

Signaling shaped by the context: Early-stage funding in the Turkish startup ecosystem

Research Article

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Abstract: Providers of early-stage financing tend to be highly selective due to significant uncertainty surrounding the future potential of new businesses. Since these ventures typically lack established performance records, potential investors focus on observable qualities of the founder as signals of the venture's viability and chances for success in the market. Despite extensive research on new venture signaling and financing, the impact of context on investors' decision-making has not been thoroughly explored. This oversight is significant because both firm performance and investor decision-making are influenced by economic, social, and institutional contexts. This study aims to address this gap in the literature by identifying sector-level, entrepreneurial ecosystem-level, and economy-level factors that serve as contextual influences on new venture signaling. We examine early-stage angel and venture capital investments in Turkey, which is an emerging economy with a thriving entrepreneurial ecosystem. Our results on the sample of 2,231 startups show that returnee founders are more likely to obtain early-stage financing than local entrepreneurs, and investors tend to hold particularly favorable views of returnee entrepreneurs in high-tech industries. Moreover, the likelihood of securing investment increases with the diversity of the founder's prior work experience, a trend that has been amplified during the heightened turbulence caused by the COVID-19 pandemic. Finally, investors' evaluations of female entrepreneurs slightly improve as women-led startups become more prevalent in the ecosystem and gain legitimacy. These findings indicate that finance providers have a significantly broad attention span for context-specific influences, and their decisions are shaped by both rational and socio-cognitive processes.

Keywords: *New venture financing • Signaling • Entrepreneurship • Emerging markets*

1. Introduction

Entrepreneurial ventures play a vital role in economic systems as they stimulate innovation, foster technological progress, and contribute to economic development. Due to their resource constraints, particularly in the early stages, attracting external finance is crucial for survival and market success (Soto-Simeone et al., 2020). Early-stage funding provides greater opportunities to validate business ideas, develop new products, and execute market strategies (Block & Colombo, 2006). Concurrently, it helps to commercialize innovations and fosters firm growth (Engel & Keilbach, 2007).

Potential investors, however, tend to be highly selective due to the significant uncertainty surrounding the viability

and market outcomes of new businesses (Islam et al., 2018; Miloud et al., 2012). Due to the absence of past achievements indicative of unobserved quality, such as verified demand for the product or service, investors often rely on signals such as third-party endorsements or founder characteristics to draw conclusions about the future potential of new ventures (Colombo et al., 2023; Vazirani & Bhattacharjee, 2021).

The role of signals in new venture financing has been extensively studied in the literature (Colombo, 2021; Svetek, 2022). An important concept developed by this body of work is signal strength (or signaling effectiveness), defined as the influence of signals on receivers' behaviors (Connelly et al., 2011; Gulati & Higgins, 2003; Lampel & Shamsie, 2000). Variations in signal strength may relate to the characteristics of the sender, signal, receiver, and environment (Colombo, 2021). Among these, the environment is perhaps the least investigated factor. To the best of our knowledge, available research

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has only examined how the level of noise in the financing platform can change signaling effectiveness (Drover et al., 2017; Steigenberger & Wilhelm, 2018). Despite this limited attention, the environmental context in which signaling occurs is critical, as the performance of new ventures is influenced by various temporal and spatial factors (Debrulle et al., 2023; Ferrati & Muffatto, 2021; Soto-Simeone et al., 2020), and investors' decision-making may be impacted by economic, social, and institutional contexts (Berger & Köhn, 2020; Colombo, 2021). Therefore, existing research falls short of providing a comprehensive understanding of how new ventures access early-stage finance, which has significant implications for their survival and market performance. To address this gap in the literature, we examine how new venture signaling and financing are shaped by the environmental context. More specifically, we analyze founders' background, experience, and gender as signals of human capital and propose sector-, entrepreneurial ecosystem-, and economy-level factors that can moderate the effect of these signals on the likelihood of obtaining early-stage finance.

Our study focuses on startups and investment activity in the Turkish startup ecosystem from 2010 to 2023. İstanbul, the central hub of this ecosystem, had the most robust early-stage funding activity among the top 100 emerging ecosystems in 2023 (Startups.watch, 2024). We examine angel and venture capital investments during the early stages, where signals have a greater significance in financing decisions due to higher information asymmetry between investors and entrepreneurs, as well as greater uncertainty regarding future projections of the venture (Colombo, 2021; Connelly et al., 2011).

