



KADIR HAS UNIVERSITY
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**CONTEXTUAL FACTORS THAT AFFECT THE
FOUNDING TEAM COMPOSITION OF STARTUPS AND
THEIR ACCESS TO EARLY-STAGE FUNDING: THE
TURKISH STARTUP ECOSYSTEM**

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A thesis submitted to
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APPROVAL

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In addition, I acknowledge that any claim of irregularity that may arise in relation to this work will result in a disciplinary action in accordance with the university legislation.

HAMZA KHAN

17/02/2025

To My Dearest Family...

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ABSTRACT

Facing high levels of information asymmetry and uncertainty about the future potential of early-stage ventures, investors often rely on founding team characteristics as signals of growth and market potential. While extensive research exists on venture signaling and financing, the role of contextual factors in these processes remains underexplored. This thesis examines how sector-, ecosystem-, and economy-level contextual elements shape the observed founding team characteristics in the Turkish startup ecosystem. Focusing on fintech, gaming, and AI industries, I analyze how these characteristics influence early-stage funding, considering the moderating role of contextual factors. Using archival data from startups founded between 2010 and 2023, I conduct a cluster analysis to identify founding team profiles based on team size, entrepreneurial background, and the ratio of female entrepreneurs. Regression analysis tests the effects of these characteristics on attracting early-stage investment. The findings reveal distinct patterns in founding team structures across sectors and different stages of the entrepreneurial ecosystem. Notably, the presence of a returnee founder positively impacts success, particularly when paired with a local elite entrepreneur or within the AI industry. Larger founding teams enhance startup performance when cognitive similarity among team members is high. The influence of female entrepreneurs on success shifts over time, becoming positive during the ecosystem's growth stage but turning negative in the maturity stage, coinciding with the COVID-19 period. These insights contribute to signaling and diversity research while offering practical recommendations for entrepreneurs and policymakers in fostering more effective startup teams and investment strategies.

Keywords: Startup Ecosystem, Early-Stage Ventures, Founding Team Characteristics, Investor Signaling, Entrepreneurial Success, Early-Stage Funding, Turkey Startup Ecosystem.



STARTUP ŞİRKETLERİN KURUCU EKİP KOMPOZİSYONU VE ERKEN AŞAMA FİNANSMANA ERİŞİMİNİ ETKİLEYEN BAĞLAMSAL UNSURLAR: TÜRKİYE STARTUP EKOSİSTEMİ

ÖZET

Bilgi asimetrisinin yüksek olduğu ve erken aşama girişimlerin gelecekteki potansiyeline ilişkin belirsizliğin sürdüğü bir ortamda, yatırımcılar genellikle büyüme ve piyasa potansiyeline dair sinyaller olarak kurucu ekip özelliklerine güvenmektedir. Girişim sinyalleme ve finansmanına yönelik kapsamlı araştırmalar bulunsa da bağlamsal faktörlerin bu süreçlerdeki rolü yeterince incelenmemiştir. Bu tez, sektör, girişimcilik ekosistemi ve ekonomi düzeyindeki bağlamsal unsurların, Türkiye girişimcilik ekosisteminde gözlemlenen kurucu ekip özelliklerini nasıl şekillendirdiğini incelemektedir. Fintek, oyun ve yapay zeka sektörlerine odaklanarak, bu özelliklerin erken aşama yatırımları çekme üzerindeki etkisini ve bağlamsal faktörlerin bu süreci nasıl yönlendirdiğini analiz ediyorum. 2010-2023 yılları arasında kurulan girişimlerin arşiv verilerini kullanarak, kurucu ekip profillerini ekip büyüklüğü, girişimcilerin geçmişi ve ekipteki kadın girişimci oranı açısından belirlemek amacıyla kümeleme analizi gerçekleştirdim. Bu özelliklerin erken aşama yatırım çekme üzerindeki etkisi regresyon analizi ile test edilmiştir. Bulgular, sektörler ve girişimcilik ekosisteminin farklı aşamalarına göre kurucu ekip yapılarında belirgin farklılıklar olduğunu ortaya koymaktadır. Özellikle, dönüş yapan (returnee) bir kurucu ortağın varlığı, ekibin içinde yerel seçkin bir girişimci bulunması veya girişimin yapay zeka sektöründe faaliyet göstermesi durumunda başarıya daha güçlü bir şekilde katkı sağlamaktadır. Daha büyük kurucu ekipler, ekip üyeleri arasında bilişsel benzerlik yüksek olduğunda girişim başarısını artırmaktadır. Kadın girişimcilerin girişim başarısına etkisi zaman içinde değişkenlik göstermekte; ekosistemin büyüme aşamasında pozitif bir etkiye sahipken, olgunluk aşamasında—COVID-19 dönemiyle örtüşen süreçte—negatif bir hale dönüşmektedir. Bu bulgular, sinyalleme ve çeşitlilik literatürüne katkı sağlarken, girişimciler ve politika yapımcılar için daha etkili girişim ekipleri oluşturma ve yatırım stratejileri geliştirme konusunda pratik öneriler sunmaktadır.

Anahtar Sözcükler: Girişimcilik Ekosistemi, Erken Aşama Girişimler, Kurucu Ekip Özellikleri, Yatırımcı Sinyallemesi, Girişimcilik Başarısı, Erken Aşama Finansmanı, Türkiye Girişimcilik Ekosistemi



TABLE OF CONTENTS

ACKNOWLEDGEMENT	v
ABSTRACT	vi
ÖZET	viii
LIST OF FIGURES	xi
LIST OF TABLES	xii
LIST OF SYMBOLS	xiii
LIST OF ACRONYMS AND ABBREVIATIONS	xiv
1. INTRODUCTION	1
2. LITERATURE REVIEW	6
2.1 The concept of startup and startup ecosystems	6
2.2 Female entrepreneurship	8
2.3 Investor decision making.....	10
3. THEORETICAL FRAMEWORK	13
4. METHOD	19
4.1 Empirical context	19
4.2 Sample	21
4.3 Exploratory study of the founding team profiles of startups.....	21
4.4 Regression analyses for predicting startup success	22
5. RESULTS	24
5.1 Descriptives	24
5.2 Results of cluster analyses.....	25
5.3 Results of regression analyses	27
6. DISCUSSION	32
6.1 Discussion of cluster analysis findings (founding team profiles)	32
6.2 Discussion of regression analysis findings (the signaling role of the founding team characteristics).....	34
6.3 Discussion of theoretical contributions	37
7. CONCLUSION	40
BIBLIOGRAPHY	42

LIST OF FIGURES

Figure 5.1: The moderating effect of ecosystem growth on the effect of female entrepreneur on attracting funding	31
Figure 5.2: The moderating effect of post-COVID period on the effect of female entrepreneur on attracting funding	31



LIST OF TABLES

Table 1: Descriptive statistics of founding team characteristics in the learning, growth, and maturity (post-COVID) stages of the startup ecosystem.....	24
Table 2: Cluster analysis results for startups in the AI sector.....	25
Table 3: Cluster analysis results for startups in the fintech sector	25
Table 4: Cluster analysis results for startups in the gaming sector	26
Table 5: Profiles of clusters (founding team profiles)	27
Table 6: Descriptive statistics (regression analysis)	28
Table 7: Regression analysis results	30
Table 8: Regression analysis results	34

LIST OF SYMBOLS

α Definition

Δ Definition



LIST OF ACRONYMS AND ABBREVIATIONS

CEE	Central and Eastern Europe
CVC	Corporate Venture Capital
MENA	Middle East and North Africa
STEM	Science, Technology, Engineering, and Mathematics
VCIF	Venture Capital Investment Funds
VCs	Venture Capitalists



1. INTRODUCTION

Entrepreneurial ventures play a vital role in economic systems as they contribute to economic growth, produce innovation, and help address diverse societal needs. Given their resource constraints, especially at the early stages of their life cycle, attracting external finance is key to their survival, growth, and market success (Gilbert, et al., 2016; Soto-Simeone et al., 2020). Early-stage funding is a crucial enabler for startups, providing the capital needed to validate business ideas, develop products, and execute go-to-market strategies (Block & Colombo, 2006). It also allows startups to build resilience against setbacks, refine their business models, and attract further investment (Eesley & Wang, 2016).

Providers of finance are highly selective, especially when investing in early-stage ventures, given high levels of uncertainty about the future performance and viability of these ventures, which affect their return (Islam et al., 2018; Miloud et al., 2012). This is the case because new ventures do not yet have past accomplishments indicative of their future potential such as verified demand for the product or technology offer. In the absence of this information, investors rely on signals such as third-party endorsements of the venture and the background and experience of founders and try to make inferences about viability and success (Colombo, 2021; Vazirani & Bhattacharjee, 2021).

In the last decades, there has been a significant increase in the number of studies investigating the role of signals in new venture financing. Yet, as identified by recent review papers (Colombo, 2021; Ferrati & Muffatto, 2021; Svetek, 2022), this literature has provided very limited attention to how context affects signaling. Temporal, sectoral, regional, and other contextual factors may affect how external audiences consider various characteristics of new ventures as signals of their future success (see Armanios et al., 2017; Connelly et al., 2011; Topaler & Adar, 2025). Thus, the power of signals can be influenced by their fit with or relevance to the context. Very limited attention to this context-specificity of the signaling process leads to an incomplete understanding of

the determinants of attracting early-stage funding which has a vital role in their survival and market performance.

