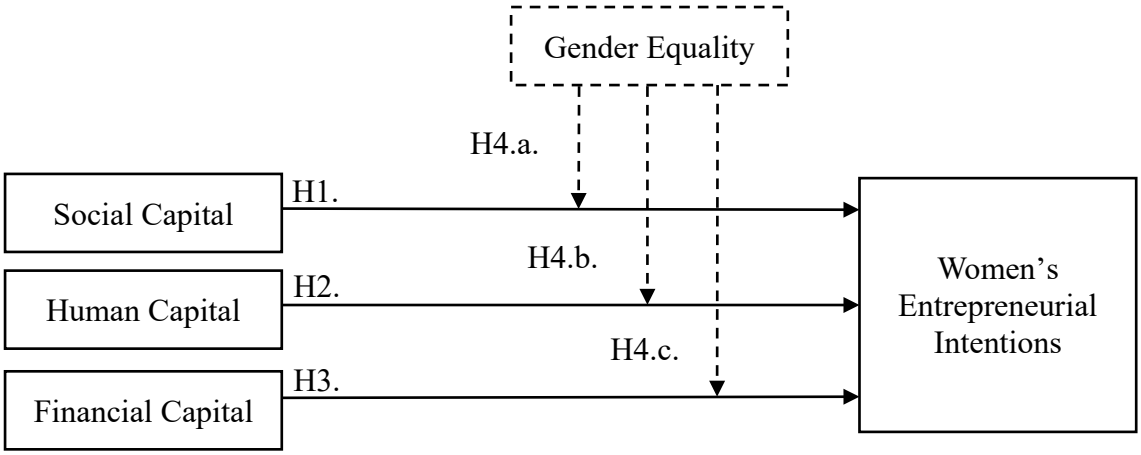
Hypothesis 4.a. The positive influence of social capital on women's likelihood to form entrepreneurial intentions increases with higher gender equality.

Hypothesis 4.b. The positive influence of human capital on women's likelihood to form entrepreneurial intentions increases with higher gender equality.

Hypothesis 4.c. The negative influence of financial capital on women's likelihood to form entrepreneurial intentions decreases with higher gender equality.

Figure D-1 depicts the research model.

Figure D-1: Research Model



3 Methodology

3.1. Data

To test my theory, I constructed an individual-level sample by combining the GEM's Adult Population Survey (APS) datasets from 2010 to 2017. The GEM's APS is a longitudinal survey on entrepreneurial attitudes, intentions and entrepreneurial activity. Yearly, approximately 2,000 randomly chosen individuals in each economy participating in the GEM project are interviewed (Reynolds et al., 2005; Thébaud, 2015). The GEM's APS is an unbalanced sample as the sample does not feature all countries in every year (cf. Peris-Ortiz et al., 2018). While the GEM's APS data collection process started in 1999, in 2010 the survey design was changed and questions on entrepreneurial abilities and attitudes, which were hitherto included in a non-systematic manner, were changed to compulsory questions, thereby necessitating a restriction of the current study's dataset to a timeframe starting with 2010 (cf. Thébaud, 2015). As the GEM makes individual-level data publicly available three years after the interviews were conducted, 2017 is the last available year in the dataset. In addition, I restricted the sample of the current study to observations of women, who are currently employed (both part-time and

full-time employed) and of working age between 18 to 67. This restriction avoids potential biases from women, who are not an active part of the labor force (Beckhusen, 2014).

Further, as the rationale of the study focuses on opportunity entrepreneurship, which is particularly common in developed countries (Ács et al., 2008; Ács and Varga, 2005), I applied further restrictions to the sample.[13] That is, using the WEF stages of development classification, the current study focuses on 36 developed OECD countries (as reliable additional data is readily available and well documented for OECD countries (Estrin et al., 2017; Parker and Robson, 2004)), who are at the innovation or transitioning to the innovation stage of development. Table I-1 in section "1 Overview of Included Countries" in the Appendix I depicts an overview of the OECD countries included in the final analysis by year. In total, the study includes 147,807 individual-level observations of women's entrepreneurial intentions across 36 countries.

To study the effect of gender equality on women's intention formation, I drew on the Global Gender Gap Index (GGGI), which the WEF has been supplying since 2006 in its GGGR. The GGGI documents countries' development towards gender equal societies and allows to benchmark countries against each other over time (World Economic Forum, 2021). Specifically, the GGGI builds upon four pillars, which together form the index: economic participation and opportunity, educational attainment, health and survival, and political empowerment. The index is independent of a country's development level as it documents gender gaps in access to opportunities and resources independent of the general availability of those opportunities and resources. Previous research already investigated the influence of the GGGI with regard to entrepreneurship (Klyver et al., 2013; Pathak et al., 2013; Vracheva and Stoyneva, 2020).

[13] In section 4.1, I show that in the countries included in the current study, on average 75% of all entrepreneurs are opportunity- as opposed to necessity-driven.

3.2. Measures

Table I-2 in section "2 Overview of Included Measures" in Appendix I displays the coding, detailed additional information, such as exact wording of interview questions, and data sources of all variables included in the main analysis of this study.

Dependent Variable. The binary dependent variable '*entrepreneurial intention*' describes whether a respondent expects to start some type of self-employment in the next three years (Yes = 1; No = 0).[14] This approach of measuring intention with a single item is in line with previous intention research (Block et al., 2019; Díaz-García and Jiménez-Moreno, 2010; Shinnar et al., 2012). The current study further aligns with research suggesting that intention is a crucial predictor of subsequent behavior (Kautonen et al., 2015; Schlaegel and Koenig, 2014).

Independent Variables. *Social capital* was measured as a dummy variable and indicates whether an individual knows someone personally, who started a business in the last two years. Prior research frequently uses this variable as an indicator for social network ties and access to entrepreneurship pertinent knowledge through social interaction (Boudreaux and Nikolaev, 2019; De Clercq et al., 2013). *Human capital* was measured as a continuous variable describing the highest level of formal education obtained by the individual. This approach of measuring human capital is in line with prior research arguing that formal education is a good indicator of an individual's knowledge, skills and abilities (Davidsson and Honig, 2003; Manolova et al., 2007; Marvel et al., 2016). The measurement of *financial capital* was based on the individual's household income. Specifically, this variable describes whether the individual's total household income falls into one of three segments (1 lowest to 3 highest segment) of a country's distribution of household incomes. Thus the variable represents individuals' relative household income in the specific country they live in (Boudreaux and Nikolaev, 2019; De

[14] I further excluded individuals, who indicated that they are already actively involved in start-up activity or already own a business, to avoid confounding influences of serial entrepreneurs.

Clercq et al., 2013). *Gender Equality* was measured as the yearly Global Gender Gap score from the GGGI. A higher score indicates that the country progresses to closing the gender gap (irrespective of the actual level of the institutional environment), while a lower value indicates that institutions are still highly imbalanced, favoring men (Klyver et al., 2013; Pathak et al., 2013). This measure was standardized and used with a one-year lag to avoid simultaneity issues.

Control Variables. In line with previous entrepreneurial intention studies, the current study includes several individual-level as well as country-level control variables. Previous research indicates that an individual's *age* represents an individual's increase in experience, which is relevant for starting one's business, as well as an increase in risk-aversion, which keeps individuals from entering entrepreneurship (Davidsson and Honig, 2003; Shane, 2003). I therefore included both age and its squared term to take this effect into account. Both *self-efficacy* as well *as fear-of-failure* are important determinants of individuals' intentions. Self-efficacy describes an individual's belief to have pertinent skills for engaging in entrepreneurship and thus positively affects entrepreneurial intention (Pathak et al., 2013; Zhao et al., 2005). Fear-of-failure describes an individual's reluctance to engage in entrepreneurial behavior due to a fear of not being able to succeed. It reflects apprehension and thus negatively affects individuals' entrepreneurial intentions (Pathak et al., 2013; Wyrwich et al., 2016).

In addition, I included several exogenous country-level control variables. First, as the gender equality measure used in this study focuses exclusively on institutional gaps between men and women and not the quality of the institutional environment, I controlled for a country's business environment, that is, how easy it is to found a business from an administrative perspective, as well as for a country's labor market environment, that is, how flexible and liberal certain labor market regulations are. Both *labor market regulations* and *business regulations* positively influence individuals' ease of starting a new business and reduce uncertainty (Bradley et al.,

2021). Further, I controlled for macroeconomic indicators of a country's development (Peris-Ortiz et al., 2018; Wennberg et al., 2013), that is, its *unemployment rate*, its *population growth* and *gross domestic product* (GDP) *growth*. Previous entrepreneurship studies used both population growth and GDP growth as proxies for a country's natural rate of entrepreneurial entry (Boudreaux and Nikolaev, 2019). The unemployment rate describes an important push-factor into entrepreneurship, which increases entrepreneurship due to necessity and decreases opportunity-driven entrepreneurship (Assmann and Ehrl, 2021; Wennekers et al., 2005).

To control for unobserved heterogeneity, I included year as well as country fixed effects in all the analyses (Folta et al., 2010; Schulz et al., 2016). This approach also captures countries' economic developments over time. All country-level variables were lagged by one year to avoid issues of simultaneity.

4 Results

4.1. Descriptive Statistics and Main Results

This study analyses women's entrepreneurial intention formation on a sample of 147,807 women. Table D-1 presents the descriptive statistics of all the variables included in the study. In the sample, on average, the women were 42 years of age. Only three percent indicated that they had not completed any form of education, 12 percent had obtained secondary education without a degree, 34 percent had obtained a secondary degree, 41 percent had post-secondary education and 10 percent had graduate experience. In addition, concerning household income, 26 percent of the women belong to their country's lowest income third, 34 percent to the middle third and 40 percent to the highest income third. The majority (69 percent) of women indicated that they did not personally know an entrepreneur. Eleven percent of the women indicated that they had entrepreneurial intentions.

Table D-1: Descriptive Statistics

	Variable	*Mean*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12
1	Entrepreneurial Intention [a]	0.11	0.32												
2	Social Capital [b]	0.31	0.46	0.13											
3	Human Capital	2.42	0.93	0.02	0.07										
4	Financial Capital	2.14	0.80	-0.01	0.07	0.29									
5	Age	41.75	11.61	-0.12	-0.09	-0.09	0.01								
6	Gender Equality [e]	0.00	1.00	-0.15	-0.01	0.10	0.06	0.08							
7	Self-Efficacy [c]	0.38	0.49	0.19	0.17	0.07	0.07	0.03	-0.07						
8	Fear of Failure [d]	0.50	0.50	-0.07	-0.02	-0.01	-0.02	-0.04	0.00	-0.14					
9	Labormarket Regulations [e]	0.00	1.00	-0.08	-0.06	0.12	0.01	0.04	0.11	-0.04	0.01				
10	Business Regulations [e]	0.00	1.00	-0.06	-0.04	0.13	0.00	0.05	0.58	-0.08	-0.01	0.40			
11	Unemployment Rate	10.46	6.39	-0.06	0.02	-0.05	-0.03	0.01	-0.06	0.08	0.05	-0.32	-0.35		
12	Population Growth	0.00	0.01	0.06	0.01	0.01	0.06	-0.04	0.06	0.01	-0.07	-0.01	0.12	-0.48	
13	GDP Growth	0.03	0.04	0.06	-0.01	0.05	-0.05	-0.02	-0.08	-0.02	0.01	0.18	0.29	-0.10	-0.09

Note: n = 147,807. Correlations greater than |.01| are significant at $p \leq 0.01$. [a] 1 = Intention to start a business, 0 = No intention to a start a business. [b] 1 = Social capital, 0 = No social capital. [c] 1 = Self-efficacy, 0 = No self-efficacy. [d] 1 = Fear of failure, 0 = No fear of failure. [e] Standardized values.

As the study builds on rationale for opportunity-driven entrepreneurship, which is assumed to be the more common form of entrepreneurship in developed countries (Ács et al., 2008; Ács and Varga, 2005), I first investigated whether this assumption applies to the countries in my sample. Specifically, examining country averages of entrepreneurial activity rates for the 36 OECD countries included in the current study (see section "3 Country-Level Entrepreneurship and Gender Equality Rates" Table I-3 in Appendix I), revealed there is still a large gap between female and male entrepreneurship rates (the average ratio is at .57 meaning that there are almost half as many female entrepreneurs as male entrepreneurs). Total opportunity-driven entrepreneurship greatly outweighs necessity-driven entrepreneurship with an average percentage of 75% of all entrepreneurs being opportunity motivated. Looking at the female to male ratio of opportunity-driven entrepreneurial activity suggests that the share of female entrepreneurs engaging in opportunity-driven entrepreneurial activity is almost equivalent to the share of men (the average ratio is .94). This indicates that in developed countries, opportunity-driven entrepreneurship rates are highly similar among men and women and the argument that female entrepreneurs are generally more likely to be driven by necessity motives (Minniti, 2010) does not apply to highly developed countries.

To investigate the hypothesized model, I then calculated logistic regressions with year and country fixed effects as well as standard errors clustered at the country level, where the outcome is “having entrepreneurial intentions” compared to “not having entrepreneurial intentions” (see Table D-2).[15] I followed a hierarchical approach. Model 1 in Table D-2 displays a model including only the control variables. Similar to previous studies, fear-of-failure (B = -.23, p = .00) and self-efficacy (B = 1.21, p = .00) were strong predictors of entrepreneurial intention (Langowitz and Minniti, 2007; Zhao et al., 2005). The general quality of the institutional environment reflected in labor market and business regulations did not significantly influence women’s entrepreneurial intentions.

[15] The advantage of using a fixed-effects model as opposed to a multilevel model is the fact that it allows me to control for confounding influences from the country level as well as influences that are due to changes over time, thus avoiding unobserved influences (Cameron and Trivedi, 2005).