The remainder of this work is structured as follows. Section 2 proposes a theoretical framework for contextual influences on new venture signaling, with a focus on emerging economy dynamics. In Section 3, we describe the empirical setting of the study and the methodology. Section 4 presents the empirical analyses and results. Finally, in Section 5, we discuss the findings and outline their theoretical implications.

2. Literature review and hypotheses

The early stages of a venture can be very challenging due to several liabilities of newness (Hannan & Freeman, 1984; Stinchcombe, 1965), and initial resources to support business operations are typically supplied by founders, their families, and close contacts (Ostgaard & Birley, 1996; Shepherd et al., 2021). Attracting external finance, especially in these early stages, is vital for developing the business and

acts as a buffer against emerging challenges (Debrulle et al., 2023; Linder et al., 2020). This funding is particularly important for startups aiming for fast growth with innovative products and services, as it enables them to experiment with new ideas and support marketing activities (Block & Colombo, 2006).

Since new ventures lack established performance records (e.g., proven products, services, and technologies), providers of early-stage finance, such as banks, venture capital firms, and angel investors, face significant uncertainty about the underlying quality of these ventures. They accordingly rely on certain signals that could inform them about the venture's prospects (Cumming et al., 2023; Ferrati & Muffatto, 2021). Observable traits of the founder, like education and experience, are strong indicators of human capital and signal a new venture's potential success to external investors¹ (Colombo, 2021; Vazirani & Bhattacharjee, 2021).

Emerging economies like Turkey typically exhibit weaknesses in educational infrastructure and structural deficiencies, leading to poor interaction among academia, industry, and government. Consequently, these economies experience significant gaps in technical, managerial, and entrepreneurial knowledge (Aidis et al., 2008; Cao & Shi, 2021). Exposure to advanced economies through education or work experience provides access to these critical resources. This has given rise to a new category of entrepreneurs known as returnees, i.e., individuals who have work experience and/or education in a developed country and establish ventures in their home country. Access to higher-quality education, state-of-the-art technology, and managerial practices, combined with international work experience and networks, equips them with strong capabilities for market performance and global scalability (Armanios et al., 2017; Li et al., 2012). Given these strengths, potential investors may view new ventures established by returnee entrepreneurs as more likely to succeed in both local and global markets. Therefore, we formulate the following hypothesis:

Hypothesis 1 (H1): New ventures founded by returnee entrepreneurs will be more likely to obtain early-stage funding.

¹ When multiple founders exist, the composition of the team and team dynamics bring additional complexity into the signaling process (Franke et al., 2006; Gompers et al., 2020). To better examine contextual influences on signaling, the present study focuses exclusively on single-founder ventures and examines the relationship between founders' individual qualities and the likelihood of their ventures to attract early-stage finance.

However, despite several advantages, returnee entrepreneurs face specific challenges when doing business in their home countries. Survival and success in an emerging market context require unique capabilities to overcome institutional voids and the ability to quickly adapt to economic and political instabilities (Khanna et al., 2015; Sadeghi et al., 2019). Due to deficiencies in formal legal and regulatory institutions in these markets, economic transactions rely heavily on informal, trust-based relationships (Cao & Shi, 2021; Puffer et al., 2010). Returnee entrepreneurs' limited local connections and weak cognitive and social embeddedness may create barriers to business activity in their home country (Armanios et al., 2017; Li et al., 2012).

The advantages of returnee entrepreneurship may be more significant, and its limitations may be less restrictive in high-tech sectors where access to cutting-edge technology and connections in advanced economies is more crucial. Specifically, returnees can be quicker and more effective in identifying new technology trends and knowledge gaps between developed economies and their home country. Simple technology transfer and adaptation to the local context can provide a competitive advantage, especially in high-tech industries in emerging economies (Appiah-Adu et al., 2018; Yang & Maskus, 2009). Returnee entrepreneurs can also utilize their networks abroad to access high-tech markets in advanced economies where supply and demand factors are more favorable (Bai et al., 2017, 2018). Therefore, a returnee founder can serve as a stronger signal of success for new ventures operating in high-tech industries. We thus argue that:

Hypothesis 1a (H1a): The hypothesized effect in H1 will be stronger for new ventures operating in high-tech industries.