This thesis study targets filling this gap in the literature and examines how context affects the founding team composition of startups and its functioning as a signal in the eyes of external evaluators. I study these dynamics in the Turkish startup ecosystem, which is ranked 16th among the top 100 emerging ecosystems in 2023, and with the most robust early-stage funding activity among the emerging ecosystems (Startups.watch, 2024). I have observed fintech, gaming, and artificial intelligence (AI) startups in this ecosystem in the period 2010-2023. The fintech and gaming sectors are among the most populated ones in the context of the Turkish startup ecosystem, and many successful firms, including the first Turkish unicorns, emerged from them. The first examples of AI startups were observed in the early 2000s, the increase in numbers started in the mid-2010s and intensified after 2020 following the global trend in technology. The dominant form of business in the gaming sector is B2C, whereas B2B dominates in the AI sector. There is a more balanced distribution of B2B and B2C forms in the fintech sector. All three sectors are technology-intensive and experienced high growth in terms of the number of startups (Startups.watch, 2024; Startup Genome, 2023).

A great majority of local entrepreneurs in emerging market economies are necessity-driven and have poor skills and capabilities (Armanios et al., 2017; Baptista, Karaoz, & Mendonca, 2014). Local elites have degrees from top domestic universities, have better skills as well as wider and higher-quality networks (Armanios et al., 2017; Hoskisson et al., 2000). The final type of entrepreneur is returnees, referring to people who have several years of experience and/or education in a developed country and come back to their home countries to establish a venture (Armanios et al., 2017; Lin et al., 2019).

The entrepreneurial landscape in emerging markets consists of distinct types of founders, each contributing uniquely to the startup ecosystem. Local elites, typically graduates of top domestic universities, benefit from institutional credibility, extensive professional networks, and access to valuable business resources, making them attractive to investors (Armanios et al., 2017; Eberhart et al., 2017). In contrast, local

entrepreneurs often enter the market through necessity-driven or opportunity-driven ventures, leveraging grassroots knowledge, industry experience, and community ties rather than elite academic credentials (Baptista, Karaoz, & Mendonca, 2014). Returnee entrepreneurs, who have gained education or work experience in advanced economies, bring international exposure, technological expertise, and global business networks, making them well-positioned to introduce innovative solutions and scale their ventures successfully (Filatotchev et al., 2009; Li et al., 2012). Understanding the interplay between these entrepreneurial profiles is essential for analyzing how different founder characteristics influence early-stage funding and contribute to the evolution of the startup ecosystem (Hoskisson et al., 2000; Lin et al., 2019).

Trust in women entrepreneurs may be weaker in less developed economies (Corrêa et al., 2022) and in the early stages of an entrepreneurial ecosystem (Hechavarría & Ingram, 2019). I consider the COVID-19 pandemic as a critical contextual element operating at the economy level. Exogenous shocks such as natural disasters, wars, and pandemics can produce disruptive effects on economic systems, which can change patterns of economic transactions as well as the determinants of survival and success (Ciravegna vd., 2023; Cowling vd., 2015; Miklian & Hoelscher, 2022), and therefore shape signaling processes.

I use cluster analysis to identify founding team profiles of AI, fintech, and gaming startups in the learning, growth, and maturity stages of the entrepreneurial ecosystem. I then apply regression analysis to examine the signaling role of founding team characteristics in the eyes of prospective investors, shaping the venture's access to external finance. I specifically focus on early-stage investments where the information asymmetry between the founders and investors is higher due to the lack of established performance records of the venture and the prospects of the venture are more uncertain, and therefore signals have greater significance in financing decisions (Connelly et al., 2011; Ko & McKelvie, 2018).

I observe specific patterns in the founding team profiles of the startups in this empirical context and compare these profiles and the diversity in profiles for the three sectors and in the learning, growth, and maturity stages of the entrepreneurial ecosystem. I identify

eight distinct profiles of startup founding teams based on the characteristics of founding team size, the ratio of returnee entrepreneurs, the ratio of local elite entrepreneurs, and the ratio of female entrepreneurs. An examination of the most prevalent profiles across sectors and developmental stages of the ecosystem shows reflections of the dominance of local and male entrepreneurship in the country as well as the motivation to combine a wider array of skills and perspectives, which can enhance innovation and problem-solving. I also observe that the effect of the COVID-19 pandemic on founding team profiles is not uniform across sectors. The ecosystem does not seem to benefit from gender diversity in top management teams, given the very low levels of female entrepreneurship in the ecosystem, even in the maturity stage. I observe an increase in diversity of the founding team profiles of Fintech and Gaming startups in the growth period of the entrepreneurial ecosystem, which can be attributed to a greater initiative by a more diverse profile of entrepreneurs to establish startups, given intensified financing opportunities and a significant increase in the number of accelerator programs, incubation centers, and coworking spaces.

With respect to the signaling effect of founding team characteristics, I find that the existence of a returnee entrepreneur and a larger team size contributes positively to attracting external finance. The contribution of a returnee entrepreneur is stronger in the AI sector where access to the technology and networks in advanced economies is a key determinant of success. The contribution of team size is stronger when the founding team has greater cognitive congruence. The existence of a women entrepreneur in the founding team is more favorably evaluated by prospective investors as the entrepreneurial ecosystem grows and develops, but less favorably in the post-COVID-19 pandemic, which disproportionately affected women entrepreneurs and resulted in more burden on their shoulders compared to men.

This thesis makes important contributions to the literature on signaling and new venture financing. My findings demonstrate the complex screening applied by external evaluators. It provides evidence that founding team characteristics are evaluated by prospective investors under the influence of sector-, ecosystem-, and economic system-level contextual elements. I also observe that investor decision-making is not only shaped by rational calculations but also by institutional influences such as the

legitimation of women entrepreneurship as the entrepreneurial ecosystem grows and develops over time. Beyond these contributions to the new venture signaling and financing literature, I offer theoretical implications for the literature on diversity and practical implications for entrepreneurs and policymakers.



2. LITERATURE REVIEW

2.1 The concept of startup and startup ecosystems

A startup is an innovative venture in its early stages, focused on developing scalable business models to address existing market needs or create new ones. These ventures are characterized by high growth potential and scalability, often leveraging technology to drive progress. As Blank (2015) explains, startups are typically designed to scale rapidly and solve significant problems or meet emerging market demands. They often operate in high-risk environments, relying on external funding sources like venture capital, angel investments, or government grants (Blank, 2015; Hagel, Brown, & Davidson, 2009). Startups play a critical role in economic growth by fostering employment, advancing technology, and contributing to vibrant entrepreneurial ecosystems. According to Siegele (2014), they contribute to driving innovation and creating lasting value through unique solutions and business models that disrupt traditional industries. These ventures are pivotal in shaping the future by constantly innovating and adapting to meet evolving challenges and opportunities.

A startup ecosystem is a collaborative network of interconnected organizations, individuals, and resources that collectively support the growth and success of startups within a region or sector. It includes key players such as entrepreneurs, investors, incubators, accelerators, research institutions, co-working spaces, and service providers, all working together to drive innovation and scalability (Startup Genome, 2023). Government initiatives and policies, including tax incentives, funding mechanisms like Venture Capital Investment Funds (VCIF), and regulatory frameworks, play a pivotal role in nurturing these ecosystems (Startup Genome, 2017). Cultural and societal factors, such as an entrepreneurial mindset and a willingness to embrace risk, further enhance the ecosystem's vibrancy (Hagel, Brown, & Davidson, 2009). By providing funding, mentorship, access to technology, and collaborative networks, startup ecosystems empower ventures to overcome challenges and achieve sustainable growth (Siegele, 2014). These ecosystems not only drive economic growth and job creation but also foster innovation and global competitiveness, making them crucial for building thriving entrepreneurial environments (Blank, 2015).

The startup ecosystem is composed of several key players that together foster innovation, growth, and scalability. At its core are entrepreneurs and startups, who drive the system by focusing on innovation and developing scalable solutions through new business models or technologies (Siegele, 2014). Investors play a vital role, with venture capitalists (VCs) funding early-stage and high-growth startups, angel investors providing seed funding and mentorship, corporate venture capital (CVC) aligning investments with company strategies, and equity crowdfunding platforms enabling startups to raise capital from a broad base of investors (Blank, 2015; Startup Genome, 2023). Supporting these entrepreneurs are incubators and accelerators, which offer resources, mentorship, and structured programs to help startups grow, and co-working spaces, which foster collaboration and resource-sharing among entrepreneurs (Siegele, 2014). Governments and policymakers contribute by creating regulatory frameworks and providing grants, tax incentives, and funds (Hagel, Brown, & Davidson, 2009). Academia and research institutions also play a role in the ecosystem by facilitating technology transfer, research commercialization, and offering entrepreneurial education (Startup Genome, 2023).

Early-stage investors play a crucial role in helping startups get off the ground by providing the necessary capital and support for growth. Angel investors are individuals who invest their personal wealth in startups, typically in exchange for equity or convertible debt. In addition to funding, they often bring valuable industry expertise and mentorship to the table. Venture capital funds (VCs), particularly early-stage VC firms, focus on high-growth startups with significant potential. These firms usually invest in seed and Series A rounds, offering not just capital but also strategic guidance to help startups scale (Gauthier, 2017). Corporate venture capital (CVC) involves large corporations investing in startups that align with their strategic goals. These investments come with the added benefit of access to the corporation's resources, technology, and markets, which can give startups a distinct competitive edge (Selvam & Kalyanasundaram, 2015). Equity crowdfunding platforms democratize startup funding by allowing individuals to contribute small amounts collectively, enabling early-stage startups to raise necessary capital from a broad base of investors (Feld, 2012). Finally, government funds and grants provide essential financial support for early-stage startups

through grants and pre-seed funding, aiming to foster innovation and entrepreneurship (Cohen, 2017). Together, these investors form a diverse group that provides both the financial resources and strategic support startups need in their early stages.