Table D-2: Logistic Regression Results

Variables	Model 1			Model 2			Model 3.a			Model 3.b			Model 3.c		
	B	SE	*p*	B	SE	*p*	B	SE	*p*	B	SE	*p*	B	SE	*p*
Constant	-1.68	(0.27)	0.00	-1.84	(0.27)	0.00	-1.86	(0.27)	0.00	-1.87	(0.27)	0.00	-1.84	(0.27)	0.00
Age	-0.04	(0.01)	0.00	-0.04	(0.01)	0.00	-0.04	(0.01)	0.00	-0.04	(0.01)	0.00	-0.04	(0.01)	0.00
Age²	0.00	(0.00)	0.35	0.00	(0.00)	0.34	0.00	(0.00)	0.35	0.00	(0.00)	0.29	0.00	(0.00)	0.35
Self-efficacy	1.21	(0.06)	0.00	1.12	(0.06)	0.00	1.12	(0.06)	0.00	1.12	(0.06)	0.00	1.12	(0.06)	0.00
Fear of failure	-0.23	(0.04)	0.00	-0.23	(0.04)	0.00	-0.23	(0.04)	0.00	-0.23	(0.04)	0.00	-0.23	(0.04)	0.00
Labormarket Regulations [a]	-0.14	(0.09)	0.10	-0.14	(0.09)	0.10	-0.14	(0.09)	0.10	-0.14	(0.09)	0.10	-0.15	(0.09)	0.10
Business Regulations [a]	0.02	(0.12)	0.87	-0.01	(0.12)	0.94	-0.01	(0.12)	0.96	-0.01	(0.12)	0.92	-0.01	(0.12)	0.94
Unemployment Rate	0.00	(0.01)	0.87	0.00	(0.01)	0.90	0.00	(0.01)	0.90	0.00	(0.01)	0.93	0.00	(0.01)	0.89
Population Growth	2.95	(9.69)	0.76	6.23	(9.73)	0.52	6.28	(9.75)	0.52	5.99	(9.75)	0.54	6.23	(9.73)	0.52
GDP Growth	0.47	(0.78)	0.55	0.63	(0.78)	0.42	0.63	(0.78)	0.42	0.59	(0.77)	0.44	0.62	(0.78)	0.43
Direct Effects															
Social Capital				0.62	(0.03)	0.00	0.64	(0.03)	0.00	0.62	(0.03)	0.00	0.62	(0.03)	0.00
Human Capital				0.05	(0.03)	0.08	0.05	(0.03)	0.08	0.06	(0.03)	0.01	0.05	(0.03)	0.09
Financial Capital				-0.11	(0.03)	0.00	-0.11	(0.03)	0.00	-0.11	(0.03)	0.00	-0.11	(0.03)	0.00
Gender Equality [a]				0.03	(0.09)	0.78	-0.01	(0.09)	0.92	-0.06	(0.11)	0.61	0.05	(0.10)	0.62
Interaction Effects															
Social Capital x Gender Equality							0.08	(0.02)	0.00						
Human Capital x Gender Equality										0.03	(0.01)	0.03			
Financial Capital x Gender Equality													-0.01	(0.01)	0.42
Fixed Effects:															
Year dummies (8)	Yes			Yes			Yes			Yes			Yes		
Country dummies (36)	Yes			Yes			Yes			Yes			Yes		
Pseudo R-squared	0.1721			0.1833			0.1834			0.1834			0.1833		
AIC	85,887			84,739			84,723			84,730			84,740		
Log-pseudo-likelihood	-42,928			-42,350			-42,341			-42,344			-42,350		
No. of observations	147,807			147,807			147,807			147,807			147,807		

Notes: Logit model with clustered standard errors (clustered at the country level). [a] Standardized values.

Model 2 further includes the direct effects of the hypothesized variables. The model fit significantly increased with a lower Akaike Information Criterion (AIC). In addition, a likelihood ratio test further supported this result.[16] In line with the baseline hypotheses 1 and 3, social capital had a significant positive effect (B = .62, p = .00), while financial capital had a significant negative effect on women's entrepreneurial intentions (B = -.11, p = .00). The average marginal effect of having social capital on the probability that a woman forms entrepreneurial intention was 5.4 percentage points, while the average marginal effect of financial capital reduced the probability of forming entrepreneurial intentions by .9 percentage points. The baseline hypothesis 2 that human capital has a positive effect on entrepreneurial intention, was only weakly supported (B = .05, p = .08). The average marginal effect of human capital on the probability of forming entrepreneurial intention amounted to .4 percentage points. Gender equality did not influence women's entrepreneurial intentions (B = .03, p = .78).

Model 3.a, 3.b, and 3.c display the models including the interactions between the individual-level resources and gender equality. First, Model 3.a displays a strong positive interaction effect (B = .08, p = .00) between social capital and gender equality, supporting hypothesis 4.a. that a higher level of gender equality increases the positive effect of social capital. Both the lower AIC value and likelihood ratio tests supported the superiority of Model 3.a over Model 1 and Model 2. Second, Model 3.b shows the interaction between human capital and gender equality. In line with hypothesis 4.b. gender equality significantly increased the positive effect of human capital on entrepreneurial intention (B = .03, p = .03). Again, Model 3.b is superior to Model 1 and Model 2 as indicated by a lower AIC value and significant likelihood ratio tests. Last, Model 3.c includes the interaction effect between gender equality and financial capital. Contrary to hypothesis 4.c., gender equality did not moderate the effect of financial capital (B

[16] The likelihood ratio tests were calculated without clustered standard errors.

= -.01, p = .42). The AIC value and likelihood ratio tests suggested no improvement of Model 3.c over Model 2, including only direct effects.[17]

I further investigated the average marginal effects of both social and human capital for high (1 SD above the mean) and low (1 SD below the mean) levels of gender equality. Specifically, the influence of having social capital on the likelihood of forming entrepreneurial intention ranges from 4.9 percentage points (low gender equality level) to 6.4 percentage points (high gender equality level). The influence of education on the likelihood of forming entrepreneurial intentions ranges from no statistically significant effect (low gender equality level) to a .8 percentage points increase (high gender equality level). Graphical investigation of the average marginal effect of social capital (see Figure D-2) and human capital (see Figure D-3) over the entire range of gender equality with 95% confidence intervals (CIs) (cf. Kingsley et al., 2017) further lends support to hypothesis 4.a. and hypothesis 4.b. that a significant positive moderation is present. Figure D-3 also shows that human capital only influences women's entrepreneurial intentions for moderate to high levels of gender equality. Overall, the findings show a strong support that gender equality is an important moderator of the influence of both social and human capital on women's entrepreneurial intentions.

[17] Following suggestions by prior research (Bowen, 2012), I also calculated the secondary component of the interactions, which is an important indicator whether a moderation is actually present in non-linear models. The secondary components for Model 3.a (B = .012; p = .00) and Model 3.b (B = .005; p = .04) were positive and statistically significant, supporting that a moderation effect is present in both models.

Figure D-2: Average Marginal Effect of Social Capital on Entrepreneurial Intention over the Entire Range of the Moderator Gender Equality with 95% CIs

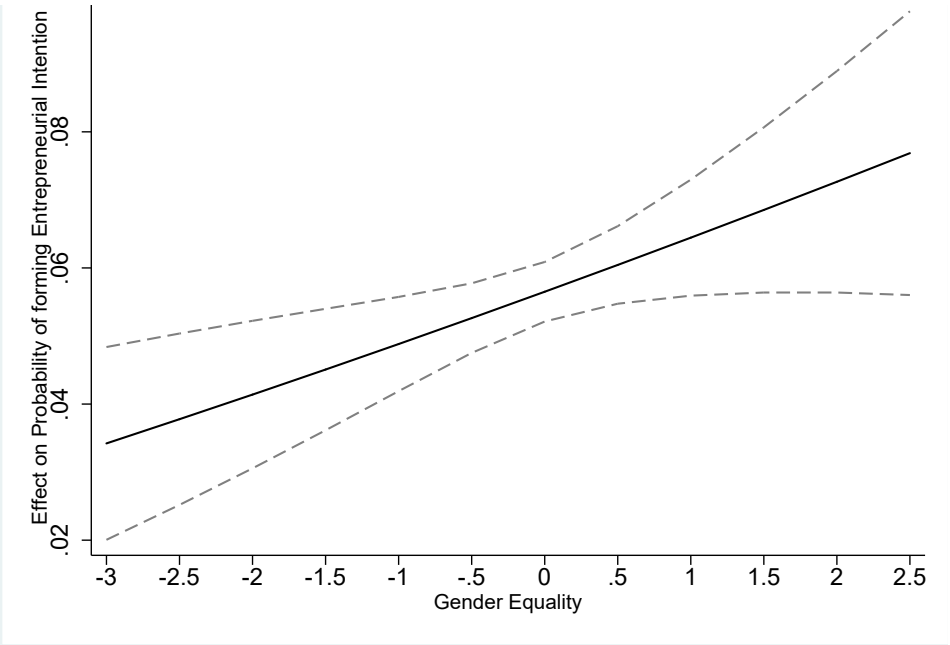
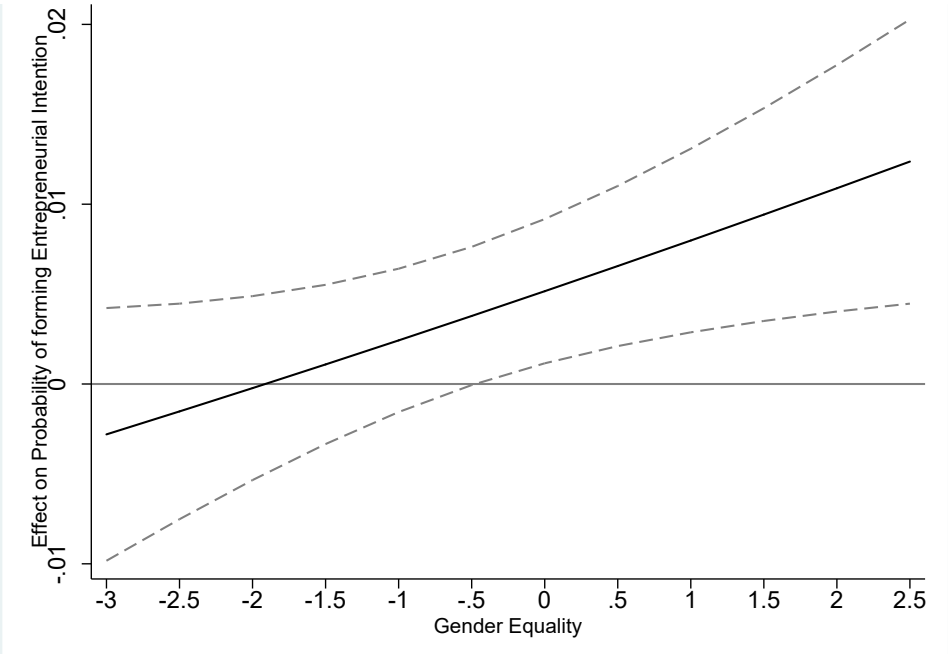


Figure D-3: Average Marginal Effect of Human Capital on Entrepreneurial Intention over the Entire Range of the Moderator Gender Equality with 95% CIs



4.2. Post-Hoc Check

My findings suggest that in developed countries the share of female entrepreneurs pursuing opportunity-driven as opposed to necessity-driven entrepreneurship is close to that of men. In addition, the percentage of entrepreneurs pursuing opportunity-driven entrepreneurship generally tends to significantly outweigh necessity-driven entrepreneurship. However, the sample used for my main analysis may still include a sizeable amount of women, whose intention may be driven by necessity motives. Therefore, to probe deeper into the question how specifically women's opportunity-driven entrepreneurship can be increased, I conducted a post-hoc test controlling for women's occupational status as well as their alertness to potential entrepreneurial opportunities to investigate my hypothesized relationships with a sample excluding potentially necessity-driven women.

First, I excluded women from the sample, who are currently in part-time employment. Being in part-time employment may be particularly related to women pursuing entrepreneurial endeavors out of necessity because individuals in part-time employment are more likely to seek alternative income sources to supplement their household income than individuals who are in full-time employment (Campion et al., 2020; Dawson and Henley, 2012). Second, I only included entrepreneurial intention outcomes if women also indicated that they 'perceive good opportunities to start a business'. Prior studies used this variable from the APS data to measure entrepreneurial alertness to opportunities (Klyver et al., 2008). Further, previous research indicates that entrepreneurial opportunity identification and personal growth aspirations are strongly related (Boudreaux and Nikolaev, 2019; Shepherd et al., 2015). Thus, the variable may indicate women's motivation to pursue entrepreneurship not from a lack of other alternatives, but rather from an inner drive and alertness to possible growth opportunities (Dawson and Henley, 2012).

On the reduced sample of 87,128 observations, I examined the hypothesized relationships (see Table D-3). In Model 2 in Table D-3, including only the direct effects of the hypothesized relationships, only social capital had a significant positive effect on women's entrepreneurial intentions (B = .78, p = .00). Both financial (B = -.02, p = .55) as well as human capital (B = .00, p = .94) did not have a significant direct effect on entrepreneurial intention. This finding suggests that financial capital does not play a role for women's opportunity-driven entrepreneurial intention formation, meaning that for opportunity-driven female entrepreneurs, safety and security concerns may play a lesser role.[18]

Similarly to the main analyses and in line with my hypotheses 4.a. and 4.b., Model 3.a and Model 3.b show a significant positive moderation effect of gender equality on the influence of social capital (B = .12, p = .01) and human capital (B = .08, p = .00) on women's entrepreneurial intentions, while Model 3.c again does not exhibit a moderation effect on the relationship between financial capital and women's entrepreneurial intentions. Detailed investigation of average marginal effects showed that gender equality strongly moderated the relationship of both social capital as well as human capital if entrepreneurial intention focuses on opportunity motives.[19] The influence of human capital on entrepreneurial intention became significant for high levels of gender equality. Overall, these additional tests suggest that both social and human capital importantly influence women's opportunity-driven entrepreneurial intentions while financial capital is only a deterrent for necessity-driven entrepreneurial intention formation.

[18] An analysis on the reverse sample of women who were all in part-time employment and had formed entrepreneurial intention but did not indicate an alertness to opportunities showed that for presumably necessity-driven women, financial capital had a significant negative influence on their entrepreneurial intention formation.
[19] The detailed results are available from the author upon request.