Along with superior capabilities and global reach, another reliable source of information for prospective investors is the local networks of entrepreneurs. While important to entrepreneurs everywhere (Davidsson & Honig, 2003; Florin et al., 2003), personal and professional connections can play a more significant role in addressing specific challenges within emerging market economies. Importantly, entrepreneurial resource acquisition in an emerging market context largely depends on network-based trust and norms of reciprocity (Puffer et al., 2010; Webb et al., 2020). Social networks can substitute for weak formal institutions, securing contract enforcement and intellectual property protection (Hoang & Antoncic, 2003; Peng, 2003). Firms operating in emerging market economies also face greater environmental turbulence than

those in developed countries (Liu et al., 2019; Manimala & Wasdani, 2015). Continuous access to new cognitive and material resources is essential for coping with this turbulence, and this resource flow can be facilitated by a broad social network with diverse partners (Burt, 1992; Granovetter, 1973; see also Ma et al., 2009). While the connections of an entrepreneur are not directly observable to external investors, the entrepreneur's previous work experience can serve as a strong signal. This is because social networks, especially professional connections, are primarily developed through work experiences (Felićio et al., 2012; Gabriellsson & Politis, 2012). Based on these considerations, we propose that

Hypothesis 2 (H2): New ventures founded by entrepreneurs with more work experience will be more likely to obtain early-stage funding.

While broad and diverse networks of entrepreneurs developed through professional experiences provide strong capabilities to perform well in a turbulent context, maintaining and monitoring these connections can be costly (Shipilov et al., 2023). Therefore, the marginal benefit of having such networks is likely to be higher in contexts characterized by greater turbulence. Uncertainty and turbulence in economic systems have intensified globally due to the COVID-19 pandemic, a major exogenous shock in recent years. Responding to continuous change has become critical for business success in the post-pandemic environment (Krammer, 2022; Lamorgese et al., 2024). Entrepreneurs with broader and more diverse networks can be more adaptive to this environment since they have better information flow and greater flexibility (Burt, 1992; Granovetter, 1973). Therefore, we expect that the founder's prior work experience (which serves as a signal of a broad and diverse network) will be a stronger signal of success in the post-COVID economic environment.

Hypothesis 2a (H2a): The hypothesized effect in H2 will be stronger in the post-COVID period.

In contrast to the positive signals previously discussed, some characteristics of entrepreneurs can be viewed as negative indicators, suggesting a lack of certain capabilities and an increased risk of failure (Colombo, 2021). One example is the perception of female entrepreneurs, which is often linked to less favorable business outcomes (Dean et al., 2019; Gupta et al., 2009). The gender gap in access to new venture financing (Balachandra, 2020; Ewens & Townsend, 2020; Leitch et al., 2018) also indicates lower trust in the credentials of female entrepreneurs. Gender discrimination tends to be higher in developing countries,

where women face greater barriers in education, employment, healthcare, and legal rights (The World Bank, 2024; The World Economic Forum, 2023). Women entrepreneurs in developing economies also encounter more significant market constraints and unpredictable challenges compared to their peers in developed countries (Bastian et al., 2018; Panda, 2018).

Despite a slight increase in women's startup activity over the last two decades, female entrepreneurship remains significantly less common than male entrepreneurship (Global Entrepreneurship Monitor, 2021). A rising number of women-led startups and the emergence of successful models can increase recognition of female entrepreneurs and enhance investor trust in them. As suggested by previous institutional research, a specific form, structure, or practice gains cognitive legitimacy as it is increasingly adopted by community members (Aldrich & Fiol, 1994; Tolbert & Zucker, 1983). Cognitive legitimacy can also be enhanced by the increased observation of successful exemplars (DiMaggio & Powell, 1983; Strang & Meyer, 1993). Female entrepreneurs can bring unique insights and business acumen, contributing to better communication and decision-making in their organizations and positively impacting venture performance (Horvatinovic et al., 2023; Lücknerath-Rovers, 2013). Consequently, we argue that investors in an entrepreneurial ecosystem will evaluate the capabilities of female entrepreneurs more favorably as women-led startups become more common and female entrepreneurship gains legitimacy. The specific hypothesis is as follows:

Hypothesis 3 (H3): New ventures founded by female entrepreneurs will be more likely to obtain early-stage funding as the number of women-led startups in the ecosystem increases.

3. Method

3.1 Empirical context and data sources

Similar to other emerging market economies, new ventures established in Turkey encounter institutional deficiencies in product, labor, and capital markets (Beyhan et al., 2024; Yaprak et al., 2018). Over the last two decades, policy reforms targeting technological progress, developing market infrastructure, and fostering entrepreneurial firms have led to a thriving startup ecosystem in the country (Global Entrepreneurship Monitor, 2021). The number of newly established startups during this period has rapidly increased, rising from 104 in 2,000 to 1,360 in

2020. İstanbul, the central hub of the ecosystem, was recently ranked 16th among the top 100 emerging ecosystems with the most robust early-stage funding activity (Startups.watch, 2024).