2.2 Female entrepreneurship

Female entrepreneurship plays a pivotal role in fostering global economic development, enhancing innovation, and promoting gender equality. Women entrepreneurs contribute significantly to poverty alleviation, job creation, and economic diversification. Despite these contributions, women face unique barriers, often shaped by societal norms, financial inequities, and institutional challenges, which hinder their participation and success in entrepreneurship (Berger & Kuckertz, 2016; Global Entrepreneurship Monitor, 2024).

Globally, the participation of women in entrepreneurship has increased considerably over the last two decades. The Global Entrepreneurship Monitor report highlights a rise in women's startup activity from 6.1% in the early 2000s to 10.4% in 2023. Despite this progress, the business ownership rate among women remains lower compared to men, indicating difficulties in sustaining businesses over time. High-growth entrepreneurship, often characterized by innovation and export-driven activities, remains underrepresented by women. However, women constitute one-third of high-growth entrepreneurs globally, with notable achievements in countries such as China, the Netherlands, and Venezuela (Global Entrepreneurship Monitor, 2024).

Women entrepreneurs often encounter systemic barriers that limit their access to resources, networks, and opportunities. Financial constraints are among the most significant challenges. Studies show that women-owned businesses receive less venture capital and fewer loans than their male counterparts, restricting their ability to scale (Sweida & Reichard, 2013). Gender stereotypes exacerbate these challenges, influencing societal perceptions of women's capabilities and discouraging them from entering male-dominated industries such as technology and manufacturing (Liñán et al., 2022). Cultural norms further hinder women's entrepreneurial ambitions. For instance, in Ghana, cultural constraints push many women into necessity-driven

entrepreneurship, limiting their ability to pursue opportunity-driven ventures (Adom & Anambane, 2019). Similarly, societal expectations in Turkey have historically constrained women's entrepreneurial activities, though recent reforms have begun to address these barriers.

In Turkey, female entrepreneurship remains a vital yet underdeveloped area of economic activity. According to the Global Entrepreneurship Monitor report, Turkish women face significant cultural and structural challenges, including traditional gender roles and limited access to finance and entrepreneurial networks. Women's entrepreneurial activity in Turkey is concentrated in low-growth sectors such as retail and services, reflecting broader global trends. However, this concentration often results from necessity rather than opportunity, as women seek economic survival in the face of limited employment opportunities. Government and non-governmental initiatives have played a critical role in encouraging women's participation in entrepreneurship. Programs offering grants, training, and mentorship are gradually transforming the entrepreneurial landscape for women in Turkey. Turkish women are increasingly leveraging digital tools and sustainable business practices, particularly in response to the challenges posed by the COVID-19 pandemic. These innovations have enabled many women entrepreneurs to achieve greater resilience and competitiveness in their ventures. Furthermore, Turkey's reforms in education, including programs promoting STEM (science, technology, engineering, and mathematics) fields, have encouraged more women to pursue entrepreneurial careers in traditionally male-dominated industries. Such initiatives aim to break down stereotypes and foster a supportive environment for high-growth female entrepreneurs (Global Entrepreneurship Monitor, 2024).

Women entrepreneurs worldwide are increasingly incorporating sustainability and digital technologies into their ventures. The Global Entrepreneurship Monitor report highlights that women are more likely than men to prioritize sustainability in their business practices, particularly in middle- and high-income countries. This trend is also evident in Turkey, where women entrepreneurs are leading the way in adopting environmentally friendly practices and leveraging digital tools to expand their reach and efficiency.

2.3 Investor decision making

Startups' ability to advance and scale up their innovative products and services depends on attracting capital from external finance providers. Because new ventures have very limited performance records or no reliable records at all, providers of finance such as banks, business angels, and venture capitalists (VCs) face a great deal of uncertainty about their future potential and viability (Islam et al., 2018; Ko & McKelvie, 2018; Miloud et al., 2012). In this context, they rely on some signals that are indicative of the likelihood that the startup will have good market performance (Ahlers et al., 2015; Vazirani & Bhattacharjee, 2021). Research suggests that these investors provide considerable attention to the entrepreneurs and their teams. They specifically consider human capital factors such as founders' experience and managerial capabilities (Colombo & Grilli, 2010; Ensley, Hmieleski, & Dacin, 2002; MacMillan et al., 1985; Nigam et al., 2020), motivation, commitment, trustworthiness and coachability (Breugst et al., 2012; Cardon et al., 2009; Ciuchta et al., 2018; Mitteness et al., 2010; Mueller et al., 2017).

Despite this attention to the entrepreneur, prior research on new venture signaling is mostly silent on the entrepreneurial team-level factors that may act as signals of the startup's success. This is surprising given that most new ventures are founded and led by teams, not solo entrepreneurs (Beckman, 2006; West, 2007). This team collectively creates the initial organizational structure, culture, and strategies of the firm (Almer-Jarz, Schwarz & Breitenacker, 2008; Chen et al., 2017; Harper, 2008; Khan et al., 2015; Klotz et al., 2014; Schwarz et al., 2008). According to the similarity-attraction argument, similarity in attitudes and values is an important determinant of interpersonal attraction and people have tendencies to work with similar others (Berscheid & Reis, 1998; Byrne, 1971; Jackson, 1992; Williams & O'Reilly, 1998). Homophily refers to the pattern that "contact between similar people occurs at a higher rate than among dissimilar people" (McPherson et al., 2001, p. 416), and results in higher levels of trust and interpersonal attraction (Ruef et al., 2003).

Early attention to top management team characteristics as determinants of firm performance came from upper-echelon theory scholars. This research demonstrates that

the diversity of skills and perspectives on the management team positively affects performance (Finkelstein & Hambrick, 1996; Hambrick & Mason, 1984). However, this diversity can also bring conflict and a need for reconciliation (O'Reilly, Caldwell, & Barnett, 1989). Some studies provide evidence for higher group cohesion and lower turnover in more homogeneous teams (O'Reilly et al., 1989; Wagner, Pfeffer, & O'Reilly, 1984).

Diversity refers to differences between members of a collective on any characteristic, which could be demographic (e.g., gender, ethnicity), job-related (e.g., tenure, function), or cognitive (e.g., values, personality traits) (van Dijk et al., 2012; Wallrich et al., 2024). With respect to cognitive diversity, Martins and Sohn (2022) made a distinction between cognitive structures, which include perspectives, opinions, and beliefs, and cognitive resources, which encompass raw information and grounded knowledge. With respect to gender diversity, White (2021) established that with gender-diverse teams, there was flexibility, creativity, and higher performance than in the gender-homogenized groups. Larger teams can facilitate increased performance due to greater access to cognitive and social resources and the resulting ability to handle complex situations (Eisenhardt & Schoonhoven, 1990; Hmieleski & Ensley, 2007; Halebian & Finkelstein, 1993; Sanders & Carpenter, 1998). However, some studies provide counter-evidence, showing that small, cohesive teams are effective in decision-making and maneuverability (Simsek, Veiga, Lubatkin, & Dino, 2005).

More recent research argues that the effects of team characteristics on organizational outcomes are context specific. Some of these studies show that heterogeneous top management teams perform better in uncertain and dynamic environments (Jin et al., 2017; Stewart, 2006; van Knippenberg & Schippers, 2007). In the context of project teams, diversity of team members was found to make a more positive contribution to team performance for tasks with greater complexity and requiring more creativity, and when teams were working in contexts lower in collectivism and power distance (Wallrich et al., 2024). According to Miller et al. (2022), organizational gains from the cognitive diversity of the top management team and board of directors depend on information elaboration and interpersonal relations. Jin et al. (2017) argue that a large

management team is especially valuable for new ventures as it facilitates access to critical resources during periods of new venture growth.

Given all these possible influences of entrepreneurial team-level characteristics on firm performance, one would expect that external evaluators also consider them as signals of new ventures' future success. The only available evidence for this is provided by Blume and Hsueh (2023), which notes that venture capitalists (VCs) care about the complementarity of the skills possessed by an entrepreneurial team beyond individual or aggregated qualities of the team members.



3. THEORETICAL FRAMEWORK

Liability of newness refers to the observation that new ventures are more likely to fail compared to established organizations (Stinchcombe, 1965). Sources of this liability are considered as not yet having standard routines and procedures to solve problems, low levels of legitimacy, lack of stable stakeholder relationships, and weak claims to external sources of support (Freeman et al., 1983; Hannan & Freeman, 1984). Initial resources to support business operations are sourced by founders themselves, their families, and close contacts (Ostgaard & Birley, 1996). Attracting external finance, especially at the early stages of the venture, has a vital importance for the continuity of the business and as a buffer against emerging challenges (Debrulle et al., 2020; Linder et al., 2020). This funding helps in experimentation with new products or services, validation of ideas, and supporting marketing efforts and activities. Attracting early-stage funding is especially important for startups that aim for fast growth with innovative products and services.

Providers of early-stage finance, such as banks, venture capital firms, and angel investors, are highly selective due to two main considerations. The first of these is information asymmetry. Due to a lack of established performance records such as proven products, services, and technologies, external investors face uncertainty about observable qualities of new ventures to guide their decision-making process (Murray & Marriott 1998; Stiglitz, 2002). The second consideration is the risk of moral hazard, which refers to opportunistic behaviors such as the founders' allocation of the obtained fund to their own personal benefit (Cumming et al., 2023).