Table D-3: Post-Hoc Test for Opportunity-Driven Women

Variables	Model 1			Model 2			Model 3.a			Model 3.b			Model 3.c		
	B	SE	*p*	B	SE	*p*	B	SE	*p*	B	SE	*p*	B	SE	*p*
Constant	-2.06	(0.39)	0.00	-2.31	(0.48)	0.00	-2.35	(0.47)	0.00	-2.39	(0.45)	0.00	-2.39	(0.45)	0.00
Age	-0.03	(0.01)	0.04	-0.03	(0.01)	0.02	-0.03	(0.01)	0.02	-0.03	(0.01)	0.01	-0.03	(0.01)	0.02
Age²	0.00	(0.00)	0.82	0.00	(0.00)	0.89	0.00	(0.00)	0.90	0.00	(0.00)	0.77	0.00	(0.00)	0.88
Self-efficacy	1.22	(0.10)	0.00	1.09	(0.08)	0.00	1.09	(0.08)	0.00	1.09	(0.08)	0.00	1.09	(0.08)	0.00
Fear of failure	-0.38	(0.05)	0.00	-0.39	(0.05)	0.00	-0.39	(0.05)	0.00	-0.38	(0.05)	0.00	-0.39	(0.05)	0.00
Labormarket Regulations [a]	-0.13	(0.10)	0.19	-0.12	(0.10)	0.24	-0.12	(0.10)	0.24	-0.11	(0.10)	0.26	-0.12	(0.10)	0.24
Business Regulations [a]	0.16	(0.17)	0.36	0.11	(0.16)	0.49	0.11	(0.16)	0.48	0.10	(0.16)	0.51	0.11	(0.16)	0.49
Unemployment Rate	-0.02	(0.02)	0.37	-0.01	(0.02)	0.48	-0.01	(0.02)	0.48	-0.01	(0.02)	0.51	-0.01	(0.02)	0.49
Population Growth	-4.65	(9.84)	0.64	-0.76	(10.23)	0.94	-0.64	(10.21)	0.95	-1.59	(10.13)	0.88	-0.71	(10.23)	0.94
GDP Growth	2.06	(0.65)	0.00	2.27	(0.63)	0.00	2.27	(0.63)	0.00	2.18	(0.62)	0.00	2.28	(0.63)	0.00
Direct Effects															
Social Capital				0.78	(0.09)	0.00	0.82	(0.06)	0.00	0.78	(0.09)	0.00	0.78	(0.09)	0.00
Human Capital				0.00	(0.05)	0.94	0.01	(0.05)	0.92	0.05	(0.04)	0.26	0.01	(0.05)	0.92
Financial Capital				-0.02	(0.03)	0.55	-0.02	(0.03)	0.57	-0.02	(0.03)	0.63	-0.01	(0.03)	0.68
Gender Equality [a]				-0.04	(0.13)	0.76	-0.10	(0.13)	0.45	-0.23	(0.14)	0.10	-0.06	(0.14)	0.65
Interaction Effects															
Social Capital x Gender Equality							0.12	(0.05)	0.01						
Human Capital x Gender Equality										0.08	(0.02)	0.00			
Financial Capital x Gender Equality													0.01	(0.02)	0.52
Fixed Effects:															
Year dummies (8)	Yes			Yes			Yes			Yes			Yes		
Country dummies (36)	Yes			Yes			Yes			Yes			Yes		
Pseudo R-squared	0.2053			0.2204			0.2208			0.2210			0.2204		
AIC	34,786			34,133			34,116			34,110			34,134		
Log-pseudo-likelihood	-17,377			-17,046			-17,037			-17,034			-17,046		
No. of observations	87,128			87,128			87,128			87,128			87,128		

Notes: Logit model with clustered standard errors (clustered at the country level). [a] Standardized values.

5 Discussion

I examined how individual-level resources influence women's entrepreneurial intentions and how gender equality of the institutional environment moderates this relationship. Specifically, I argued that both social and human capital positively affect women's entrepreneurial intentions and that in an institutional environment with a higher parity between men and women, women have a higher self-confidence in their own resources, thus strengthening the direct relationship. In addition, I argued that financial capital reduces women's entrepreneurial intentions due to security and stability concerns and I further argued that gender equality can alleviate these concerns. While I found support for most of my theoretical delineations, I also found notable exceptions.

5.1. Theoretical Implications

This study advances current research on female entrepreneurship (De Bruin et al., 2007; Shepherd et al., 2015) by studying the role of individual-level resources and how they affect women's entrepreneurial intentions in highly developed countries. In line with previous research (Greene et al., 2013; Kirkwood, 2007), I observed a strong motivational influence of social capital on entrepreneurial intention, while there was only weak support for the positive influence of human capital on entrepreneurial intention. Prior female entrepreneurship studies focusing on developed countries, however, argue that higher levels of human capital have a strong motivational influence on women's self-confidence and increase the availability of appealing options to participate in the labor market (Cetindamar et al., 2012; Raghuvanshi et al., 2017). My findings illustrate the importance of contextualizing the effect of human capital to gain a more complete picture of the actual influence, an issue that is frequently neglected by entrepreneurship research (Marvel et al., 2016). My results indicate a strong positive effect of human capital for higher levels of gender equality, suggesting that the approach of evaluating

only direct effects may lead to an underestimation of the actual importance of the effect. I therefore caution future research against investigating individual-level resources without contextualization, as the existence of individual-level resources on their own may not influence entrepreneurial intentions but conducive environments may allow individuals to reevaluate their resources' usefulness and to actually leverage them. While I come to this conclusion within the specific context of female entrepreneurship, these arguments carry over to entrepreneurship research more generally.

Further, in contrast to the direct role of social and human capital, the role of financial capital on women's entrepreneurial intentions is still underexplored. While researchers investigate how women's access to external financial capital may be limited (Cetindamar et al., 2012; Guzman and Kacperczyk, 2019; Orser et al., 2006), as of yet, there is no research on its effect on entrepreneurial intention. Therefore, this study delineates a theoretical rationale how financial risk and stability concerns, which are particularly pronounced in women (Dohmen et al., 2011; Jianakoplos and Bernasek, 1998; Minniti, 2010), can keep women from forming entrepreneurial intentions. My empirical results supported my theoretical arguments. However, the negative influence of financial capital was not present in a post-hoc analysis conducted with a sample of women, who were currently in full-time employment and who were alert to potential entrepreneurial opportunities, that is, women whose intention was related to opportunity rather than necessity motives. The current results thus expand previous research on female entrepreneurship by showing that for opportunity-driven women, financial capital and thus stability and security concerns play a lesser role for their entrepreneurial intention formation than previously suggested (cf. Dohmen et al., 2011; Lee et al., 2011).

This study further contributes to the understanding of female entrepreneurship by expanding on the few previous studies taking a holistic perspective on the role of individual-level resources for entrepreneurship (Boudreaux and Nikolaev, 2019; De Clercq et al., 2013). That

is, this study identifies gender equality as an important contextual factor, influencing the effect of individual-level resources on women's intention formation. Thereby I answer calls to investigate determinants of entrepreneurial intention jointly with the context the entrepreneurs are active in (Cardella et al., 2020; De Bruin et al., 2007; Marvel et al., 2016). While previous research shows that the existence of a supportive institutional environment can affect the role of resources (Boudreaux and Nikolaev, 2019; De Clercq et al., 2013), my research further illustrates that the gender equal design of those institutions can have a significant effect on the resources' influence on women's entrepreneurial intentions as well. The fact that gender equality can increase women's confidence in their resources that are related to their personal ability and skills as opposed to physical resources such as financial capital, is in line with prior research showing how institutions can have a strong psychological effect (Estrin and Mickiewicz, 2011). This is an important finding, as attitudes and self-confidence are particularly important factors needed to deconstruct gender-related stereotypes, which may keep women away from pursuing entrepreneurial careers (Shinnar et al., 2012; Zhao and Yang, 2020). Thus, an in-depth insight into which institutions can change women's attitudes and perceptions is crucial to close the gender gap in entrepreneurship. Further, building on my findings, I encourage future research to explore how gender equality specifically moderates other important attitudes and perceptions that can affect women's entrepreneurial intentions, such as entrepreneurs' status in society or entrepreneurship as a desirable career option (cf. Stenholm et al., 2013).

5.2. Implications for Practice and Policy Makers

In developed countries, similarly to men, the majority of female entrepreneurs primarily pursue entrepreneurship as an opportunity. However, absolute numbers of women participating in entrepreneurship still fall short. To unlock the potential of female entrepreneurs to contribute to countries' growth and innovation, we need to understand what enables women to pursue

opportunity-driven entrepreneurship and how to increase their entrepreneurial intentions in the first place. In this regard, my findings regarding the influence of gender equality are particularly interesting for policy makers. In fact, my study shows that entrepreneurship does not only depend on the level of the institutional environment, such as labor market or administrative regulations (Bradley et al., 2021) but also on the gender equal design of those institutions. Therefore, an amelioration of gender parity with regard to the institutional environment is an important tool to foster both female entrepreneurship and to increase economic growth.

In addition, the findings of the current study underscore the importance of understanding the determinants of women's entrepreneurial intentions in more detail. Particularly, the study shows that the general education level, whose effectiveness for entrepreneurship is still up to debate (Martin et al., 2013), can also significantly increase women's entrepreneurial intentions in contexts where women and men have equal access to opportunities. Further, in highly developed countries, the assumption that financial security keeps women from pursuing entrepreneurial endeavors is likely to only apply to the minority of women whose entrepreneurial intentions are related to necessity as opposed to opportunity motives.

5.3. Limitations and Future Research

This study does not come without limitations. First, I used secondary data provided by the GEM. As previous research indicates (De Clercq et al., 2013; Thébaud, 2015) the GEM has many advantages such as enabling cross-country comparisons of entrepreneurship data across time, however, there are several drawbacks to using this dataset. First, the survey does not include certain demographic variables (e.g., number of children, marriage status, occupation), which may be relevant to explain entrepreneurial activity (cf. Greene et al., 2013; Lofstrom et al., 2014; Sorgner and Fritsch, 2018). Particularly, the occupation or industry the individual

works in can determine which individual-level resources are particularly relevant for prospective entrepreneurs. Prior research indicates that women self-select into low-revenue industries (Zhao and Yang, 2020), where certain resources, such as social capital and access to networks may be less relevant than in high-revenue industries. Second, the dataset did not include information on whether women had received entrepreneurial education or had gained prior entrepreneurship relevant experience. Both are important aspects of human capital, which may potentially have an even stronger influence on entrepreneurial intention than the general education level (Martin et al., 2013; Türk et al., 2020). I therefore encourage future research to further investigate the role of different types of individual-level resources.

Another limitation of the current study is the fact that by using secondary data, I do not have insights into the actual motivations of the prospective female entrepreneurs (cf. De Clercq et al., 2013). To mitigate this issue, in the post-hoc test, I distinguished between necessity- and opportunity-driven entrepreneurship based on women's part-time vs full-time employment status and their alertness to potential entrepreneurial opportunities around them. This test allowed some insights into the differing motivations of female entrepreneurs. However, more in-depth information on the actual motivations of individuals, who have formed entrepreneurial intention, is missing. Therefore, additional qualitative evidence could shed further light on the determinants of entrepreneurial intention of necessity- and opportunity-driven female entrepreneurs in developed countries.

Lastly, a limitation of the current study pertains to the measurement of entrepreneurial intention as well as of the three types of resources. Specifically, the measurement of intention as a binary variable does not allow gaining a nuanced picture of individuals' intentions (cf. Pathak et al., 2013). This lack of variation in the variable does not capture the fact that individuals may have varying degrees of entrepreneurial intentions. Further, I was restricted to the variables available in the GEM dataset for the measurement of the individual-level resources. However, aspects

such as entrepreneurial experience as a measure for human capital (Marvel et al., 2016; Zapkau et al., 2017), individual's family wealth or personal income for financial capital, and more specific information on the actual relationship with the entrepreneurs, who make up the social capital, could give further relevant insights into the relationships of how capital affects women's formation of entrepreneurial intentions. An interesting avenue for future research would be to explore my theoretical model with a categorical variable for intention and the use of alternative measurements for the resources to further illuminate how individual-level resources and gender equality can affect the strength of women's entrepreneurial intentions.

6 Conclusion

Particularly in countries with higher economic development, the ratio between male and female entrepreneurship is highly unequal, necessitating an in-depth study how especially women can be motivated to engage in entrepreneurial endeavors. Female entrepreneurs are an important source for innovation and growth (Cardella et al., 2020) and by neglecting women as potential future entrepreneurs, countries miss out on leveraging economic opportunities. Therefore, the current study investigates the role of individual-level resources, that is, social, human, and financial capital, and their influence on women's entrepreneurial intention formation. Further, this study takes a holistic perspective, showing how the gender equal design of the institutional environment can moderate these relationships. Validating my theoretical delineations with a sample of 36 developed OECD countries, I glean important insights for both female entrepreneurship research as well as for policy makers.

E. Concluding Remarks

1 Core Results and Contributions

While entrepreneurship is a longstanding field of research (Shane and Venkataraman, 2000), there are still many unexplored aspects warranting in depth analysis. The current dissertation significantly contributes to entrepreneurship research by advancing our understanding of different types of individual-level entrepreneurial behaviors, that is, of employees within firms and of independent entrepreneurs. The different research gaps were investigated in three distinct studies.

The first study, exploring employees' willingness to act entrepreneurially within organizations, reveals that employees' willingness to comply with entrepreneurial messages crucially depends on construal fit situations and that this relationship is mediated by employees' perceived construal fit. While the study illustrates that promotion focus moderated this relationship, it finds no evidence that prevention focus influences the relationship. The study contributes to a better understanding of how organizational antecedents can influence employees' entrepreneurial behavior (Hornsby et al., 2009; Ireland et al., 2009; Kuratko et al., 2005) by shifting the focus to employees' perceptions. Further, the study demonstrates the applicability of CLT in entrepreneurship literature (cf. Chen et al., 2018; Tumasjan et al., 2013) and contextualizes the relationship by investigating regulatory focus as a boundary condition.

The second study, investigating individuals' choice between the hybrid and the full-time mode of entry into entrepreneurship, shows how uncertainty in entrepreneurship and uncertainty in paid employment jointly influence the likelihood of individuals choosing the hybrid mode of entry. The findings of the study advance theory on hybrid entrepreneurship (Folta et al., 2010; Raffiee and Feng, 2014) by delineating hybrid entry as a portfolio consisting of two distinct options with two distinct underlying uncertainties. While the study did not find support for a

significant direct relationship of uncertainty in paid employment or uncertainty in entrepreneurship for hybrid entry, both uncertainties significantly influence the prior decision to enter into entrepreneurship, as was shown by the Heckman selection model. This result challenges prior research arguing that uncertainty in paid employment is negligible in the decision to enter entrepreneurship (e.g., Kihlstrom and Laffont, 1979; Parker et al., 2005; Raffiee and Feng, 2014). Thus, the findings of the study open new avenues for future research on uncertainty in entrepreneurship (cf. Townsend et al., 2018).