A fully functional startup ecosystem in Turkey, supported by venture development organizations (VDOs, i.e., acceleration programs and incubation centers) and investor communities (angel networks and venture capital firms), has its roots in the early 2010s. Until 2017, there was a learning phase during which initial investments by local venture capitalists (VCs) were observed, and regulations supporting the startup ecosystem were introduced. This period was marked by a significant increase in accelerator programs, incubation centers, and coworking spaces between 2010 and 2017. After 2017, the second round of funding by VCs was established, several startups achieved global success, and the first unicorns emerged. While the outbreak of the COVID-19 pandemic in 2020 was a major shock to the system, it accelerated digital transformation, propelling many sectors forward by years.

In this study, we collected data on single-founder Turkish startups from 2010 (the activation of the startup ecosystem) to 2023 (the most recent data availability). Following the literature on early-stage financing (e.g., Berger & Köhn, 2020; Miloud et al., 2012), we focused on startups up to 5 years old. We excluded startups established after 2018 because we did not have data for them until they turned five. To ensure sample homogeneity, we excluded Turkish startups founded outside of Turkey. After removing startups with incomplete founder information, the study sample comprised 2,231 startups.

The data were collected from the Startups.watch database, a Turkish startup ecosystem platform that provides reliable information on startup founders, business categories (industries), and investments since the early 1980s. In cases of missing information on new ventures, we used other credible sources such as LinkedIn and Webrazzi.

3.2 Variables and measurement

The dependent variable in the study, receiving investment, is measured using a dummy variable. This variable is assigned the value of 1 if the startup obtained angel investment or venture capital in a particular year and 0 otherwise. A total of 174 out of 2,231 startups in our sample received at least one investment. The majority of these (145 investments) are by venture capital firms, 20 by angel investors, and the remaining 9 observations are joint investments by angels and VCs. As reported below, we

perform supplemental analyses to check for the robustness of our findings to investor type.

Following previous studies (e.g., Filatotchev et al., 2009; Li et al., 2012), the returnee status of the founder is measured using a dummy variable assigned a value of 1 if the founder has at least 2 years of education or job experience in the United States or another organisation for economic co-operation and development (OECD) member country with a developed economy, and 0 otherwise. We also differentiate between local elites and other local entrepreneurs. Most entrepreneurs in emerging market economies are necessity-driven and possess limited skills and capabilities (Armanios et al., 2017; Baptista et al., 2014). Local elites hold degrees from top domestic universities and are equipped with high-quality technical and managerial skills and access to superior professional networks (Armanios et al., 2017; Hoskisson et al., 2000). Accordingly, we designate local elite entrepreneurs as those who have educational degrees from the most prestigious universities in the country, namely, Middle East Technical University, İstanbul Technical University, Boğaziçi University, Galatasaray University, Koç University, Bilkent University, and Sabancı University. These established public and private universities exhibit the highest levels of student selectivity, and a high proportion of their graduates engage in entrepreneurship (Startups.watch, 2024).

The founder's gender is represented by a dummy variable, assigning a value of 1 for female entrepreneurs and 0 for males. We also developed a dummy variable to indicate the post-COVID period, assigning 1 for the years between 2021 and 2023, and 0 for other years. The prevalence of women-led startups in the ecosystem is captured with a count variable, representing the total number of startups established by a female entrepreneur (or multiple female entrepreneurs) in a specific year.

Regarding the entrepreneur's previous work experience, we evaluate both diversity and duration. The former is assessed using a variable that counts the total number of different firms in which the founder had experience prior to establishing the focal startup, while the latter is measured by a variable that counts the total number of years of the founder's previous business experience.