Early-stage investors use various tools and methods to deal with these risks of adverse selection (see Cumming et al., 2023; Ferratti & Muffatto, 2021; Svetek, 2022; Vazirani & Bhattacharjee 2021 for reviews). Startups try to find ways to convince investors about their future potential. This generates a signaling process where potential providers of finance rely on some observable characteristics of the startup to make inferences. According to research on new venture signaling, characteristics of the founders and especially indicators of their human capital and social capital serve as strong signals in

this respect (Ahlers et al., 2015; Colombo, 2021; Vazirani and Bhattacharjee, 2021). Founders' educational degrees from prestigious universities, prior industry experience, and history of thriving ventures are considered predictors of the new venture's ability to steer through challenges, effective management, and market performance.

In this thesis, I focus on new venture signaling in the context of an emerging market economy. Beyond theorizing individual founder characteristics as distinct signals of the new venture's market potential, I consider team-level dynamics and contextual influences that moderate the process of signaling and attracting early-stage funding. With respect to founding team characteristics, I focus on founding team size, the ratio of returnee entrepreneurs, the ratio of local entrepreneurs, and the ratio of female entrepreneurs. I compare the founding team composition of startups in the Turkish startup ecosystem across the three sectors I examine and in the learning, growth, and maturity stages of the ecosystem (see Method section). Below, I develop hypotheses on the effects of founding team characteristics on attracting early-stage funding and arguments on how contextual elements at the team, ecosystem, and economy levels affect this signaling process.

Emerging economies typically have weaknesses in educational infrastructure and structural deficiencies that result in poor interaction between academia, industry, and government. They accordingly have significant gaps in technical, managerial, and entrepreneurial knowledge (Aidis et al., 2008; Goswami et al., 2018; Wu et al., 2016). Exposure to advanced economies (through education or work experience) provides an opportunity to access these critical resources. This has led to the emergence of returnee entrepreneurship, i.e., people who come back to their home countries to establish a new business after several years of experience and/or education in a developed country. Access to higher quality education, advanced technology, and business management skills, together with international work experience and business networks, provides strong capabilities for market performance and global scalability (Alvarez-Garrido & Guler 2018; Armanios et al. 2017; Li & Atuahene-Gima 2002). This positioning makes their ventures appealing to investors, as they are seen as low-risk due to their strategic insight and potential to introduce disruptive technologies. I accordingly argue that the

existence of a returnee entrepreneur in the founding team will serve as a signal of the new venture's growth and success potential.

Hypothesis 1 (H1): New ventures with a returnee entrepreneur in the founding team will be more likely to attract early-stage funding.

The advantages of having a returnee entrepreneur, such as access to know-how, new technological developments, and international networks, are likely to be more pronounced for startups operating in sectors that rely more heavily on technologies originating from developed market economies. Returnee entrepreneurs' stronger ability to identify and exploit technology gaps in their home countries can provide a stronger competitive advantage in such sectors. Also, successful technology transfer from developed economies can make a strong contribution to market performance in the context of emerging economies (Appiah-Adu, Okpattah, & Amoako, 2018; Zhang, 2008).

Furthermore, potential investors face greater uncertainty in predicting the market potential for new ventures operating in high-tech industries with radical and untested technologies (Sanders & Boivie 2004; Wang et al., 2019). Given this uncertainty, they are expected to provide greater attention to the founding team characteristics as signals of the new venture's future success (Connelly et al. 2011; Nigam, Mbarek, & Boughanmi 2020).

Among the three sectors I examine, artificial intelligence (AI) is the one with greater technology intensity and more reliance on technological development in advanced economy contexts. I accordingly expect that prospective investors' positive evaluation of the existence of a returnee entrepreneur in the founding team of a startup will be stronger in the AI sector compared to fintech and gaming.

Hypothesis 1a (H1a): The hypothesized effect in H1 will be stronger in the AI sector.

Performing high in an emerging market context depends heavily on networking capabilities. As identified above, emerging markets suffer from deficiencies in formal legal and regulatory institutions, and economic transactions rely heavily on informal trust-based relationships (Cao & Shi, 2021; Luo, 2005; Khanna & Palepu 2010; McCarthy & Puffer, 2008; Puffer et al., 2010). In this context, the social capital of the founding team -especially their dense, close networks- constitutes a core competence that can bring competitive advantage (Shipilov & Li, 2008). The size of the founding team serves as a signal of this social capital not least due to the increase in the size of family, friend, and relative networks (Eisenhardt & Schoonhoven 1990; Miloud, Aspelund, & Cabrol 2012).

Another strength of larger founding teams is a wider array of cognitive resources such as information, knowledge, and mental abilities, which can enhance innovation and problem-solving (Stewart, 2006; van Knippenberg & Schippers, 2007). A diverse skill set, together with a broader network, will also reduce the risk of key person dependency. Thus, I argue that founding team size will serve as an important signal shaping investor decision-making.

Hypothesis 2 (H2): New ventures with larger founding team sizes will be more likely to attract early-stage funding.

Research suggests that team diversity has a positive impact on performance (Ensley & Hmieleski, 2005; Hambrick & Mason, 1984; Horvatinovic et al., 2023). Yet, some evidence also shows that diversity may lead to conflict and the need for reconciliation, and homogenous teams enjoy higher group cohesion, lower turnover, and higher performance (Murnighan & Conlon, 1991; Nigam et al., 2020). Martins and Sohn (2022) make a distinction between cognitive resources (i.e., raw information and grounded knowledge) and cognitive structures (i.e., perspectives, opinions, and beliefs). Diversity of cognitive structures can be very challenging due to the absence of objective pathways for reconciling different perspectives and opinions (Glick et al., 1993; Miller et al., 1998) while achieving synergies from diverse cognitive resources can be more easily achieved and less prone to conflict (Martins & Sohn, 2022). Similarity in cognitive structures can facilitate more effective communication and coordination,

interpersonal attraction and trust, and maintenance of cohesion in the team (Ruef et al., 2003). Thus, the benefits of diversity may be more likely to be realized when there is also some congruence in cognitive structures (i.e., opinions, beliefs, and perspectives) among the members of a founding team. I accordingly argue that prospective investors' positive evaluation of a larger founding team size will be stronger when they observe greater similarity in the cognitive structures of founding team members.

Hypothesis 2a (H2a): The hypothesized effect in H2 will be stronger when the founding team members have greater similarity in cognitive structures.

Innovation and problem-solving capabilities provided by a diverse founding team are even more important in turbulent environments. The recently experienced COVID-19 pandemic brought radical shifts in market dynamics and high turbulence, presenting both challenges and opportunities. In this context, the ability to adapt to continuous change has become a vital skill for businesses (Krammer, 2022; Lamorgese et al., 2024). A large management team with diverse skills has a greater ability to adapt to new situations and conditions that may arise, provide a richer flow of information, and have a high ability to develop new methods thanks to knowledge and skills in a wider area of expertise (Stewart, 2006; van Knippenberg & Schippers, 2007). Low levels of key person dependence in large founding teams will also provide a buffer against unexpected changes in the personal lives and career choices of entrepreneurs in this state of emergency. I accordingly argue that prospective investors' positive evaluation of a larger founding team size will be stronger in the COVID-19 pandemic era.

Hypothesis 2b (H2b): The hypothesized effect in H2 will be stronger in the COVID-19 pandemic era.

Research suggests that women entrepreneurs can bring unique insights and business acumen, positively contribute to communication and decision-making in their organization, and therefore have a positive impact on venture performance (Horvatinovic et al., 2023; Kacar et al., 2023; Lückerrath-Rovers, 2011; McInerney-Lacombe et al., 2008; White, 2021). Despite this potential, attracting early-stage funding is not easy for women entrepreneurs. Empirical evidence shows a persisting

gender gap in obtaining new venture finance (Leitch, Welter, & Henry, 2018). This is the case because male investors are interested less in women entrepreneurs compared to similar male entrepreneurs (Ewens & Townsend, 2020), and the venture capital industry is dominated by male investors (Balachandra, 2020).

The proportion of women founders in a startup ecosystem depends on the joint influence of market-related, financial, managerial, and environmental factors (Berger & Kuckertz, 2016). Despite some increase in women's startup activity in the last two decades, the level of women entrepreneurship is significantly lower than male entrepreneurship (Global Entrepreneurship Monitor, 2024). I argue that the recognition of women entrepreneurs and investors' trust in them will be intensified as women founders in the entrepreneurial ecosystem grow in numbers and as successful exemplars emerge. Increasing adoption of a practice brings familiarity, cognitive legitimacy, and taken-for-grantedness (Aldrich & Fiol, 1994; Tolbert & Zucker, 1983). The emergence of successful exemplars generates trust in an organizational form or practice (DiMaggio & Powell, 1983; Sanders & Tuschke, 2007), and attributions of success to characteristic features of entities will be especially strong for features with lower levels of frequency (O'Neill, Pouders, & Buchholtz, 1998; Strang, & Meyer, 1993). I accordingly argue that prospective investors' evaluation of the existence of a female entrepreneur in the founding team of a startup will become positive as an entrepreneurial ecosystem grows and develops over time.

Hypothesis 3 (H3): The existence of women entrepreneurs in the founding team will have a positive effect on attracting early-stage funding as an entrepreneurial ecosystem grows and develops over time.