The third study explores the role of individual-level resources for the formation of women's entrepreneurial intentions. The study contributes to the scarce female entrepreneurship literature (De Bruin et al., 2007; Shepherd et al., 2015) by both theoretically delineating and empirically validating how women's resources affect their entrepreneurial intentions and how this relationship depends on the gender equality of the institutional environment in developed countries. Specifically, the finding that financial capital and thus stability and security concerns play an important role for necessity- but not for opportunity-driven entrepreneurship contributes to our understanding of female entrepreneurship in developed countries, where opportunity-driven entrepreneurship is more common for both men and women (Ács et al., 2008; Ács and Varga, 2005). Further, by investigating the contextual role of gender equality of the institutional environment, the study further answers calls to view female entrepreneurship from a holistic perspective (Cardella et al., 2020; De Bruin et al., 2007; Marvel et al., 2016).

2 Practical and Policy Implications

The dissertation offers relevant implications for practitioners in companies as well as for policy makers more generally, by addressing the relevant question of how to increase or influence different types of individual-level entrepreneurial behaviors.

The first study offers insights for leaders on how to best communicate entrepreneurial messages to one's employees. While fitting leader communication can be a strong motivational influence for employees, misfitting communication can discourage them from embracing the communicated message. Further, the effect of leader communication depends on employees' promotion focus. Strongly goal oriented employees do not depend on fitting communication, whereas amotivated employees, who lack such an inner drive, are particularly susceptible to mis/fitting communication. Lastly, the findings showed that higher-level employees generally prefer more abstract communication. Therefore, leaders should carefully devise their communication, keeping the specific audience in mind with respect to their goal orientations and hierarchical level within the company, to be able to successfully encourage their followers.

The second study offers interesting insights for policy makers. Specifically, our findings suggest that interventions, which aim at smoothing uncertainty in paid employment, can have a twofold effect on entrepreneurship. First, with a lower uncertainty in paid employment, individuals may refrain from choosing entrepreneurship as a career path altogether. Second, a lower uncertainty in paid employment can alter the choice how individuals enter into entrepreneurship, by changing the influence of uncertainty in entrepreneurship on individuals' choice of the mode of entry into entrepreneurship. Specifically, with a lower uncertainty in paid employment, more individuals choose hybrid entry over full-time entry. Policy makers need to be aware of this issue, as hybrid entrepreneurs are frequently excluded from official entrepreneurship statistics and thus distort the overall numbers of actual entrepreneurship rates downwards.

The third study also offers important implications for policy makers. First, it shows that the ratio between necessity-driven and opportunity-driven female entrepreneurs in developed countries is highly similar to that of their male counterparts. This suggests that women and their entrepreneurial activities are a highly overlooked source of innovation and growth in

developed countries, as total entrepreneurial activity rates of women are much lower than those of men. The study, therefore, illustrates a need to better understand how women can be encouraged to engage in entrepreneurial endeavors. Understanding their entrepreneurial intention formation is a first step to achieve this important goal. Further, the study shows that a gender equal design of the institutional environment can change women's attitudes toward entrepreneurship and change their perception of their individual-level resources. Thus, gender equality of the institutional environment can increase women's entrepreneurial intentions and may ultimately increase female participation in entrepreneurship.

3 Limitations and Future Research Implications

The studies included in the current dissertation face certain limitations, which can offer valuable avenues for future research.

First, an important issue concerning all three studies are limitations pertaining to the methodological approaches being used. The first study uses an experiment as its primary analysis. In addition, to test the robustness of the results, complementary qualitative evidence was collected. While data triangulation is a valuable first step to increase confidence in the results (Fuchs et al., 2019; Webb et al., 1966), additional tests of the hypothesized relationships within organizations could offer further insights. Specifically, the fact that employees were engaged in passive role-playing in the experiment (Hsu et al., 2017a), where risk and actual consequences at the workplace are only hypotheticals, warrants further investigation. For example conducting a survey in a real work-context or developing an active role-playing design could help to further validate the results. The second study faces certain limitations concerning the measurement of the uncertainties. The study significantly advances prior research that measures uncertainty as exogenous industry uncertainty (Belderbos and Zou, 2009; Folta and Miller, 2002; Vassolo et al., 2004) by aligning it to the individual level and constructing a

measure, which reflects future changes in earnings. However, the variation is still limited to the state level and a more fine-grained measure could prove a fruitful avenue for future research. The third study faces the limitation that the measurement of the major variables of interest (for example, of the resources) was limited to certain available variables within the dataset. In reality, the three types of capital investigated in the study all have various facets. For instance, social capital can refer to both entrepreneurship specific networks as well as the acquaintance with entrepreneurial role models (Davidsson and Honig, 2003; Türk et al., 2020). While the study includes very general and broad measurements of the different types of capital, a valuable avenue for future research could be the detailed investigation of different facets of the three types of capital and explore whether they have stronger or different effects on women's entrepreneurial intention formation.

A second limitation affecting all studies concerns the use of specific samples, which always incurs a certain trade-off between advantages and disadvantages, warranting a detailed discussion. The first study relies on a crowdsourcing sample. While crowdsourcing samples are frequently used in entrepreneurship research, as they allow easy access to large samples with great demographic variance (Keith et al., 2017; Woo et al., 2015), there are certain concerns which need to be noted. Specifically, individuals are monetarily incentivized and are therefore likely to have gained experience from prior participation in similar projects. As a result, they may be able to easily assess the researcher's aim (Woo et al., 2015). Yet, as the first study relies on a marketing panel, the effect of experience on the study's outcomes are less likely. The second and third study both rely on secondary data to explore their theoretical delineations, which means that there was only limited choice how to instrumentalize the hypothesized variables of interest (Pathak et al., 2013; Tonoyan et al., 2020). Further, specific insights into entrepreneurs' motives were completely missing. However, using secondary data allows researchers to leverage other advantages such as enabling comparisons across states,

countries and over time (Schulz et al., 2021; Schulz et al., 2016). Nonetheless, the collection of both primary data and qualitative data could provide valuable additional insights into entrepreneurs' motivations and their cognitive processes. Overall, despite its limitations, this dissertation significantly pushes forward our understanding of different cognitive processes influencing the three types of individual entrepreneurial behaviors and thus paves the way for further highly relevant research in the three distinct research areas.

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G. Appendix Study 1

1 Experimental Scenarios[20]

Table G-1: Construal Level Manipulation

Introduction: Please imagine you have just started working at a new company. The company is a globally active producer and leads in sales of its products. At your site, 13,000 people are employed.	
Distant Leader/Abstract Vision	When you open your laptop, you have already received an e-mail from the Germany-CEO. It says: "Welcome, I would like to warmly welcome you in our company and use this opportunity to make the values and vision of our company clearer. In order to remain competitive in these times of technological change, frequent adaptation and constant change are a must. We see this as our chance and are ready to take certain risks in order to spur innovation in our company. Our vision is: We want to be a worldwide reference for quality and performance! Therefore, we rely on the personal initiative of all our employees to find new creative solutions for problems and to develop new products and service offers. For us it is very important to promote personal initiative and to leave sufficient space for our employees so that they can develop themselves and exploit their full potential. Because of this special commitment to our common values and our vision, we can always convince with top quality and provide products at the state-of-the-art for our customers. With this forward-looking approach, we want to secure both our present and future position and that we are always one-step ahead of our competitors. I look forward to your participation and to shaping the future together. I wish you a good start in our company."
Close Leader/Abstract Vision	Directly in the morning your team leader drops by your office, and invites you to have a cup of coffee together and immediately offers that you call each other by your first names. After a bit of small talk, your team leader talks about the values and the vision of the company, saying the following: "In order to remain competitive in these times of technological change, frequent adaptation and constant change are a must, as you may well know already. In our company, we see this as our chance and are ready to take certain risks in order to spur innovation. Our vision is: We want to be a worldwide reference for quality and performance! Therefore, we rely on the personal initiative of all our employees to find new creative solutions for problems and to develop new products and service offers. For us it is very important to promote personal initiative. We leave sufficient space for our employees so that they can develop themselves and exploit their full potential. Because of this special commitment to our common values and our vision, we can always convince with the top quality of our products and additionally we can provide products at the state-of-the-art for our customers. We pursue this forward-looking approach in order to secure both our present and future position. And we all know, how important it is, to be always one-step ahead of our competitors. I look forward to your participation and to shaping the future together. I wish you a good start in our team."
Distant Leader/Concrete Goals	When you open your laptop, you have already received an e-mail from the Germany-CEO. It says: "Welcome, I would like to warmly welcome you in our company and use this opportunity to explain your personal goals during the first year to you. We want you to contribute intensively to the increase in sales in our company and therefore you have the following tasks and goals for the existing product range: **1.** Elaboration of recommendations for the increase of sales and the identification of new distribution channels **2.** Presentation of first results and ideas at the next team meeting in two weeks One of your major jobs will be the development of new products. An intensive market analysis has already been able to show that a new premium product-line can give us a competitive advantage over our competitors and that there is great potential for this on the German sales market. There are already some initial product ideas, and your job will be to work on the entire development process up to the market launch. Your tasks and goals in the area of development are the following: **1.** Elaboration of a product concept and development of a project plan for the development of the new premium product line **2.** Start of the first product tests on the sales market the latest in the third quarter **3.** Market launch: End of fourth quarter For the success of our company, it is very important that all employees have forward-looking thinking and a high degree of personal initiative. A certain willingness to take risks is expected of every employee. I look forward to your participation and wish you a good start in our company."
Close Leader/Concrete Goals	Directly in the morning your team leader drops by your office, and invites you to have a cup of coffee together and immediately offers that you call each other by your first names. After a bit of small talk, your team leader talks directly about your goals during the first year and says the following: "We want you to contribute intensively to the increase in sales in our company. Concerning our existing product range you have therefore the following tasks and goals: **First:** elaboration of recommendations for the increase of sales and the identification of new distribution channels **Second:** presentation of first results and ideas at the next team meeting in two weeks One of your major jobs will be the development of new products. An intensive market analysis has already been able to show that a new premium product-line can give us a competitive advantage over our competitors and that there is great potential for this on the German sales market. There are already some initial product ideas, and your job will be to work on the entire development process up to the market launch. Your tasks and goals in the area of development are the following: **First:** elaboration of a product concept and development of a project plan for the development of the new premium product line **Second:** you have to ensure the start of the first product tests on the sales market the latest at the beginning of the third quarter **Third:** the Market launch should start at the end of the fourth quarter For the success of our team and naturally of our entire company it is very important that all employees have forward-looking thinking and a high degree of personal initiative and a certain willingness to take risks of course goes along with it. I look forward to your participation and wish you a good start in our team."

[20] We used the German formal/informal address (Sie/du) to create further distance. German versions are available upon request.

2 Measurement

Table G-2: Confirmatory Factor Analysis of the Core Constructs[21]

Items	Standardized Factor Loadings
Perceived Construal Fit (α = .90; CR = .90; AVE = .61)	
I would feel uncomfortable if someone addressed me in this way.	.816
I am surprised by the way people communicate in this company.	.622
The situation just described does not conform to my expectations, how people communicate with each other in companies.	.789
The way I was addressed in the above-described situation does not fit the hierarchical status of the German-CEO/team leader.	.668
Social relations in this company seem different from what I would have expected.	.849
The way people communicate with each other in this company seems strange.	.911
Willingness to Act Entrepreneurially (α = .94; CR = .94; AVE = .52)	
Innovation Dimension	
How likely would you …	
... suggest improvements for existing products and services?	.730
… develop ideas to improve work practices?	.761
…acquire new knowledge yourself?	.745
... actively contribute to the development of new products, services or work processes?	.790
... try to win new customer groups and/or to enter new markets?	.708
... optimize existing work processes?	.697
Proactivity Dimension	
How would you act in this company?	
I would approach problems actively.	.803
Whenever something goes wrong, I would immediately search for a solution.	.781
Whenever there is a chance to get actively involved in a project, I would take it.	.799
When there is a new task or problem, I would immediately take initiative even if others don't.	.829
I would use opportunities in order to reach the company's goals.	.832
I would do more than is expected of me.	.724
I would try to implement ideas especially well.	.810
Risk Taking Dimension	
How would you act in this company? Please indicate your approval:	
I would approach new projects and tasks with caution.	Dropped
I would take on tasks even if there were the chance that they may fail.	.448
I would avoid taking a calculated risk.	Dropped
I would participate in activities even if it were possible that they go wrong.	.445
I would be willing to take a calculated risk, even if there is the chance it becomes a failure.	.437
Promotion Focus (α = .81; CR = .82; AVE = .54)	
I frequently imagine how I will achieve my hopes and aspirations.	.781
I often think about the person I would ideally like to be in the future.	.717
I typically focus on the success I hope to achieve in the future.	.604
I often think about how I will achieve success at work.	.811
Prevention Focus (α = .83; CR = .83; AVE = .56)	
I am anxious that I will fall short of my responsibilities and obligations.	.761
I often think about the person I am afraid I might become in the future.	.680
I often worry that I will fail to accomplish my career goals.	.793
I often imagine myself experiencing bad things that I fear might happen to me.	.741

[21] German versions are available upon request.