4. METHOD

4.1 Empirical context

Emerging markets such as Türkiye, India, and Brazil are experiencing dynamic growth in entrepreneurial activity, driven by youthful populations and expanding digital infrastructure. These regions have seen a rise in diverse startup sectors, particularly in fintech, e-commerce, gaming, health-tech, and SaaS. Türkiye has made significant strides in gaming and fintech, supported by government programs like TÜBİTAK BiGG and private investments from firms like 212 Ventures (Blank, 2015). Government initiatives in these markets play a crucial role in fostering startup growth by offering grants, funding mechanisms, and regulatory support (Hagel, Brown, & Davidson, 2009). These ecosystems are increasingly integrating with global markets, allowing startups to scale internationally through strategic partnerships and foreign investments, which is a key trend highlighted by Siegele (2014) as emerging markets capitalize on their digital economies. These regions are also evolving as strong global players in the startup ecosystem, showcasing the potential for dynamic, scalable startups that contribute to both local and global economies (Siegele, 2014). The integration of these markets into the global economy reflects the broader shifts toward globalization and technological transformation that are reshaping industries worldwide (Hagel et al., 2009).

The empirical setting of the thesis is the Turkish startup ecosystem. Thanks to policy reforms that target technology development, the fostering of entrepreneurial firms, and market infrastructure, the entrepreneurial ecosystem has made some progress in the last two decades. The number of newly established startups in this period has also witnessed rapid growth, increasing from 508 in 2010 to 999 in 2015 and reaching 1331 in 2020 (Startups.watch, 2024). The central hub of the ecosystem, Istanbul, is ranked 16th among the top 100 emerging ecosystems, and with the most robust early-stage funding activity. Istanbul has also become a mobile gaming hub, attracting the fourth-highest number of gaming deals of any country in 2022 (Startup Genome, 2023). Istanbul has emerged as a vibrant hub for startups, establishing itself as one of the leading ecosystems in the Central and Eastern Europe (CEE) and Middle East and North Africa

(MENA) regions. Its strategic location, dynamic entrepreneurial culture, and growing support infrastructure have made it a focal point for innovation and technology-driven ventures. Istanbul's startup ecosystem is characterized by its strategic location at the crossroads of Europe and Asia, offering startups access to diverse markets across Europe, the Middle East, and Africa. The city's international airport, the most connected globally, reinforces its role as a regional innovation hub (Istanbul Airport, 2024). Istanbul excels in key sectors like gaming, fintech, e-commerce, and AI, ranking second in Europe for the number of gaming studios and leading in fintech developments, supported by favorable regulatory reforms and venture investments (Startups Watch, 2024). The city boasts a strong funding ecosystem, with active venture capital firms like 212 Ventures, angel investor networks, and crowdfunding platforms. Government-backed programs, such as TÜBİTAK BiGG and incentives for venture capital investment funds (VCIFs), have significantly boosted funding access (TÜBİTAK, 2024; Turkish Investment Office, 2024).

A fully functional startup ecosystem in Türkiye -supported by venture development organizations (i.e., acceleration programs and incubation centers) and investor communities (angel networks and venture capital firms)- dates to the early 2010s. There has been a learning period up to 2017s, where initial investments by local VCs were observed and regulations supporting startup ecosystem were released. A significant increase in the number of accelerator programs, incubation centers, and coworking spaces has taken place between 2010 to 2017. The heyday of the ecosystem was after 2017 when second funds by VCs were established, several startups created global success (Getir, Dream Games, Hepsiburada, and Trendyol), and the first unicorns emerged. The hit of COVID-19 in 2020 was a big shock to the system, but the push toward digital transformation took many sectors years ahead. Despite many global setbacks, global champions emerged from the gaming sector startups. Recent regulatory changes in digitalization in banking led to significant progress in the fintech sector, creating local champions and internationalization. Following the global trend, there has been a significant increase in the founding of artificial intelligence (AI) startups in Turkey in the last decade, and since 2018, it has been placed in the top three ranked sectors in terms of the total number of startups (Startup Genome, 2023).

My empirical examination covers these three popular industries (i.e., gaming, fintech and AI) in the period 2010-2023. The year 2010 corresponds to the establishment of the startup ecosystem and 2023 is the most recent year of data availability. Given the above-mentioned historical development of this ecosystem, I consider 2010-2016 as the learning era, 2017-2020 as the growth era, and post-2020 as the maturity era -which also corresponds to the post-COVID period.

The Startups.watch database (Turkish startup ecosystem intelligence platform) is the primary data source of the thesis, which provides reliable information about the members of the founding team, business categories (industries), and other data on startups established in this context since the early 1980s. In the case of missing information on new ventures, I used other credible sources such as LinkedIn and Webrazzi to find data on the founders' backgrounds.

4.2 Sample

The study sample consists of startups established between the years 2010 and 2023 by at least one Turkish entrepreneur and in the artificial intelligence, gaming and fintech sectors. I excluded startups located outside Turkey. Following the removal of startups with incomplete founder information, the entire study sample is 1226 observations. This sample consists of 228 artificial intelligence, 642 gaming and 352 fintech startups. 838 of them are located in İstanbul, 180 of them in Ankara, 68 of them in İzmir, and the remaining 140 in smaller cities.

4.3 Exploratory study of the founding team profiles of startups

I conducted cluster analysis for the sample of newly established startups in the learning, growth and maturity (or post-COVID) periods of the ecosystem. Clustering variables are founding team size, and the ratios of returnee, local elite and female entrepreneurs in the founding team. Returnee entrepreneurs are identified as those with an educational degree in the United States or another developed OECD economy (Filatotchev et al., 2009; Li et al., 2012). Local elites are identified as founders who have educational degrees from the most prestigious universities in the country (Armanios et al., 2017;

Eberhart et al., 2017). These are Boğaziçi University, Middle East Technical University, Istanbul Technical University, Galatasaray University, Bilkent University, Koç University, and Sabancı University, which constitute old and established public and private universities in the context of Turkish higher education. These universities have the highest student selectivity and a high ratio of their graduates are engaged in entrepreneurship. The founding team size was measured with the total number of founders. The ratios are calculated as the total number of returnee/local elite/female entrepreneurs in the founding team divided by the founding team size.

The two-step cluster analysis methodology was applied in IBM SPSS software. This approach was selected because of its capacity to automatically calculate the ideal number of clusters and its effectiveness in managing huge datasets. In the pre-clustering step, the method applies a log-likelihood distance metric to split cases into smaller clusters. By reducing the amount of data points that are taken into account in the next step, this step lessens the computational load. The final clusters are obtained by applying hierarchical clustering to the pre-clustered groupings. By ensuring that the final clusters maximize differences across groups while minimizing differences within groups, this stage improves the clustering solution (Hair et al., 2010).

4.4 Regression analyses for predicting startup success

Obtaining early-stage funding constitutes the outcome that I am interested in. Following my interest in early-stage financing, I limited the sample to startups up to five years old (e.g., Berger & Köhn, 2020; Miloud et al., 2012). I also excluded startups established outside Turkey, in a foreign country. The industries I focus on (i.e., fintech, gaming, and AI) are all technology-intensive, which makes it harder to predict the market potential of startups. Thus, founding team characteristics as signals of future success provide important criteria for investors' financing decisions.

Whether a startup was able to obtain early-stage funding from a venture capital firm or angel investor constitutes the outcome investigated in regression analysis, measured with a dummy variable. The existence of returnee, local and female entrepreneurs in the founding team was also measured with dummy variables, which take the value of 1 if at

least one entrepreneur of this type exists in the founding team, and 0 otherwise. Studies in the literature either directly assess cognitive diversity (e.g., Amason, 1996; Miller et al., 1998) or include indirect assessments based on commonly used demographic proxies (e.g., Bantel & Jackson, 1989; Hambrick, Cho, & Chen, 1996). In this study, I use background diversity as a proxy for cognitive diversity. The measure of cognitive similarity in the founding team is based on the Hirschman-Herfindahl index, and computes similarity as the sum of the squared proportions of each entrepreneur type (returnee, local elite, and local) to the founding team size. I included dummy variables for the growth and maturity (post-COVID-19) periods (learning is the omitted category). I controlled the startup industry, age, and location. For industry, I included dummy variables for AI and fintech industries (AI is an independent variable to test H1a, and gaming is the omitted industry category). Age was measured by the number of years since the firm founding. For location, I created a dummy variable indicating if the startup is established in a city other than İstanbul (the remaining ones are located in İstanbul). I also included the variable time (year) which I use in testing H3. Logistic regression analysis was applied, using “xtlogit” command in Stata 15.0, due to the binary nature of the dependent variable (Hair et al., 2010).

5. RESULTS

5.1 Descriptives

Table 1 presents descriptive statistics of founding team characteristics in the learning, growth, and maturity (post-COVID) stages of the startup ecosystem. “Team size” refers to the number of startup founders and “N” shows the number of newly founded startups. “Returnee,” “local elite,” and “women” are the ratios of this type of entrepreneur in the founding team. Number of newly founded startups is highest in gaming, followed by fintech and artificial intelligence. The founding team size of AI and gaming startups slightly increases in the later stages of the entrepreneurial ecosystem, whereas an opposite pattern is observed for fintech startups. The ratio of returnees and local elite entrepreneurs in the founding team is slightly lower in gaming startups compared to AI and fintech. The ratio of women entrepreneurs is considerably low across all sectors and at any stage of the startup ecosystem.