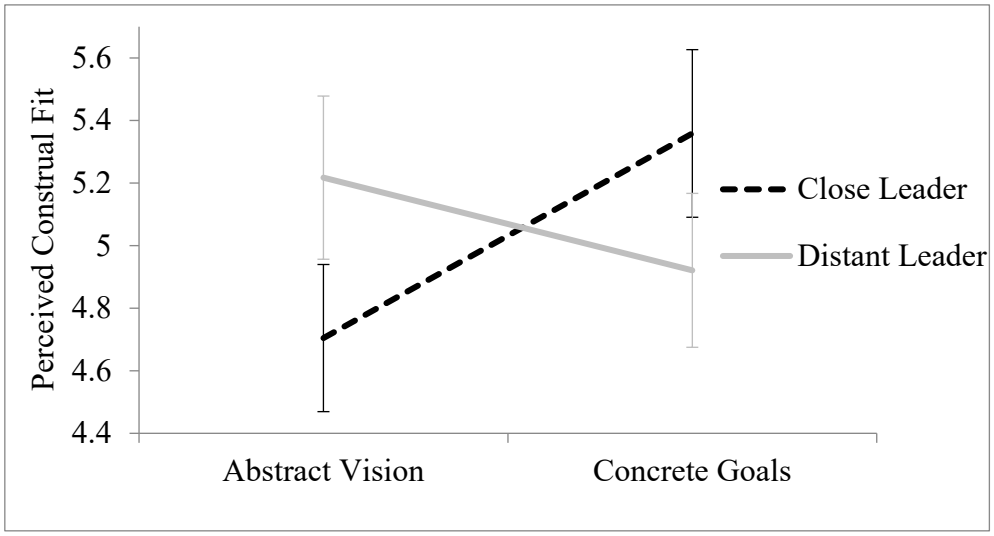
3 Pretest

Table G-3: Results of the Interaction Effect between the Message and Social Distance on Perceived Construal Fit in the Pretest

	Perceived Construal Fit			
	b	SE	t	p-value
Intercept	4.7	0.24	19.3	0.00
Main effects				
Social Distance[a]	0.51	0.34	1.50	0.14
Message[b]	0.65	0.34	1.91	0.06
Two-way interaction				
Message x Social Distance	-0.95	0.49	-1.93	0.06
Model				
R^2	0.05			

Note: n = 87. a 1 = high distance, 0 = low distance. b 1 = goals, 0 = vision.

Figure G-1: Interaction Effect between the Message and Social Distance on Perceived Construal Fit in the Pretest with 95% CIs



4 Validation Study

In this section, we want to present how we recruited participants for our validation study and report the detailed results. We used the *Clickworker* crowdsourcing platform to validate our experimental scenarios. This platform makes it possible to choose from different samples. Thus, we restricted the sample to exclusively German-speaking respondents. Furthermore, using selection questions, we restricted the sample to currently employed individuals. In addition, throughout the survey, we used attention checks to eliminate inattentive respondents. The platform works based on a first-come, first-served participation principle and completion quotas. Upon survey completion, participants receive a fixed amount of money set by the survey issuer. We based the amount of remuneration on the German minimum wage calculated for a 15-minute participation duration. We pretested the survey for comprehensibility issues with 12 individuals and made minor adaptations before recruiting another 40 participants. In sum, 73 individuals responded to our invitation, 4 people were screened out by the selection question, 12 people were inattentive, 5 people did not complete the survey, and 4 people participated twice. We thus obtained a total of 48 respondents.

Concerning the procedure, we asked the respondents to rate the manipulations. Specifically, each respondent sequentially received either the two concrete goal scenarios or the two abstract vision scenarios in a random order, resulting in 22 to 26 evaluations per scenario. After reading a scenario, they were asked to describe how distant they felt from the leader in the scenario and how concrete or abstract they perceived the content of the text. Furthermore, we asked them to describe whether they perceived the scenario as being an appropriate communication situation and whether it was realistic. After these questions, we asked the respondents to describe a similar situation from their everyday work life.

Perceived Distance. In the distant leader scenarios communicated by the CEO, the respondents indicated that they perceived the communication as “friendly but impersonal”, which was particularly attributed to the choice of communicating via email. In addition, they indicated that they felt distant due to the difference in the hierarchical position within the company and the “use of formal language”. In contrast, in the close leader scenarios communicated by the team leader, the respondents felt closer due to the “less formal” and “personal” communication styles. In addition, they reported that “direct” face-to-face communication reduced the perceived distance from the leader.

Perceived Abstractness. Moreover, the respondents indicated that the abstract message scenarios represented by vision communication were “very general”, “vague”, and “without clear instructions”. In the concrete scenarios represented by goal communication, they indicated that the instructions were “very clear” and “detailed”, including deadlines. The leaders’ “expectations were clearly presented”.

Perceived Fit. The respondents described the *abstract vision/distant leader scenario* as a “standard way of behavior”, “expected” behavior and “appropriate”. The *abstract vision/close leader scenario* was described as “slightly insincere” and “over the top”. While some individuals indicated that they preferred close leader communication to distant leader communication, they seemed to perceive a mismatch between the message content and the relationship with the leader. Furthermore, the respondents commented that the *concrete goal/distant leader scenario* should be communicated “in person” by a leader closer to the employee. It was even perceived as being “disrespectful” and “awkward”. In contrast, the *concrete goal/close leader scenario* was described as “pleasant”, “common”, and “amicable”, and the respondents said that the interaction “relaxes the atmosphere”.

Scenario Realism. To test whether our constructed scenarios represent real-life situations, we asked the respondents to evaluate the realism of the scenarios and to further describe similar situations from their personal experience. The *abstract vision/distant leader scenario* was described by the respondents as realistic and as a situation that they had already experienced first-hand. Similar personal stories were described as "good experiences", "nice gestures" and motivating for the employee, as they include the employee in working toward a common company goal. The *abstract vision/close leader scenario* was described as a "common" communication situation that many respondents said that they had "experienced first-hand". In the personal stories, such situations were described as "unproductive" and "challenging" due to the discrepancies between the feasibility of the communicated expectations and the uncertainty about voicing personal concerns in such situations. Furthermore, the respondents indicated either that frequently in such situations, the close leader breaks down the company goals and translates them into concrete goals for the employee or that abstract communication takes place in a more formal setting, increasing the perceived fit.

Furthermore, the respondents described the *concrete goal/distant leader scenario* as "very common" and "realistic" based on their personal experience. In the personal stories, they reported that this type of communication can put pressure on the employee and is very output oriented. In contrast, others reported that such distant communication via email does not affect their behavior, as it is perceived as being too impersonal and without consequences. In comparison, the respondents described the *concrete goal/close leader scenario* as a commonly practiced leadership style that many had experienced first-hand. Similar stories showed that this situation increases motivation and that teamwork on equal footing is particularly highly valued.

Table G-4 reports the descriptive results of the four questions concerning the closeness, abstractness, fit and realism of the experimental scenarios.

Table G-4: Descriptive Statistics for the Validation Study

Perceived Distance (ranging from 1 distant – 7 close)						**Interpretation**
	Mean	*Median*	*SD*	*Min*	*Max*	*The distant leader was perceived as more distant than the close leader*
Distant Leader	3.94	4	1.63	1	7	
Close Leader	5.33	5	1.30	2	7	

Perceived Abstractness (ranging from 1 abstract – 7 concrete)						**Interpretation**
	Mean	*Median*	*SD*	*Min*	*Max*	*The abstract message was perceived as more abstract than the concrete message*
Concrete Message	5.41	6.00	1.66	2	7	
Abstract Message	5.13	5.50	1.54	1	7	

Perceived Fit (ranging from 1 low fit – 7 high fit)						**Interpretation**
	Mean	*Median*	*SD*	*Min*	*Max*	*Fit Situations were perceived as more fitting than misfit situations*
Construal Fit Situations	5.19	5	1.42	1	7	
Construal Misfit Situations	4.98	5.5	1.51	1	7	

Scenario Realism (ranging from 1 not realistic – 7 very realistic)						**Interpretation**
	Mean	*Median*	*SD*	*Min*	*Max*	*All scenarios were perceived as realistic*
Close leader x concrete goals	4.95	5.00	1.59	1	7	
Close leader x abstract vision	5.12	6.00	1.88	1	7	
Distant leader x abstract vision	5.69	6.00	1.59	1	7	
Distant leader x concrete goals	4.82	5.00	1.71	2	7	

5 Additional Results

In this section, we report and describe the results of additional bivariate and multivariate tests in the main study with employees.

Bivariate Results of the Manipulation Checks

The manipulation check for social distance significantly correlated with our social distance dummy (r = -.262, p =.00), indicating that the respondents perceived the leader as being further removed in the distal leader scenario. Performing a two-sided t-test to compare the means in the socially distal (M = 3.26; SD = 1.41) and socially close (M = 3.99; SD = 1.31) scenarios confirmed this result (t(717) = 7.43, p = .00), suggesting significantly different means.

The manipulation check for message abstractness significantly correlated with the message dummy (r = .298, p = .00), indicating that the respondents perceived a higher abstractness in the abstract vision scenario. Performing a two-sided t-test to compare the means in the abstract message (M = 4.86; SD = 1.45) and concrete message (M = 5.69; SD = 1.23) scenarios confirmed this result (t(717) = -8.35, p = .00), suggesting significantly different means.

Bivariate and Multivariate Results of the Experiment

Testing the direct influence of social distance on perceived construal fit in an ANOVA revealed a barely significant effect (b = -.20, p =.05). In contrast, an ANOVA between message abstractness and perceived construal fit revealed a significant negative effect (b = -.67, p = .00), indicating that the goal scenario significantly decreased the respondents' perceived construal fit. Further investigation of the interaction effect between social distance and message abstractness using OLS revealed that there is a significant interaction effect (b = -.71, p = .00) (compare results to Figure 3).

We then conducted bivariate tests between the groups. A two-sided t-test showed that the perceived construal fit in the abstract vision scenario did not significantly differ (t(356) = -1.05, p = .29) between the distant leader (M = 4.69, SD = .10) and the close leader scenario (M = 4.54, SD = .09). However, in the concrete goal scenario, a t-test (t(359) = 3.96, p = .00) showed that perceived construal fit was significantly lower when the message was communicated by a distant leader (M = 3.66, SD = .10) than when it was communicated by a close leader (M = 4.22, SD = .09). Furthermore, a t-test showed that perceived construal fit was significantly lower (t(355) = 7.15, p = .00) when a distant leader communicated a concrete message (M = 3.66, SD = .10) as opposed to an abstract message (M = 4.69, SD = .10). In contrast, a t-test showed that perceived construal fit is lower (t(360) = 2.23, p = .02) when a close leader communicated a concrete message (M = 4.22, SD = .09) as opposed to an abstract message (M = 4.54, SD = .09), which is consistent with the finding that the concrete goal scenario directly decreased perceived construal fit.

Bivariate Results for the Split Samples

Furthermore, in our study, we investigated how our manipulation affected perceived construal fit for split samples (compare to Figure 5). Considering the employee sample, a two-sided t-test shows that in the abstract vision scenario, perceived construal fit was higher ($t(221) = -1.90$, $p = .01$) when the message was communicated by a distant leader ($M = 4.66$, $SD = .12$) than when it was communicated by a close leader ($M = 4.32$, $SD = .12$). In the concrete goal scenario, perceived construal fit was higher ($t(227) = 3.80$, $p = .00$) when a message was communicated by a close leader ($M = 4.32$, $SD = .12$) than when it was communicated by a distant leader ($M = 3.67$, $SD = .11$). Furthermore, perceived construal fit was significantly higher ($t(227) = 5.70$, $p = .00$) when a distant leader communicated an abstract vision ($M = 4.66$, $SD = .12$) as opposed to concrete goals ($M = 3.67$, $SD = .11$). In contrast, a two-sided t-test ($t(221) = 0.01$, $p = .99$) showed that when a close leader communicated either an abstract vision ($M = 4.32$, $SD = .12$) or a concrete goal ($M = 4.32$, $SD = .12$), there was no significantly different effect.

In comparison, in the manager sample (see Figure 5), a two-sided t-test showed that in the abstract vision scenario, when a message was communicated by either a distant leader ($M = 4.75$, $SD = .16$) or a close leader ($M = 4.88$, $SD = .16$), perceived construal fit was the same ($t(133) = 0.52$, $p = .60$). Similarly, in the concrete goal scenario, when a message was communicated by either a close leader ($M = 4.07$, $SD = .16$) or a distant leader ($M = 3.65$, $SD = .18$), perceived construal fit was the same ($t(130) = 1.66$, $p = .10$). Furthermore, perceived construal fit was significantly higher ($t(126) = 4.29$, $p = .00$) when a distant leader communicated an abstract vision ($M = 4.75$, $SD = .17$) as opposed to concrete goals ($M = 3.65$, $SD = .18$). Similarly, perceived construal fit was higher ($t(137) = 3.46$, $p = .00$) when a close leader communicated an abstract vision ($M = 4.88$, $SD = .16$) as opposed to concrete goals ($M = 4.07$, $SD = .16$).

6 Robustness Tests

Table G-5: Moderated Mediation Regression Results for WTAE Including all Five Risk-Taking Items

	MEDIATOR				OUTCOME							
	PCF				WTAE Model 1				WTAE Model 2			
	b	SE	t	p-value	b	SE	t	p-value	b	SE	t	p-value
Intercept	4.54	0.10	45.21	.00	1.05	0.52	2.04	.04	1.74	0.48	3.64	.00
Main effects												
Social Distance [a]	0.15	0.14	1.05	.29	-0.10	0.07	-1.36	.17	-0.10	0.07	-1.34	.18
Message [b]	-0.31	0.14	-2.22	.03	0.10	0.07	1.43	.15	0.10	0.07	1.43	.15
Perceived Construal Fit					0.40	0.07	6.06	.00	0.23	0.05	5.00	.00
Promotion Focus					0.28	0.07	4.21	.00	0.09	0.03	2.94	.00
Prevention Focus					-0.03	0.02	-1.37	.17	0.01	0.06	0.25	.81
Two-way interactions												
Message x Social Distance	-0.71	0.20	-3.54	.00	0.17	0.10	1.65	.10	0.18	0.10	1.71	.09
Perceived Construal Fit x Promotion Focus					-0.05	0.01	-3.24	.00				
Perceived Construal Fit x Prevention Focus									-0.01	0.01	-0.82	.42
Controls												
Age					0.00	0.02	0.23	.82	0.00	0.02	0.26	.80
Age Squared					0.00	0.00	0.34	.73	0.00	0.00	0.30	.76
Gender [c]					0.00	0.06	0.01	.99	0.00	0.06	0.03	.97
Proactive Personality					0.39	0.04	11.06	.00	0.39	0.04	10.98	.00
Education					-0.07	0.03	-2.16	.03	-0.08	0.03	-2.27	.02
Work Experience					0.00	0.00	-0.97	.33	0.00	0.00	-1.06	.29
Management Position [d]					0.08	0.06	1.36	.17	0.10	0.06	1.59	.11
Company Size2 (medium sized)					-0.09	0.07	-1.21	.23	-0.08	0.07	-1.13	.26
Company Size3 (large)					0.00	0.06	0.02	.98	0.01	0.06	0.20	.84
Model												
Industry Dummies					yes				yes			
R^2	0.08				0.37				0.36			
F-value	20.31	.00			14.17	.00			13.63	.00		

Note: n = 719. Dependent Variables: PCF - Perceived Construal Fit; WTAE - Willingness to Act Entrepreneurially. a 1 = high distance, 0 = low distance. b 1 = goals, 0 = vision. c 1 = male, 0 = female. d 1 = with management responsibility, 0 = purely operational.

Table G-6: Moderated Mediation Regression Results for the Sample Excluding Employees from Public Service Organizations

	MEDIATOR				OUTCOME							
	PCF				WTAE Model 1				WTAE Model 2			
	b	SE	t	p-value	b	SE	t	p-value	b	SE	t	p-value
Intercept	4.56	0.10	43.99	.00	1.15	.57	2.03	.04	1.79	.52	3.40	.00
Main effects												
Social Distance [a]	0.11	0.15	0.73	.47	-.11	.08	-1.31	.19	-.11	.08	-1.31	.19
Message [b]	-0.34	0.15	-2.30	.02	.15	.08	1.83	.07	.15	.08	1.84	.07
Perceived Construal Fit					.37	.07	5.09	.00	.21	.05	4.11	.00
Promotion Focus					.28	.07	3.73	.00	.10	.03	3.22	.00
Prevention Focus					-.03	.03	-1.20	.23	-.01	.07	-.12	.90
Two-way interactions												
Message x Social Distance	-0.65	0.21	-3.11	.00	.14	.11	1.23	.22	.15	.11	1.29	.20
Perceived Construal Fit x Promotion Focus					-.04	.02	-2.59	.01				
Perceived Construal Fit x Prevention Focus									-.01	.01	-.36	.72
Controls												
Age					.00	.02	.13	.90	.00	.02	.20	.84
Age Squared					.00	.00	.33	.74	.00	.00	.25	.80
Gender [c]					-.03	.06	-.42	.68	-.02	.06	-.39	.70
Proactive Personality					.44	.04	11.18	.00	.44	.04	11.17	.00
Education					-.10	.04	-2.67	.01	-.11	.04	-2.80	.01
Work Experience					.00	.00	-.73	.47	.00	.00	-.85	.40
Management Position [d]					.08	.07	1.20	.23	.09	.07	1.37	.17
Company Size2 (medium sized)					-.15	.08	-1.85	.06	-.14	.08	-1.79	.07
Company Size3 (large)					.00	.07	-.07	.95	.01	.07	.09	.93
Model												
Industry Dummies					yes				yes			
R^2	0.07				.38				.37			
F-value	18.08	0.00			14.27	.00			13.90	.00		

Note: n = 682. Dependent Variables: PCF - Perceived Construal Fit. a 1 = high distance, 0 = low distance. b 1 = goals, 0 = vision. c 1 = male, 0 = female. d 1 = with management responsibility, 0 = purely operational.

Table G-7: Moderated Mediation Regression Results for the Alternative Measure by De Jong et al. (2015)

	MEDIATOR				OUTCOME							
	PCF				EB Model 1				EB Model 2			
	b	SE	t	p-value	b	SE	t	p-value	b	SE	t	p-value
Intercept	4.54	.10	45.21	.00	1.02	.56	1.83	.07	1.87	.50	3.72	.00
Main effects												
Social Distance [a]	.15	.14	1.05	.29	-.17	.08	-2.13	.03	-.17	.08	-2.11	.04
Message [b]	-.31	.14	-2.22	.03	.09	.08	1.16	.25	.09	.08	1.15	.25
Perceived Construal Fit					.36	.07	4.99	.00	.19	.05	3.81	.00
Promotion Focus					.31	.07	4.26	.00	.10	.03	3.31	.00
Prevention Focus					-.07	.03	-2.82	.01	-.01	.06	-.16	.87
Two-way interactions												
Message x Social Distance	-.71	.20	-3.54	.00	.22	.11	1.98	.05	.23	.11	2.05	.04
Perceived Construal Fit x Promotion Focus					-.05	.02	-3.11	.00				
Perceived Construal Fit x Prevention Focus									-.01	.01	-1.00	.32
Controls												
Age					-.01	.02	-.41	.69	-.01	.02	-.39	.70
Age Squared					.00	.00	1.07	.29	.00	.00	1.04	.30
Gender [c]					.08	.06	1.27	.21	.08	.06	1.28	.20
Proactive Personality					.47	.04	12.37	.00	.47	.04	12.28	.00
Education					-.05	.04	-1.35	.18	-.05	.04	-1.45	.15
Work Experience					-.01	.00	-1.18	.24	-.01	.00	-1.26	.21
Management Position [d]					.03	.06	.50	.61	.05	.07	.72	.47
Company Size2 (medium sized)					-.05	.08	-.60	.55	-.04	.08	-.52	.60
Company Size3 (large)					.01	.07	.15	.88	.02	.07	.32	.75
Model												
Industry Dummies					yes				yes			
R^2	.08				.38				.37			
F-value	20.31	.00			14.59	.00			14.11	.00		

Note: n = 719. Dependent Variables: PCF - Perceived Construal Fit. EB - Entrepreneurial Behavior. a 1 = high distance, 0 = low distance. b 1 = goals, 0 = vision. c 1 = male, 0 = female. d 1 = with management responsibility, 0 = purely operational.

Table G-8: Moderated Mediation Regression Results for Innovation

	PCF				Innovation			
	b	SE	t	p-value	b	SE	t	p-value
Intercept	4.54	.10	45.21	.00	1.27	.48	2.68	.01
Main effects								
Social Distance [a]	.15	.14	1.05	.29	-.20	.09	-2.21	.03
Message [b]	-.31	.14	-2.22	.03	.18	.09	2.05	.04
Perceived Construal Fit					.40	.08	4.93	.00
Promotion Focus					.33	.08	3.99	.00
Two-way interactions								
Message x Social Distance	-.71	.20	-3.54	.00	.19	.13	1.54	.12
Perceived Construal Fit x Promotion Focus					-.05	.02	-2.56	.01
Controls								
Age					.01	.01	.95	.34
Gender [c]					-.03	.07	-.48	.63
Proactive Personality					.39	.04	9.07	.00
Prevention Focus					-.03	.03	-1.08	.28
Education					-.12	.04	-2.79	.01
Work Experience					.00	.01	.82	.41
Management Position [d]					.09	.07	1.18	.24
Company Size2 (medium sized)					-.15	.09	-1.73	.08
Company Size3 (large)					-.03	.08	-.34	.73
Model								
Industry Dummies					yes			
R^2	.08				.32			
F-value	20.31	.00			11.86			

Note: n = 719. Dependent Variables: PCF - Perceived Construal Fit. a 1 = high distance, 0 = low distance. b 1 = goals, 0 = vision. c 1 = male, 0 = female. d 1 = with management responsibility, 0 = purely operational.

Table G-9: Moderated Mediation Regression Results for Proactivity

	PCF				Proactivity			
	b	SE	t	p-value	b	SE	t	p-value
Intercept	4.54	.10	45.21	.00	1.05	.48	2.17	.03
Main effects								
Social Distance [a]	.15	.14	1.05	.29	-.03	.09	-.28	.78
Message [b]	-.31	.14	-2.22	.03	.21	.09	2.27	.02
Perceived Construal Fit					.39	.08	4.73	.00
Promotion Focus					.27	.08	3.22	.00
Two-way interactions								
Message x Social Distance	-.71	.20	-3.54	.00	.01	.13	.11	.91
Perceived Construal Fit x Promotion Focus					-.04	.02	-2.24	.03
Controls								
Age					.01	.01	1.41	.16
Gender [c]					-.15	.07	-2.08	.04
Proactive Personality					.48	.04	10.88	.00
Prevention Focus					-.03	.03	-1.01	.31
Education					-.15	.04	-3.56	.00
Work Experience					.00	.01	-.60	.55
Management Position [d]					.08	.07	1.09	.27
Company Size2 (medium sized)					-.13	.09	-1.52	.13
Company Size3 (large)					-.02	.08	-.24	.81
Model								
Industry Dummies					yes			
R^2	.08				.35			
F-value	20.31	.00			13.18			

Note: n = 719. Dependent Variables: PCF - Perceived Construal Fit. a 1 = high distance, 0 = low distance. b 1 = goals, 0 = vision. c 1 = male, 0 = female. d 1 = with management responsibility, 0 = purely operational.

Table G-10: Moderated Mediation Regression Results for Risk Taking

	PCF				Risk Taking			
	b	SE	t	p-value	b	SE	t	p-value
Intercept	4.54	.10	45.21	.00	.07	.57	.12	.91
Main effects								
Social Distance [a]	.15	.14	1.05	.29	-.13	.11	-1.25	.21
Message [b]	-.31	.14	-2.22	.03	-.09	.11	-.80	.42
Perceived Construal Fit					.42	.10	4.35	.00
Promotion Focus					.25	.10	2.49	.01
Two-way interactions								
Message x Social Distance	-.71	.20	-3.54	.00	.32	.15	2.12	.03
Perceived Construal Fit x Promotion Focus					-.06	.02	-2.95	.00
Controls								
Age					.01	.01	2.14	.03
Gender [c]					.28	.08	3.35	.00
Proactive Personality					.40	.05	7.73	.00
Prevention Focus					-.01	.04	-.20	.84
Education					.09	.05	1.74	.08
Work Experience					-.01	.01	-2.13	.03
Management Position [d]					-.02	.09	-.28	.78
Company Size2 (medium sized)					-.04	.11	-.35	.73
Company Size3 (large)					.02	.09	.22	.83
Model								
Industry Dummies						yes		
R^2	.08				.19			
F-value	20.31	.00			5.95			

Note: n = 719. Dependent Variables: PCF - Perceived Construal Fit. a 1 = high distance, 0 = low distance. b 1 = goals, 0 = vision. c 1 = male, 0 = female. d 1 = with management responsibility, 0 = purely operational.

Table G-11: Comparison of the Conditional Indirect Effects of Construal Fit/Misfit Situations at the Median of the Moderator Promotion Focus with 90% CIs

Group Comparisons	Innovation			Proactivity			Risk Taking		
	Indirect Effect	BootLLCI	BootULCI	Indirect Effect	BootLLCI	BootULCI	Indirect Effect	BootLLCI	BootULCI
Abstract Vision **Distant Leader (1)** vs Close Leader (2)	0.03	-0.02	0.08	0.03	-0.02	0.08	0.02	-0.01	0.06
Concrete Goal **Close Leader (4)** vs Distant Leader (3)	0.12	0.06	0.17	0.12	0.07	0.18	0.09	0.04	0.14
Close Leader **Abstract Vision (2)** vs Concrete Goal (4)	0.06	0.02	0.12	0.07	0.02	0.12	0.05	0.01	0.09
Distant Leader **Abstract Vision (1)** vs Concrete Goal (3)	0.21	0.15	0.28	0.22	0.15	0.30	0.16	0.09	0.23

Note: n=719. Construal Fit (1) = Abstract Vision x Distant Leader; Construal Misfit (2) = Abstract Vision x Close Leader; Construal Misfit (3) = Concrete Goal x Distant Leader; Construal Fit (4) = Concrete Goal x Close Leader. WTAE - willingness to act entrepreneurially.

Table G-12: PLS Results for Innovation, Proactivity, and Risk Taking

	PCF		Innovation		Proactivity		Risk Taking	
	b	p-value	b	p-value	b	p-value	b	p-value
Intercept	.20	.01	-.05	.48	-.09	.18	.04	.62
Main effects								
Social Distance [a]	.08	.40	-.20	.04	-.02	.83	-.16	.12
Message [b]	-.24	.02	.19	.05	.18	.06	-.10	.35
Perceived Construal Fit			.29	.00	.32	.00	.22	.00
Promotion Focus			.28	.00	.28	.00	.13	.00
Two-way interactions								
Message x Social Distance	-.49	.00	.20	.14	.04	.77	.36	.01
Perceived Construal Fit x Promotion Focus			-.09	.01	-.08	.01	-.10	.00

Note: n = 719 Dependent Variables: PCF - Perceived Construal Fit. a 1 = high distance, 0 = low distance. b 1 = goals, 0 = vision.

7 Complementary Qualitative Evidence

To obtain individuals' first-hand experiences of how they perceive their leaders' communication in their companies and how they evaluate the influence of this communication on their actual behavior, we collected additional qualitative evidence. Using a semistructured interview approach to corroborate the quantitative empirical evidence (Fuchs et al., 2019; Heimann et al., 2020), we recruited ten young professionals from German organizations belonging to diverse industry backgrounds. On average, the individuals were 30 years old and had five years of work experience. Sixty percent were female (see Table G-13).

Table G-13: Overview of Respondents

Interview no.	Age	Gender	Hierarchy Level
1	25	female	employee
2	29	female	operational management
3	27	female	employee
4	28	female	employee
5	34	male	operational management
6	33	male	employee
7	26	male	employee
8	32	female	employee
9	26	female	employee
10	29	male	operational management

We conducted our interviews closely following our interview guideline (see Table G-14). Specifically, we started with preliminary questions about the company, its hierarchical structure and individuals' contact with leaders from various hierarchical levels. Furthermore, we asked about individuals' awareness of the company's vision and long-term goals as well as whether they have project or other personally specified targets. While not all individuals knew the exact wording of their company's vision, they all knew their company's long-term goals. In the second part of the interview, we used the "critical incident technique" (Flanagan, 1954), which is used to identify relevant situations in the leadership context (Heimann et al., 2020; Peus et al., 2013). This technique asks individuals to remember salient situations and to

describe them in detail. The interviewer guides the interviewee through reflection with lead questions. We asked individuals to remember positive and negative goal communication situations. Then, we asked them to remember positive and negative vision communication situations. Doing so allowed us to clearly identify the types of situations in which the leader was involved in communication and to assess the interviewees' perceived distance from the leader. This technique also allowed us to identify behavioral consequences that were directly related to the different leader situations, and it strengthens the real-life validity of our theorized model and illustrates that leader communication not only affects WTAE but also influences employees' actual behavior. In the third part of the interview, we showed and explained our research model to the interviewees and asked them whether it reflects their personal experience. In this part, the respondents not only reported their impression of the model but also elaborated on alternative pathways and additional influences that are important in their everyday work life.