Table 1: Descriptive statistics of founding team characteristics in the learning, growth, and maturity (post-COVID) stages of the startup ecosystem

Sector: Artificial intelligence (AI)									
	team size		returnee		local elite		women		
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N
Learning	1.5	0.8	0.2	0.4	0.3	0.4	0.0	0.1	52
Growth	1.5	0.7	0.1	0.3	0.4	0.5	0.1	0.2	107
Maturity	1.6	0.7	0.1	0.3	0.3	0.4	0.1	0.2	70
Sector: Fintech									
	team size		returnee		local elite		women		
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N
Learning	1.5	0.7	0.2	0.3	0.3	0.4	0.1	0.2	97
Growth	1.5	0.8	0.1	0.3	0.3	0.4	0.1	0.2	180
Maturity	1.4	0.6	0.1	0.3	0.3	0.4	0.1	0.3	78
Sector: Gaming									
	team size		returnee		local elite		women		
	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N
Learning	1.5	0.7	0.0	0.2	0.3	0.4	0.1	0.2	125
Growth	1.6	0.8	0.1	0.2	0.2	0.4	0.1	0.2	266
Maturity	1.7	0.9	0.0	0.2	0.2	0.4	0.1	0.2	251

5.2 Results of cluster analyses

The results of the cluster analyses of the founding team profiles of startups in artificial intelligence (AI), fintech, and gaming sectors and in the learning (2010-2016), growth (2017-2020), and maturity (2021-2023) stages of the entrepreneurial ecosystem are reported in Tables 2, 3, and 4. According to the cluster analysis results, eight distinct profiles of founding teams (and two sub-types: 4a and 8a) are identified. Descriptions of these profiles are presented in Table 5¹.

Table 2: Cluster analysis results for startups in the AI sector

SECTOR: ARTIFICIAL INTELLIGENCE (AI)										
Learning										
	team size		returnee		local elite		women			Cluster type
Cluster	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N	
1	1.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	25	Type 1
2	1.8	0.7	0.1	0.1	0.6	0.4	0.0	0.0	23	Type 8
3	2.8	1.5	0.4	0.5	0.3	0.5	0.4	0.2	4	Type 8a
Growth										
	team size		returnee		local elite		women			Cluster type
Cluster	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N	
1	1.0	0.0	0.0	0.0	0.6	0.5	0.0	0.0	52	Type 3
2	2.2	0.5	0.1	0.2	0.4	0.4	0.1	0.2	42	Type 8a
3	1.2	0.4	0.6	0.5	0.2	0.4	0.5	0.5	13	Type 4a
Maturity										
	team size		returnee		local elite		women			Cluster type
Cluster	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N	
1	1.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	26	Type 1
2	2.2	0.5	0.1	0.2	0.2	0.3	0.2	0.3	28	Type 8a
3	1.5	0.5	0.0	0.0	0.9	0.2	0.0	0.0	16	Type 3

Table 3: Cluster analysis results for startups in the fintech sector

SECTOR: FINTECH										
Learning										
	team size		returnee		local elite		women			Cluster type
Cluster	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N	
1	1.1	0.2	0.0	0.0	0.4	0.5	0.0	0.0	53	Type 1

¹ I also conducted cluster analyses of founding team data for the entire period 2010-2023 for each sector. I observed six rather than ten types of founding team profiles in these analyses. Type 4a, 6, 7, and 8 did not emerge.

2	2.1	0.8	0.3	0.4	0.3	0.3	0.2	0.3	44	Type 8a
Growth										
	team size		returnee		local elite		women		Cluster type	
Cluster	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N	
1	1.2	0.4	0.0	0.0	1.0	0.0	0.0	0.0	33	Type 3
2	2.4	0.6	0.1	0.2	0.3	0.3	0.0	0.1	52	Type 8
3	1.3	0.6	1.0	0.0	0.0	0.0	0.0	0.0	14	Type 4
4	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	65	Type 1
5	1.8	0.7	0.1	0.3	0.2	0.4	0.7	0.3	16	Type 8a
Maturity										
	team size		returnee		local elite		women		Cluster type	
Cluster	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N	
1	1.0	0.0	0.0	0.0	0.3	0.5	0.0	0.0	45	Type 1
2	2.0	0.6	0.2	0.4	0.2	0.3	0.2	0.3	33	Type 8a

Table 4: Cluster analysis results for startups in the gaming sector

SECTOR: GAMING										
Learning										
	team size		returnee		local elite		women		Cluster type	
Cluster	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N	
1	1.4	0.6	0.0	0.0	0.3	0.4	0.0	0.0	104	Type 1
2	2.0	0.7	0.3	0.4	0.2	0.3	0.4	0.3	21	Type 8a
Growth										
	team size		returnee		local elite		women		Cluster type	
Cluster	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N	
1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96	Type 1
2	2.5	0.7	0.0	0.0	0.0	0.1	0.0	0.1	72	Type 5
3	1.6	0.7	0.0	0.0	0.9	0.2	0.0	0.0	66	Type 3
4	1.2	0.4	0.0	0.0	0.2	0.4	1.0	0.0	10	Type 2
5	2.1	1.2	0.7	0.3	0.1	0.1	0.0	0.1	22	Type 7
Maturity										
	team size		returnee		local elite		women		Cluster type	
Cluster	Mean	Std.	Mean	Std.	Mean	Std.	Mean	Std.	N	
1	1.7	0.8	0.4	0.4	0.3	0.4	0.4	0.5	26	Type 8a
2	2.3	1.2	0.0	0.0	0.6	0.4	0.0	0.1	78	Type 6
3	1.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	147	Type 1

Table 5: Profiles of clusters (founding team profiles)

Cluster Type	Description
1	Small founding teams composed mainly of local entrepreneurs, male
2	Small founding teams composed mainly of local entrepreneurs, female
3	Small founding teams composed mainly of local elite entrepreneurs, male
4	Small founding teams composed mainly of returnee entrepreneurs, male
4a	Small founding teams composed mainly of returnee entrepreneurs, some female involvement
5	Large founding teams composed mainly of local entrepreneurs, male
6	Large founding teams composed of local and local elite entrepreneurs, male
7	Large founding teams composed mainly of returnee entrepreneurs, male
8	Large founding teams composed of local, local elite, and returnee entrepreneurs, male
8a	Large founding teams composed of local, local elite, and returnee entrepreneurs, some female involvement

5.3 Results of regression analyses

I conducted regression analyses to test the effects hypothesized in H1, H1a, H1b, H2, H2a, H2b, H3 and H4. The regression analysis was conducted on 4357 observations belonging to the 1226 startups (the same sample examined in the cluster analysis study), which are observed in the first five years of their existence. The means, standard deviations, and correlations of study variables shown in Table 6. The pairwise correlations are low to moderate.

The regression results are summarized in Table 7. Model 1 tests for the effects of control variables only. The likelihood of attracting funding is higher for fintech startups and lower for startups that are older and those established outside İstanbul. As can be seen in Model 2, founding teams with returnee entrepreneurs and those that are larger in size are more likely to attract funding. These findings provide support for H1 and H2. I also find support for H1a as the existence of a returnee entrepreneur has a stronger positive effect on attracting funding in the AI industry (Model 3). In line with H2a, the founding team size makes a greater contribution to attracting funding when the similarity of cognitive structure in the team is higher (Model 4). Yet, I could not find the same effect for the post-COVID period (Model 5). Thus, H2b is not supported².

² I also made additional analyses where I excluded single-founder startups from the sample and where I measured founding team size with a dummy variable differentiating single-founder and multiple-founder teams. The results remain largely unchanged.

Table 7: Regression analysis results

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)
fintech	0.23* (0.14)	0.49*** (0.18)	0.52*** (0.19)	0.49*** (0.19)	0.48*** (0.18)	0.49*** (0.18)	0.49*** (0.18)	0.48*** (0.18)
age	-0.19*** (0.05)	-0.21** (0.08)	-0.20** (0.09)	-0.20** (0.09)	-0.21*** (0.08)	-0.20** (0.09)	-0.21** (0.08)	-0.22** (0.08)
outside Istanbul	-0.65*** (0.17)	-0.64*** (0.21)	-0.64*** (0.21)	-0.66*** (0.22)	-0.62*** (0.21)	-0.64*** (0.22)	-0.64*** (0.21)	-0.64*** (0.21)
returnee		0.38* (0.15)	0.26* (0.17)	0.39* (0.15)	0.37* (0.14)	0.39* (0.15)	0.38* (0.15)	0.37* (0.14)
founding team size (fts)		0.48*** (0.14)	0.49*** (0.14)	0.76 (0.48)	0.53*** (0.16)	0.49*** (0.14)	0.48*** (0.14)	0.49*** (0.14)
female		-0.38 (0.26)	-0.39 (0.27)	-0.39 (0.27)	-0.38 (0.26)	-0.46 (0.31)	-0.34 (0.38)	-0.38 (0.38)
team similarity		-0.50 (0.50)	-0.52 (0.52)	0.17 (1.20)	-0.47 (0.49)	-0.50 (0.51)	-0.50 (0.50)	-0.50 (0.50)
AI	0.22 (0.18)	0.33 (0.22)	0.23 (0.24)	0.35 (0.22)	0.32 (0.21)	0.34 (0.22)	0.33 (0.22)	0.34 (0.22)
growth		-0.42* (0.23)	-0.42* (0.23)	-0.41* (0.23)	-0.41* (0.23)	-0.45* (0.24)	-0.42* (0.23)	-0.43* (0.24)
post-COVID		0.55** (0.22)	0.56** (0.23)	0.57** (0.23)	0.72** (0.35)	0.55** (0.23)	0.56** (0.23)	0.55** (0.23)
time (year)		0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.06 (0.05)	0.03 (0.02)
returnee # AI			0.55* (0.29)					
fts # team similarity				0.28* (0.18)				
fts # post-COVID					-0.10 (0.16)			
female # growth						0.30+ (0.22)		
female # post-COVID							-0.06+ (0.04)	
female # time (year)								0.03+ (0.02)
Constant	-2.26*** (0.15)	-3.12*** (0.95)	-3.19*** (0.96)	-3.84** (1.56)	-3.18*** (0.94)	-3.17*** (0.99)	-3.13*** (0.96)	-3.15*** (0.95)
/lnsig2u	-4.92 (5.72)	-0.56 (2.02)	-0.32 (1.65)	-0.29 (1.63)	-0.84 (2.56)	-0.41 (1.86)	-0.55 (2.00)	-0.45 (1.91)
Wald χ^2	33.45	79.71	79.01	78.32	81.33	78.69	79.64	79.64

Note. Standard errors are in parenthesis, N=4357

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$

I test for the moderation effects in H3 in Model 8 and find marginal support. I further made analyses for the trend in growth and maturity periods (see Model 6 and Model 7). As the interaction plot in Figure 1 shows, the effect of female entrepreneurs on attracting funding becomes slightly positive in the growth stage. I further tested for the trend in the post-COVID period (see Model 7). As the interaction plot in Figure 2 shows, the effect of female entrepreneurs on attracting funding becomes slightly negative in the post-COVID period.