Table G-14: Main Interview Questions (adapted from Fuchs et al. (2019))[22]

No.	Question Text
Part I: General Questions about the Company	
1	How large is your company? Can you explain its hierarchical structure? Do you have a lot of contact with different leaders?
2	Does your company have a vision or long-term goals? Can you state them in your own words?
3	Do you have personally specified targets in your company? Can you summarize them?
Part II: Critical Incident Questions	
Introductory Questions	
1	Can you remember a positive/negative situation where a leader in your company set personal goals for you?
2	Can you remember a positive/negative situation where a leader communicated the company's vision to you?
Lead Questions	
1	What happened in the situation?
2	Who was the leader? What is your work relationship in the company?

[22] We conducted the interviews in German. The German version of the interview guide is available upon request.

3	How did you perceive this communication?
4	Did this communication affect your work behavior?
Part III: Presentation of Research Model and Interviewees' Evaluation of It	
1	Does this model reflect your personal experience?
2	Can you assign your previously mentioned situations to the categories in the research model?
3	Is there anything you would like to add to the model?

In the following, we summarize the most relevant information and insights that we gained from the interviews. We first present the descriptions of the vision situations, followed by the goal situations. Then, we present additional findings. Finally, Table G-15 presents exemplary quotes from the interviews.

Abstract Vision Communication by a Distant Leader

With regard to the communication of abstract visions, the respondents described the communication by managers and company CEOs as suitable. This communication occurred either during their onboarding experience or in formal settings such as "town hall meetings" for the entire workforce. In particular, the respondents described the communication in settings as authentic and credible, and they even expected their distant leaders to provide larger company visions. While not all respondents were sure of the direct impact on their work behavior, they were certain that they experienced increased engagement. For instance, one respondent reported the following (I3): "*And then you left [this meeting] and thought, amazing, now I would really like to contribute to this*". Another respondent commented as follows (I5): "*You take a scenic flight over many topics, as a rule, with really rather comprehensive visions. This motivates me as a rule because I believe it helps me to generate a context: Where are we, where do we want to go? […] How does my daily work contribute to this? And I think this is definitely important*". Another respondent pointed out how it affected his behavior more concretely: (I10): "*An abstract vision that is communicated in an inspiring manner, leads to a wider spectrum of solutions, I would say, or even expands my solution horizon and you question*

yourself and say, okay, are there maybe newer or other solutions that I do not see yet? If we want to do everything in an innovative manner, if we have this vision, then I have a greater freedom, so to speak, to think visionary or to find visionary solutions".

Furthermore, providing abstract communication about company goals has a specifically reassuring effect in times of high uncertainty (I5): "*To just know the current state and what is the, at least short-term, future outlook. I think this can definitely be motivating, knowing that they know what they are doing and have a plan. […] This reassured me, and I think others were also calmed [by this communication]*". (I7): "*I received an email […] that the strategy will be changed. I am generally interested in strategic topics; thus, I found it interesting. Well, I think, of course, what it does achieve for the employees is a certain security, a feeling of security. For that reason, yes it shows that the workplace is safe*".

Overall, the respondents suggested that visions communicated by a distant leader can be very helpful in seeing a bigger picture, finding inspiration and better knowing the context of their work environment. In addition, they provide reassurance and help build trust in the company.

Abstract Vision Communication by a Close Leader

In contrast, when close leaders communicated visions, the perception and impact on employees' work behavior were very different. One respondent reported that goal clarity was lacking (I1): "*I found this inept because, that is, I was missing a lot of information, and I didn't know what my task would be concretely*". Another respondent illustrated the mismatch due to hearing inspirational speeches from a leader with whom one collaborates closely (I3): "*Somebody talks about heaven, the next three to four years, whereas I think: You owe me an answer for a project, concerning the next three weeks. What are we talking about?*".

Furthermore, many respondents reported that close leaders communicating vague and abstract goals resulted in misunderstanding and negative work outcomes. For instance, one respondent

described the following (I7): "*At the beginning, the goal was not discussed concretely enough, I think. Or maybe my superior did not give thought to what the goal should be for him personally. How he wants to approach the topic. Or what he expects from me. […] And thus, it was very, very broad. And over time, it became apparent that the direction I was running in was the wrong one. Thus, of course, in the end it was a little demotivating*". The respondent further elaborated how this communication limited his entrepreneurial behavior (I7): "*I was more engaged in finding out what is expected of me. And less in somehow implementing it from a base and identifying adjacent topics, which are relevant too*". Another respondent reported the following (I8): "*I was absolutely demotivated, but also, I was stressed because you had the feeling, okay, irrespective of how, you cannot make it right, you cannot reach these goals, you do not know, how the goals are valued now, what is really expected*". Thus, vague communication can hamper employees' entrepreneurial behavior, as they are more concerned with resolving issues related to the expectations of their leaders.

However, the respondents also reported positive situations in which close leaders communicated abstract values (I4): "*I think it would be nice if my close leader tells me that [abstract vision] because it would illustrate that it pervades the entire company […] I think it would be more helpful and logical if it is connected to me*". This means that if close leaders transfer abstract messages to more concrete levels and translate them into concrete tasks, this communication can have a positive impact on employees.

Concrete Goal Communication by a Close Leader

Concerning the communication of goals, the respondents perceived goal setting situations with close leaders as very appropriate and relaxed. One respondent reported that knowing the leader is helpful (I5): "*I know how such conversations go by now, and I know him better by now, and I know how he approaches such things […] Thus, we can look each other in the eye, and speak*

openly, and I know that; therefore, this was a good experience for me". Another respondent commented about setting goals for a project and particularly valued how the leader took her capabilities into consideration (I1): "*We intensively discussed what it was about, what was relevant content-wise, and we realistically set out what I can contribute based on my experience*". Another respondent liked the detailed instructions (I2): "*The facts and deadlines were exactly set; that is, what has to be done. He said he wants this and that. That was wisely communicated, so it didn't sound like a delegation but still very strict*".

Furthermore, respondents reported how communication affected their behavior (I7): "*So, I think that I was more self-confident in what I was doing. Especially because I roughly knew what was expected, it was probably easier for me starting from there to identify, okay, what makes sense, where can I expand this, where not*". The same interviewee commented on how his superiors evaluated this behavior (I7): "*And I realized, okay, in this or that place, you could adapt it, and then, I did it. And in the end, it was well received*". Similarly, one respondent described further investment in the prescribed task (I1): "*And, I have, for example, proofread the documents, which was very much appreciated, also the time investment […]*."

Overall, these findings highlight that close leaders can convey concrete goals more appropriately. They usually have more insight into specific tasks, and they can evaluate the competencies of employees and thus set realistic and motivating goals. In addition, the respondents positively remembered when close leaders noted and appreciated the time and energy that they invested.

Concrete Goal Communication by a Distant Leader

In contrast, when distant leaders set concrete goals, they often led to misunderstandings and elicited fear and stress in employees, who came to feel that they were under scrutiny and were afraid of making errors, which could permanently affect the work relationship. One respondent

reported the following (I3): "*I was panic-stricken with fear to complete this work task. This terribly stressed me during the first weeks. And it was the only thing I kept thinking about: My god, I still have to do this*". Another respondent indicated the following (I1): "*As a consequence, I tried to evade him if possible and to fulfill the tasks as they were assigned to me, but beyond that, I did not invest further effort*". Distance also prevents employees from approaching their leader and requesting further clarification (I2): "*If you think, if you make a mistake, it might not be tolerated, and you do not like to ask the person again, why, wherefore, for what reason. You get the feeling you have to do it perfectly so that this person disappears afterwards*". Overall, the combination of concrete goals set by distant leaders seemed to elicit very negative responses from the interviewees. As a result, they were unlikely to engage in entrepreneurial behavior (I3): "*I tried to fulfill the task but not very innovatively or proactively but, rather in an intimidated fashion, so to speak, what I had to, I did of course. Because of a sense of obligation*". Another respondent reported (I7): "*So, if I think again about taking risks or some proactive behavior, this definitely hindered me. Well, I had more the impression, I need to see that I can at least partially achieve it. And then, I was more defensive, I think*". Another interviewee reported the following (I10): "*In principle, this was my second conversation with him. […] This certainly achieved that, at the beginning, I was not as efficient, as effective at work as I could have been*", the interviewee further elaborated as follows: "*This mismatch achieves, that you perhaps perceive it as too big a challenge, and you fall into inactivity; or maybe you question such goals more, and then do not accept them*".

Thus, this situation of a distant leader assigning concrete goals elicited strong responses from employees, such as insecurity, stress and even fear. This means that if managers create a work environment that is hostile to innovative, proactive and risk-taking behaviors, employees will reject the goals that are set or can even fall into negative work behaviors, for example, reducing their effort and engaging in evasive behaviors.

Further Findings

Overall, the qualitative study further reinforces and elucidates the findings of our online experiment. Specifically, distant leaders communicating concrete messages had a very negative impact on individuals' behavior both in the experiment and as reported by the interviewees. In general, the interviewees indicated a preference for more personal interactions with their leaders and for flat hierarchies. Furthermore, the interviewees perceived the communication of abstract messages by close leaders to be more suitable than the communication of concrete messages by distant leaders because of the more personal and individual interactions with close leaders. Distant leaders can be less approachable and cannot be easily engaged in a direct conversation, whereas close leaders can always be consulted in case communication is too unclear. This reality might explain why the respondents in the online experiment perceived close leader communication similarly irrespective of perceived construal fit and misfit: They inherently assumed a more personal and exchange-oriented form of interaction with a close leader.

Table G-15: Exemplary Quotes from the Interviews (following Fuchs et al. (2019))

Question	Interview no.	Exemplary Quote
Part I: General Questions about the Company		
How large is your company? Can you explain its hierarchical structure? Do you have a lot of contact with different leaders?	I9 I5	*The company is very large and very hierarchically structured. It is differentiated into different departments. [..] So I have in my department usually a team leader and each team leader has a department manager. And above there is usually, depending on how high it is established [within the organization], either a CEO. Sometimes however it is already the managing board.* *So in the core, the company has 250 employees. There are also a few daughter companies surrounding it, but the core is 250 employees. We have […] four organizational hierarchies, the board, below in my reporting line, we have at least competence centre leaders, then there are team leaders and below the teams and I am part of the team. […] The hierarchy is relatively flat, I just had a meeting, where all levels were also present.*
Does your company have a vision or long-term goals? Can you state them in your own words?	I6	*The company's vision is "XXX as many and as quickly as possible within Germany". […] There are clearly defined company goals. That is, for example, how many XXX we should build per year. How satisfied the customers are.*

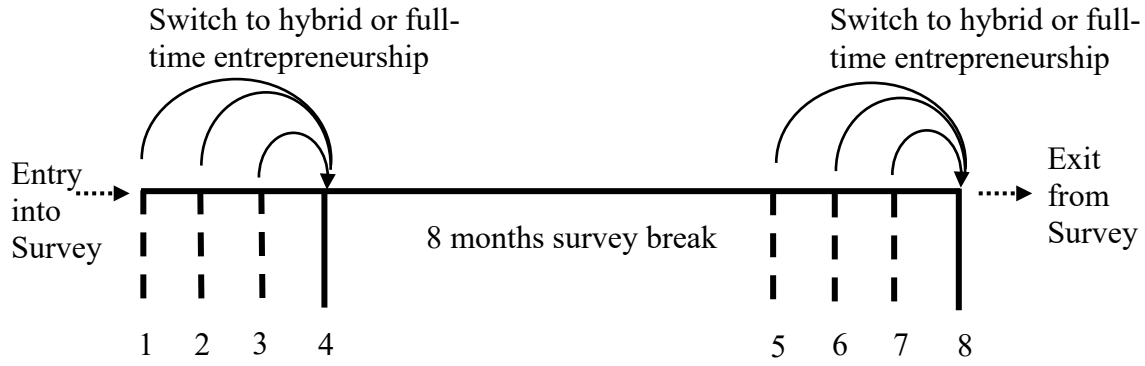
Do you have personally specified targets in your company? Can you summarize them?	I4	*[…], we have half-year talks where personal goals are specified. My half-year talks are set regularly. […] So actually I have two defined goals, one which came from me and one which came from him. And I think we will return to this in the next half-year talk.*
Part II: Critical Incident Questions		
Can you remember a positive/negative situation where a leader in your company set personal goals for you?	I7 I5	*I had a supervisor, who always discussed very well what I was supposed to do […]. So for example, I had to prepare and help shape a document that was a type of strategy derivation. There already existed a first draft and then he relatively clearly said, which topics need to be revised and what he currently doesn't like. […] This was my direct supervisor. Like one level above me.* *An example of an internal project goal was in fact to newly describe the company vision or to be precise, the positioning on the market. But at that point the goal was, to get everything ready within six weeks. […] But I couldn't understand, why the partner, so my supervisor's supervisor, wanted to rush this […]. To me he is more distant than others to be honest. My supervisor always says, we also discussed this, 'you can tell him anything, he just seems like this [more distant], but isn't.' But he knows him differently than me.*
Can you remember a positive/negative situation where a leader communicated the company's vision to you?	I3 I10	*[…] My direct supervisor sat down with me and introduced the company, as part of the onboarding process […] And I have a very positive memory of the team leader, who simply took the time, we were having lunch. Then she showed me printouts and a presentation and explained what is going on. […] That were so to speak higher order goals. […] At the time [we were] rather distant, because I was one week in the company.* *We have, so to speak, sometimes half-yearly roadmap events, where you ultimately sit down together and on the one side rather from a top-down perspective are presented a company vision or a yearly vision by the founders, the leaders.*
Part III: Presentation of Research Model and Interviewees' Evaluation of It		
Does this model reflect your personal experience? Can you assign your previously mentioned situations to the categories in the research model? Is there anything you would like to add to the model?	I5 I1	*Yes, so I think, tendentially I agree [with the model]. […] I would also feel in the direction of uncomfortable when a distant leader thinks, he has to give me concrete goals. On the assumption that he or she does not know me well, does not know what my goals were so far. […] So from a distant leader, we assume that he/she is more strategically involved. For example the board, we would expect them to have a concrete picture of the strategic level, where they want to go with the company.* *I would say this seems dynamic to me. So even a distant leader, depending on the development or the time span of the collaboration can potentially become a closer leader.*

H. Appendix Study 2

1 Construction of Dataset

The CPS follows a rotating structure. In each rotation, individuals in a cohort are interviewed eight times over a span of two years, with four months of consecutive interviews (survey months: 1, 2, 3, 4), followed by an eight months break, and again, followed by further four months of interviews (survey months: 5, 6, 7, 8). Thus, new household cohorts enter and old household cohorts leave the survey every month of the year. Due to the 8 months' time gap between survey months 4 to 5, we only considered entry decisions of individuals who were in paid employment in survey months 1, 2, 3 & 5, 6, 7 and identified whether they changed to hybrid or full-time entrepreneurship in the subsequent survey months 2, 3, 4, 6, 7, and 8 (see Figure H-1).

Figure H-1: The CPS Rotation Structure of Household Cohorts



To match individuals' responses in each rotation cohort across their survey months, we followed prior suggestions on how to use the person-identifiers of the CPS (Lefgren and Madrian, 1999). That is, we ensured the quality of these identifiers by comparing age, sex, and race differences of the matched individuals and splitting up incorrect matches. Incorrect matches were very low (roughly 4.5% of the sample (cf. Fairlie et al., 2011)) and through the application of the splitting procedure, we only deleted 0.4% of the observations from the sample.

2 Further Details on the Construction of the Dependent Variable

To distinguish between hybrid and full-time entries, we relied on information in the CPS on whether or not individuals are multiple job holders, which individuals report in every survey month. However, individuals provide further details whether their second job relates to paid employment or self-employment only twice during the rotation (survey months: 4 & 8), which is needed to distinguish between hybrid entrepreneurship and regular multiple job holders. Hence, identifying entries into hybrid entrepreneurship and full-time entrepreneurship in survey months 4 & 8 is straightforward, as all information is available, while for survey months 2, 3 & 6, 7, we needed to analyze individuals' multiple jobholding status and verify if they were hybrid entrepreneurs in the following survey months 4 or 8 respectively. For consistency, we treated entries into full-time entrepreneurship similarly by including entries from survey months 4 & 8 and further only considering individuals entering full-time entrepreneurship in survey months 2, 3 & 6, 7, who were still full-time entrepreneurs in survey months 4 or 8. We then constructed our dependent variable "entry into hybrid entrepreneurship" as a dummy variable with "1" identifying entry into hybrid entrepreneurship and "0" identifying entry into full-time entrepreneurship.

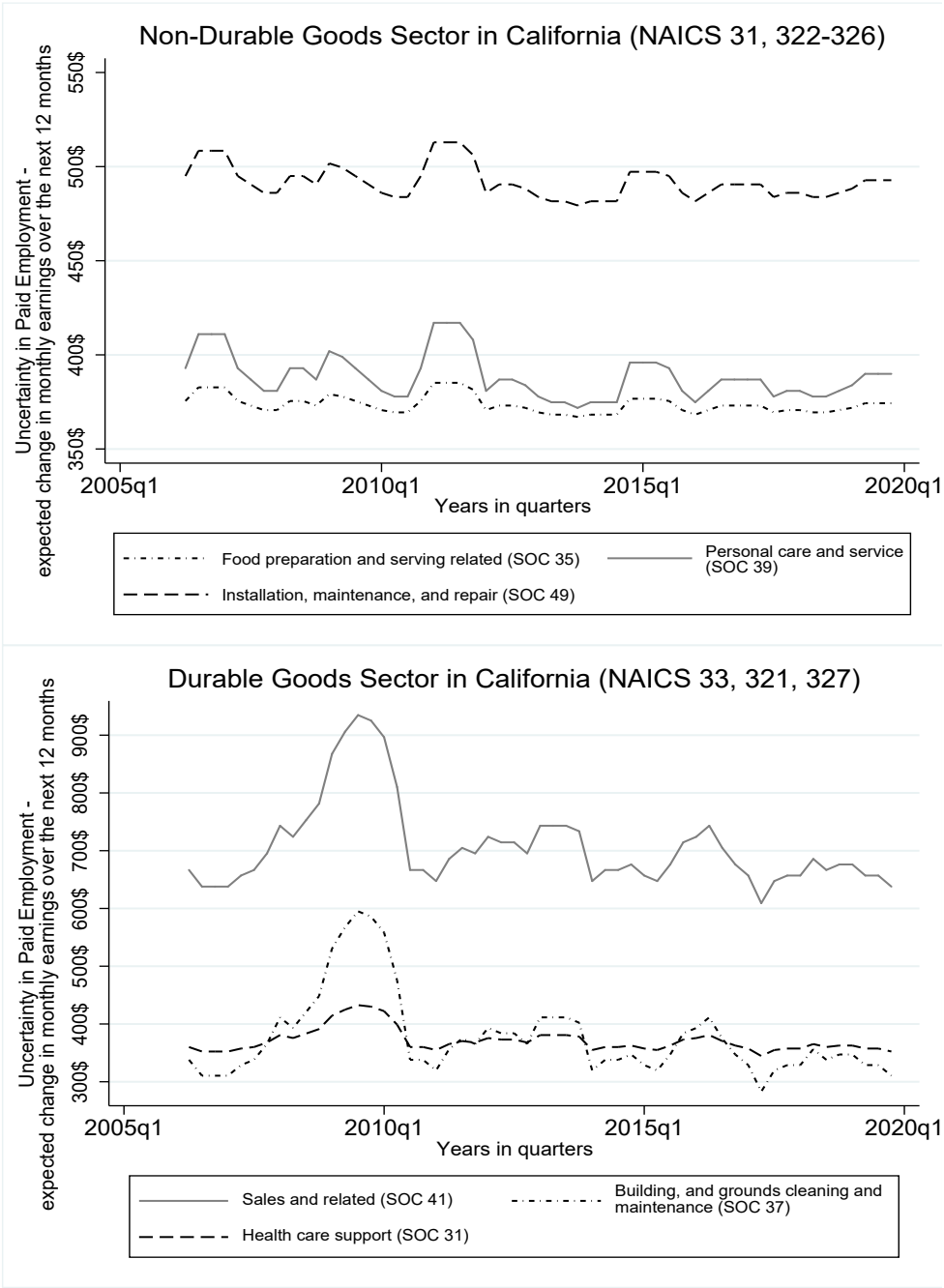
3 Occupational Groups

Table H-1: 22 Major Occupational Groups in our Sample

22 Major occupational groups of the CPS and the SIPP in our sample			
2018 Census Code	**Census aggregate categories**	**Description**	**2018 SOC Code**
0010-0430	1	Management	11
0500-0960	2	Business and financial operations	13
1005-1240	3	Computer and mathematical science	15
1300-1560	4	Architecture and engineering	17
1600-1980	5	Life, physical, and social science	19
2001-2060	6	Community and social service	21
2100-2180	7	Legal	23
2205-2555	8	Education, training, and library	25
2600-2970	9	Arts, design, entertainment, sports, and media	27
3000-3550	10	Health care practitioner and technical occupations	29
3601-3655	11	Health care support	31
3700-3960	12	Protective service	33
4000-4160	13	Food preparation and serving related	35
4200-4255	14	Building and grounds cleaning and maintenance	37
4330-4655	15	Personal care and service	39
4700-4965	16	Sales and related	41
5000-5940	17	Office and administrative support	43
6005-6130	18	Farming, fishing, and forestry	45
6200-6950	19	Construction and extraction	47
7000-7640	20	Installation, maintenance, and repair	49
7700-8990	21	Production	51
9005-9760	22	Transportation and material moving	53

4 Variation of Uncertainty in Paid Employment over Time

Figure H-2: Uncertainty in Paid Employment in terms of average changes of monthly earnings in the next twelve months in California for exemplary Industries and Occupations (2006-2019)



I. Appendix Study 3

1 Overview of Included Countries

Table I-1: Overview of OECD Countries Included in the Analysis by Years

Countries	2010	2011	2012	2013	2014	2015	2016	2017
Australia	x	x			x	x	x	x
Austria			x		x		x	
Belgium	x	x	x	x	x	x		
Canada				x	x	x	x	x
Chile	x	x	x	x	x	x	x	x
Costa Rica	•		•		x			
Colombia	•	•	•	•	•	•	•	•
Czech Republic		x		x				
Denmark	x	x	x		x			
Estonia			x	x	x	x	x	x
Finland	x	x	x	x	x	x	x	
France	x	x	x	x	x		x	x
Germany	x	x	x	x	x	x	x	x
Greece	x	x	x	x	x	x	x	x
Hungary	x	x	x	x	x	x	x	
Iceland	x							
Ireland	x	x	x	x	x	x	x	x
Israel	x		x	x		x	x	x
Italy	x		x	x	x	x	x	x
Japan	x	x	x	x	x			x
Korea	x	x	x	x		x	x	x
Latvia	x	x	x	x		x	x	x
Lithuania		x	x	x	x			
Luxembourg				x	x	x	x	x
Mexico	•	x	x	x	x	x	x	•
Netherlands	x	x	x	x	x	x	x	x
New Zealand								
Norway	x	x	x	x	x	x		
Poland		x	x	x	x	x	x	x
Portugal	x	x	x	x	x	x	x	
Slovakia		x	x	x	x	x	x	x
Slovenia	x	x	x	x	x	x	x	x
Spain	x	x	x	x	x	x	x	x
Sweden	x	x	x	x	x	x	x	x
Switzerland		x	x	x	x	x	x	x
Turkey	•	x	x	x	x		x	
United Kingdom	x	x	x	x	x	x	x	x
United States	x	x	x	x	x	x	x	x

Notes: x indicates countries and years included in the analysis; • indicates omission of a country or year due to a low development status according to the WEF classification; empty cells indicate countries and years, where no GEM data is available

2 Overview of Included Measures

Table I-2: Overview of Measures Included in the Main Analysis

Measures	Questionnaire Text/Definition/ Coding	Source
Dependent Variable		
Entrepreneurial Intention	Are you, alone or with others, expecting to start a new business, including any type of self-employment, within the next three years? Yes = 1, No = 0	GEM APS data: futsupyy
Independent Variables		
Social Capital	Do you know someone personally who started a business in the past 2 years? Yes = 1, No = 0	GEM APS data: knowent
Human Capital	What is the highest level of education you have completed? Harmonized variable: 0 = none, 1 = some secondary, 2 = secondary degree, 3 = post secondary, 4 = graduate experience	GEM APS data: gemeduc
Financial Capital	Which of these ranges best describes the total annual income of all the members of your household, including your income, as one combined figure? Harmonized variable: 1 = lowest third, 2 = middle third, 3 = upper third	GEM APS data gemhhinc
Gender Equality	Countries' yearly global gender gap score ranging from 0 (imparity) to 1 (parity)	WEF Global Gender Report
Control Variables		
Age	What is your current age (in years)?	GEM APS data: age
Self-efficacy	Do you have the knowledge, skill and experience required to start a new business? Yes = 1, No = 0	GEM APS data: suskill
Fear-of-Failure	Would fear of failure prevent you from starting a business? Yes = 1, No = 0	GEM APS data: fearfail
Labor Market Regulations	Countries' yearly labor market regulations subindex form the regulations section of the Economic Freedom Index. ranging from 0 (restrictive regulations) – 10 (liberal regulations).	Fraser Institute – Economic Freedom data
Business Regulations	Countries' yearly business regulations subindex form the regulations section of the Economic Freedom Index. Ranging from 0 (restrictive regulations) – 10 (liberal regulations).	Fraser Institute – Economic Freedom Institute
Unemployment Rate	Total yearly unemployment rate as a percentage of the labor force	OECD data
Population Growth	Yearly growth rate of total population in %	OECD data
GDP Growth	Yearly growth rate of gross domestic product in %	OECD data

3 Country-Level Entrepreneurship and Gender Equality Rates

Table I-3: Country Averages for Entrepreneurial Activity Rates and Gender Equality Scores (2010-2017)

Countries	Percentage Opportunity-Driven Entrepreneurship	Ratio Female/Male Total Entrepreneurial Activity	Ratio Female/Male Opportunity Driven Entrepreneurship	Gender Equality Score
Australia	0.80	0.71	0.91	0.73
Austria	0.77	0.71	0.96	0.73
Belgium	0.77	0.58	0.76	0.76
Canada	0.79	0.69	0.99	0.75
Chile	0.73	0.73	0.82	0.69
Costa Rica	0.77	0.94	0.88	0.72
Czech Republic	0.71	0.39	0.91	0.68
Denmark	0.90	0.45	0.98	0.78
Estonia	0.90	0.59	0.98	0.72
Finland	0.82	0.58	0.96	0.84
France	0.80	0.52	0.88	0.73
Germany	0.75	0.57	0.96	0.77
Greece	0.57	0.62	0.91	0.68
Hungary	0.62	0.47	0.80	0.67
Iceland	0.91	0.50	-	0.85
Ireland	0.66	0.46	1.00	0.79
Israel	0.72	0.62	1.05	0.71
Italy	0.71	0.51	0.98	0.70
Japan	0.73	0.38	0.94	0.65
Korea	0.65	0.46	1.01	0.64
Latvia	0.73	0.53	1.02	0.75
Lithuania	0.68	0.44	0.90	0.72
Luxembourg	0.86	0.59	0.98	0.73
Netherlands	0.87	0.57	0.93	0.76
Norway	0.92	0.43	0.99	0.84
Poland	0.68	0.54	0.94	0.71
Portugal	0.71	0.57	0.86	0.72
Slovakia	0.57	0.56	0.97	0.68
Slovenia	0.77	0.47	0.90	0.74
Spain	0.60	0.70	0.90	0.74
Sweden	0.88	0.60	0.98	0.81
Switzerland	0.84	0.76	0.92	0.77
Turkey	0.63	0.44	0.98	0.61
United Kingdom	0.77	0.53	1.00	0.75
United States	0.81	0.70	0.97	0.74

Note: Values for the ratios and the gender equality score close to 0 indicate a high imparity favoring men; values close to 1 indicate parity between men and women, values above 1 indicate a bias towards women

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Ort, Datum

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