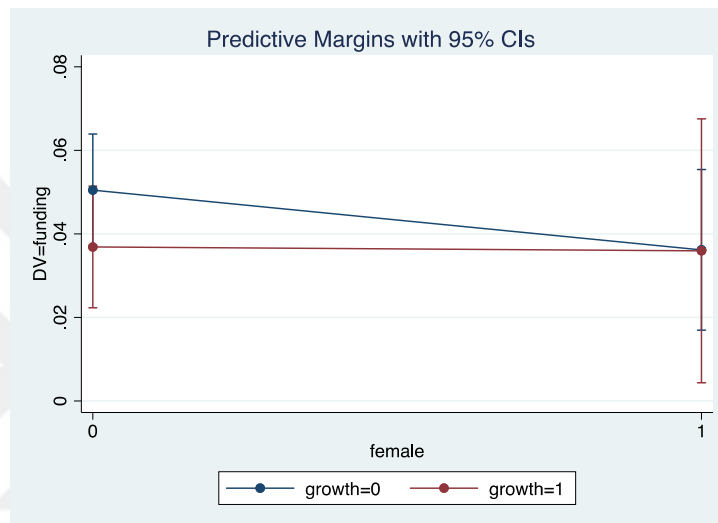


Figure 5.1: The moderating effect of ecosystem growth on the effect of female entrepreneur on attracting funding

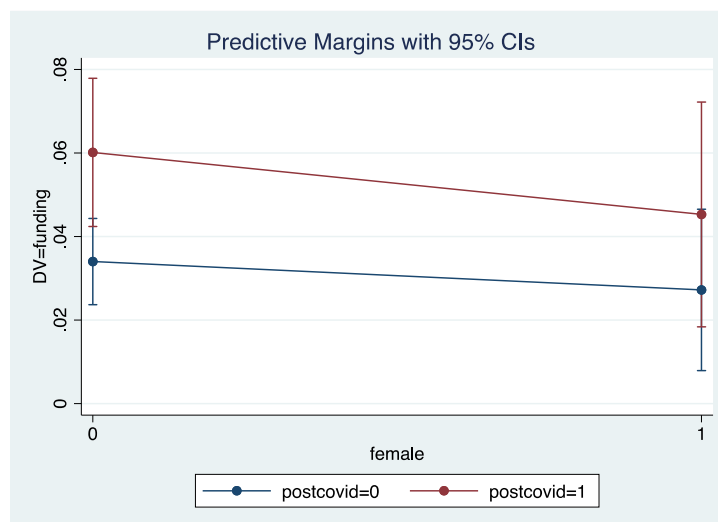


Figure 5.2: The moderating effect of post-COVID period on the effect of female entrepreneur on attracting funding

6. DISCUSSION

6.1 Discussion of cluster analysis findings (founding team profiles)

As reported in the Results section, the cluster analysis identified eight distinct profiles of startup founding teams, based on the characteristics of founding team size, the ratio of returnee entrepreneurs, the ratio of local elite entrepreneurs, and the ratio of female entrepreneurs (see Table 5).

The founding team profile with the greatest prevalence across all sectors and through time is Type 1 (i.e., small founding teams composed mainly of local male entrepreneurs), followed by Type 8a (large founding teams composed of local, local elite, and returnee entrepreneurs and with some female involvement). The former profile is not surprising given the dominance of local and male entrepreneurship, not only in the Turkish context but also in many other countries. The second profile reflects efforts to combine a wider array of skills and perspectives, which can enhance innovation and problem-solving (Stewart, 2006; van Knippenberg & Schippers, 2007). Founding team profiles of fintech startups converge on these two types in the maturity (post-COVID) stages of the startup ecosystem, whereas local elite-dominated founding teams generate an additional variance in the AI and gaming sectors. One explanation may be the older history of finance and banking system in the country which may have led to earlier maturity in the related sector, fintech. As another important factor, the hit of the COVID-19 pandemic in 2020 produced disruptive effects on all business systems, but the emergent turbulence varies across sectors (Bartik *vd.*, 2020; Khurana *vd.*, 2022; Muzi *vd.*, 2023). Entrepreneurial team formation processes in different industries may have been affected by this influence and can reflect variance in the “COVID exposure index” across industries (Dörr *et al.*, 2021).

Founding teams established by all female entrepreneurs are only observed in the gaming sector, and in the growth period of the startup ecosystem. Nearly all of these startups are established by a single entrepreneur, with some exceptions of two female founders. Interestingly, founding teams combining female and male entrepreneurs but with female dominance are not observed in any of the sectors investigated and in any

life cycle stage of the startup ecosystem. This is perhaps due to considerably low levels of female entrepreneurship in the ecosystem even in the maturity stage, and their involvement as additions to male-dominant teams when they bring some special expertise. Another possible explanation is resistance on behalf of male entrepreneurs to be involved in a system dominated by female entrepreneurs. Overall, the ecosystem does not seem to benefit from gender diversity in top management teams, which could have positive influences on firm performance (Dai et al., 2019; Dezsó & Ross, 2012; Lücknerath-Rovers, 2013).

Another profile that has not been observed in any of the sectors investigated and in any life cycle stage of the startup ecosystem is founding teams composed only of returnees and local entrepreneurs. These two types of entrepreneurs partner only in the presence of local elite entrepreneurs (see Type 8 and 8a in Table 5). This resistance may be related to the social phenomenon of homophily, that is, the tendency for similar people to associate with each other (Ertug, Brennecke, Kovács, & Zou, 2022; Lawrence & Shah, 2020). Indeed, it could be better reasoned as induced homophily, which refers to the phenomenon that similar people are likelier to contact because they tend to participate in the same organizations and other types of institutions such as families, schools, departments, and neighborhoods (McPherson et al., 2001). Local elite entrepreneurs educated in top domestic universities, which are typically modeled after Anglo-Saxon exemplars, have a greater connection to the educational and economic context in developed countries (Armanios et al., 2017; Hoskisson et al., 2000; Toole and Czarnitzki, 2009) and likely to be embedded in similar business and friendship networks.

The diversity of founding team profiles in proportion to the newly founded startup population is highest in the AI sector, followed by the fintech sector, and lowest in the gaming sector. This may be due to the slightly higher interest of returnees and local elite entrepreneurs in AI and fintech sectors, generating some variance in these dimensions and team sizes.

The AI sector features three types of founding teams through the learning, growth, and maturity (post-COVID) phases. In the Fintech and Gaming sectors, the diversity of

founding team profiles increases in the growth stage and decreases in the maturity (post-COVID) stage of the startup ecosystem. The increase in diversity can be attributed to a greater initiative by a more diverse profile of entrepreneurs to establish startups, given intensified financing opportunities and a significant increase in the number of accelerator programs, incubation centers, and coworking spaces. The reduction in diversity in the maturity (post-COVID) phase may be due to a consolidation process where the most feasible or effective team profiles are retained, while less effective configurations are phased out.

6.2 Discussion of regression analysis findings (the signaling role of the founding team characteristics)

Empirical support for the hypotheses is summarized in Table 8.

Table 8: Regression analysis results

Hypothesis	Support
H1: New ventures with a returnee entrepreneur in the founding team will be more likely to attract early-stage funding	supported
H1a: The hypothesized effect in H1 will be stronger in the AI sector.	supported
H2: New ventures with larger founding team sizes will be more likely to attract early-stage funding.	supported
H2a: The hypothesized effect in H2 will be stronger when the founding team members have greater similarity in cognitive structures.	supported
H2b: The hypothesized effect in H2 will be stronger in the COVID-19 pandemic era.	not supported
H3: The existence of women entrepreneurs in the founding team will have a positive effect on attracting early-stage funding as an entrepreneurial ecosystem grows and develops over time.	marginally supported

My findings suggest that the existence of a returnee entrepreneur provides confidence in the eyes of early-stage investors and increases the probability of attracting their funding. As predicted, better access of these entrepreneurs to advanced technical and managerial knowledge is perceived as a valuable capability since it can help identify

unexplored market opportunities in an emerging economy context and exploit them more effectively. Their greater ability to attract early-stage funding indeed generates a “rich get richer” effect, as they can enjoy an accumulated advantage over time.

Despite the aforementioned advantages, returnee entrepreneurs may face challenges when doing business in their home countries. Survival and success in an emerging market context require some idiosyncratic capabilities to overcome institutional voids, as well as adapt to economic and political instability and uncertainty (Khanna, Palepu, & Sinha 2005; Sadeghi et al., 2019; Yu & Wang, 2021). Given deficiencies in formal legal and regulatory institutions, economic transactions rely heavily on informal trust-based relationships (Cao & Shi, 2021; Luo, 2005; Khanna & Palepu 2010; McCarthy & Puffer, 2008; Puffer et al., 2010). Despite superior technological and managerial capabilities, the embracement of the patterns of economic activity in their home country might be difficult for returnee entrepreneurs. Limited connections paired with a distant relationship with the local social, political, and institutional environment may further impede the effectiveness of the returnees (Armanios et al., 2017; Li et al., 2012). Returnee entrepreneurship will serve as a strength to the extent that its assets overcome its liabilities. The advantages of returnee entrepreneurship may be more pronounced, and liabilities may be less binding in sectors where access to state-of-the-art technology originating from advanced country contexts is vital for business success. In line with this prediction, I empirically demonstrate that the positive effect of returnee entrepreneurs on attracting funding is more pronounced in the AI sector compared to the fintech and gaming sectors.

I also find that startups with larger founding team sizes are more likely to receive early-stage investment. Larger teams often bring a diverse set of cognitive resources and broader social capital which collectively enhance the startup's innovation and market performance. They are thus perceived by the investors as more robust and capable of handling the various demands of growing a startup and scaling it. Yet, I also find that investors more positively evaluate larger teams that possess greater similarity in cognitive structures. Returnees, local elites, and local entrepreneurs in the context of emerging markets may have diverse cognitive skills, but they can also bear significantly different beliefs, opinions, and perspectives sourced by their educational background,

experiences, and networks. High levels of variance in such cognitive structures may become a barrier to team cohesion and coordination (Glick et al., 1993; Martins & Sohn, 2022; Miller et al., 1998). My findings suggest that this concern shapes investors' evaluation of early-stage startups and their perceptions of risk and financing decisions.

I could not find support for the prediction that the favorable evaluation of a large founding team by early-stage investors will be more pronounced in the COVID-19 pandemic era. The rationale behind my argument was that the better adaptability of a large founding team with diverse skills and a broader network to changing circumstances would be even more important in the turbulent environment of the pandemic, where drastic changes in the business system and labor dynamics were experienced. Yet perhaps investors also have considerations for flexibility and fast decision-making as crucial capabilities in this state of emergency, which could be hindered by very large team size. Also, the increased cost of monitoring and a greater likelihood of opportunism in large management teams (Faems et al., 2010) may be perceived as a burden in the chaotic environment of the pandemic besides its advantages.

I find partial support for my argument regarding the effect of the women entrepreneurs in the founding team on the ability to attract external funding. As I predicted, the presence of a female entrepreneur in the founding team is more favorably evaluated by the investors as the startup ecosystem grows and develops. This is probably due to the increasing recognition of women entrepreneurship with growing numbers and decreasing stereotyping for and increasing trust in women entrepreneurs with the emergence of successful exemplars. Yet, I also find that this positive trend is not sustained in the maturity period (post-COVID) of the startup ecosystem. The hit of the COVID-19 pandemic is a major exogenous shock that disproportionately affected women entrepreneurs. The pandemic produced disruptive effects on working conditions in general, but women entrepreneurs witnessed a drastic impact on their lives. The absence of schools and childcare institutions during the lockdown periods, together with the higher responsibility of housework, has resulted in more burden on the shoulders of women entrepreneurs (Grandy et al., 2020; Mustafa et al., 2021; Ramos, 2020). Adverse effects of the COVID-19 pandemic are especially pronounced for women-led

micro, small, and medium enterprises (Matharu & Juneja, 2024; Rahayu & Ellyanawati, 2023). Under these circumstances, potential investors may feel more hesitant to finance ventures with women founders, especially those in the early stages of their life cycle.

6.3 Discussion of theoretical contributions

This thesis study provides important theoretical implications for new venture signaling. Importantly, I demonstrate how signaling is shaped by contextual influences operating at the sector, ecosystem, and economic system levels. These are also indicative of the complex screening applied by external evaluators. Beyond rational calculations such as the fit between founders' characteristics and sectoral needs, investor decision-making is also influenced by institutional influences such as the legitimization of women entrepreneurship as the ecosystem grows and develops over time.

My findings also have implications for the diversity literature. Building on and extending the recently introduced distinction between cognitive resources vs. cognitive structures (Martins & Sohn, 2022; Miller et al., 2022), I demonstrate that the richness of cognitive resources such as information and knowledge can be exploited in the presence of some similarity in cognitive structures (i.e., beliefs, opinions, and values). With respect to cognitive structures, I assumed variation among returnees, local elites, and local entrepreneurs, given their distinct backgrounds and experiences. A deeper understanding can be produced via cognitive mapping of founding team members through surveys that include sketches of perceived cause-effect relationships, web-based software (e.g., Mental Modeler), or post-hoc analysis of linguistic data.

Beyond cognitive embeddedness, entrepreneurs in a founding team may vary in social embeddedness, which refers to interpersonal and business relations (Dacin et al., 1999; Granovetter, 1985). Founding teams with larger sizes are richer in social capital but the composition of this social capital may also be important. One could expect significant variance in the embeddedness of returnee, local elite, and local entrepreneurs in national and international, personal, professional and political networks. These differences may result in synergetic or complementary effects on new venture performance outcomes. Thus, explicit identification and measurement of the cognitive and social embeddedness

of founding team members is a promising way for future research to better explain the theoretical mechanisms of diversity and its outcomes.

A better understanding of the cognitive and social composition of an entrepreneurial team will also make an important contribution to the literature on new venture signaling. This literature has focused on the aggregated characteristics of individual founders, ignoring team composition and potential conflicts and complementarities between the mindsets and capabilities that different kinds of founders bring into the enterprise (Blume & Hsue, 2023; Knight et al., 2020; Svetek, 2022). This is a significant gap considering that most new ventures are founded and led by teams, not solo entrepreneurs (Beckman, 2006; West, 2007). Studies also suggest that investors do not evaluate signals in isolation, but in combination (Huang, 2018; Svetek, 2022). Investors are exposed to bundles of signals that could individually and interactively affect a new venture's future success potential. Future research can use a configurational approach (Rihoux and Ragin, 2009), which can serve as an effective way to study the complex relationships between these signals and attract finance from these investors.

From an evolutionary perspective, I differentiated between the early (learning) period of the startup ecosystem, the growth period where the population of startups reached significant numbers and the investment system became institutionalized, and the maturity period where second funds are established venture capitalists and several startups created global success stories. The maturity period in the context that I examine overlaps with the COVID-19 pandemic which is a major exogenous shock that produced disruptive effects on the economic system together with very high levels of uncertainty and turbulence. One shortcoming of my research is the lack of opportunity to distinguish between ecosystem maturity and this exogenous shock effect, which can be pursued in future studies. Furthermore, sectoral dynamics that can affect new venture signaling and early-stage financing can be better explored with empirical data on a wider array of industries.

The findings of this thesis should be interpreted within the context of the Turkish startup ecosystem. Future research and evidence on the same phenomena in startup

ecosystems in different economic contexts will contribute to the generalizability of the insights developed here. I also did not examine whether and how signaling processes vary for different investor types and for different types of new ventures such as startups and corporate ventures. Future research can examine these dynamics to provide a more nuanced understanding of new venture signaling and financing.



7. CONCLUSION

There has been an emphasis for better integration of context into research on new venture signaling (Armanios et al., 2017; Connelly et al., 2011; Topaler & Adar, 2025) and this shortcoming is stated more broadly for entrepreneurship research (Morris et al., 2023; Welter, 2011). This dissertation aims to respond to these calls by examining how signaling of new venture characteristics is shaped by contextual influences operating at the team, sector, ecosystem, and economic system levels.

I study these dynamics in the context of a developing economy where the capital market is not well developed and attracting early-stage investment is highly competitive for new ventures (Ahlstrom & Bruton, 2006; Klonowski, 2007). Beyond the theoretical contributions I mentioned in the Discussion section, the contextual understanding of early-stage investors' financing decisions provides entrepreneurs with valuable insights on how to form founding teams and persuade prospective investors about the future potential of their startups. A one-size-fits-all approach to team composition may not be effective. Instead, entrepreneurs should consider the specific needs and challenges of their industry and current market conditions when assembling partnerships.

My findings also have implications for policymakers. The empirical analyses conducted in this thesis demonstrate very low engagement of women entrepreneurs in the startup ecosystem and greater difficulty in attracting venture capital and angel investment, especially in the early stage of the ecosystem and in the COVID-19 pandemic period. I also observed the absence of teams composed only of returnees and local entrepreneurs, which I attributed to limited contact between these people. Policymakers can take measures to establish networks between these entrepreneurial types, which can serve as a pathway towards greater returns to diversity. Training and development programs for the better management of the incongruence in cognitive structures within founding teams and consultancy programs for designing organizations to effectively manage diversity are valuable investments that can be made by policymakers.

Policymakers can also benefit from implementing policies that specifically support female entrepreneurs through funding programs, training, and mentorship opportunities.

Addressing gender disparities in entrepreneurship will not only promote equity but also contribute to the market and social outcomes of startups (Berger & Kuckertz, 2016; Jennings & Brush, 2013). Dedicated funding pools for female-led startups can be established and entrepreneurship boot camps targeted at women to equip them with the necessary skills and networks can be created. Additionally, regulatory measures that encourage venture capital firms to invest in female-led ventures can be introduced. In summary, efforts should be concerted to mitigate biases and build an entrepreneurial ecosystem that fosters inclusivity and investment equality.

My thesis suggests that contextualized theorizing would significantly contribute to our understanding of new venture signaling and access to finance. Startup ecosystems are not uniform and may vary significantly in entrepreneurial profile, legitimacy of different types of entrepreneurs, and sectoral dynamics. Variation in political, legal, and cultural contexts provides further richness and complexity in how external audiences formulate future projections of new venture success. A better understanding of new venture survival and success can be provided by studies accounting for these multidimensional elements of context.

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