The technology intensity of sectors is identified according to the OECD's taxonomy of economic activities (Galindo-Rueda & Verger, 2016). Following the categorization of high (and medium-high) R&D intensity economic activity for manufacturing and non-manufacturing industries, we designate 32 sectors as high-tech businesses: advanced materials, AR/VR, artificial intelligence, autotech, aviationtech, big data, biotech, blockchain, chemicals, cloud, cryptocurrency, cybersecurity, deeptech, electronics, genetics, image processing, Industry

Variables	Mean value	Std dev	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) DV: funded	0.02	0.13											
(2) Year	2017.5	3.37	-0.01										
(3) VDO	0.12	0.32	0.08*	0.23*									
(4) Outside İstanbul	0.34	0.47	-0.04*	0.04*	0.01								
(5) Elite founder	0.31	0.46	0.01	-0.06*	0.01	-0.01							
(6) Returnee founder	0.13	0.33	0.02*	-0.11*	-0.02	-0.09*	-0.25*						
(7) Experience (N)	0.46	0.88	0.03*	-0.10*	-0.05*	-0.12*	0.03*	0.07*					
(8) Experience (years)	6.14	6.36	0.00	0.09*	-0.02	-0.02	0.03*	0.06*	0.06*				
(9) Female founder	0.12	0.32	-0.01	0.01	0.06*	-0.06*	0.04*	0.06*	-0.10*	0.03*			
(10) High tech	0.28	0.45	-0.01	0.11*	0.10*	0.21*	0.04*	-0.05*	-0.07*	0.05*	-0.09*		
(11) Post-COVID	0.19	0.39	-0.01	0.61*	0.15*	0.06*	-0.03*	-0.06*	-0.07*	0.03*	0.01	0.10*	
(12) Women-led startups	38.18	19.5	0.00	0.80*	0.30*	0.06*	-0.06*	-0.14*	-0.14*	0.10*	0.02*	0.16*	0.45*

Notes: $N = 12,675$, * shows significance at the 0.01 level.

Table 1. Descriptive statistics and correlations.

Source: Authors' own research.

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Year	-0.06*	-0.08**	-0.07	-0.07	-0.07	-0.08**
	(0.03)	(0.00)	(0.06)	(0.06)	(0.06)	(0.00)
VDO	2.11**	2.10**	2.16**	2.16**	2.17**	2.11**
	(0.28)	(0.44)	(0.39)	(0.39)	(0.41)	(0.42)
Outside İstanbul	-1.17**	-1.09**	-1.11**	-1.12**	-1.11**	-1.08**
	(0.24)	(0.28)	(0.28)	(0.28)	(0.28)	(0.28)
Elite founder	0.47 ⁺	0.43 ⁺	0.44 ⁺	0.45 ⁺	0.45 ⁺	0.43 ⁺
	(0.24)	(0.23)	(0.23)	(0.23)	(0.24)	(0.23)
Returnee founder		0.72*	0.69*	0.75*	0.75*	0.71*
		(0.32)	(0.31)	(0.31)	(0.32)	(0.31)
Experience (N)		0.24*	0.25*	0.21*	0.25*	0.25*
		(0.11)	(0.11)	(0.12)	(0.11)	(0.11)
Experience (years)		0.00	0.00	0.00	-0.01	0.00
		(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Female founder		-0.31	-0.33	-0.32	-0.31	-0.33
		(0.31)	(0.32)	(0.32)	(0.32)	(0.66)
High tech		-0.06	-0.02	-0.06	-0.07	-0.06
		(0.23)	(0.25)	(0.24)	(0.24)	(0.23)
Post-COVID		0.15	0.16	0.27	-0.37	0.15
		(0.29)	(0.25)	(0.27)	(0.34)	(0.27)
Women-led startups		0.00	0.00	0.00	0.00	0.01
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Returnee founder # high tech			0.30*			
			(0.11)			
Post-COVID # experience (N)				0.27*		
				(0.11)		
Post-COVID # experience (years)					0.07	
					(0.05)	
Female founder # women-led startups						0.02 ⁺
						(0.01)
Constant	119.11 ⁺	158.10	141.74	138.39	137.23	159.86
	(62.75)	(0.00)	(111.75)	(112.52)	(115.59)	(0.00)
/Insig2u	1.62**	1.58**	1.68**	1.68**	1.68**	1.57**
	(0.34)	(0.54)	(0.42)	(0.42)	(0.45)	(0.50)
Log likelihood	-1178.46	-1076.51	-1076.42	-1076.51	-1073.40	-1074.54

Notes: $N = 12,675$, Standard errors are in parenthesis, *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, ⁺ $p < 0.1$.

Table 2. Regression analysis results.

Source: The authors.

4.0, information systems, information technology, internet of things, mechanics, mechatronics, military vehicles, mobility, nanotech, robotics, semantics, smart city, smart home, smart manufacturing, telecom, and unmanned vehicles.

Since startups located in İstanbul (the central hub of the Turkish entrepreneurial ecosystem) generally have better access to local and global industry and investor networks, we control for the startup's location using a

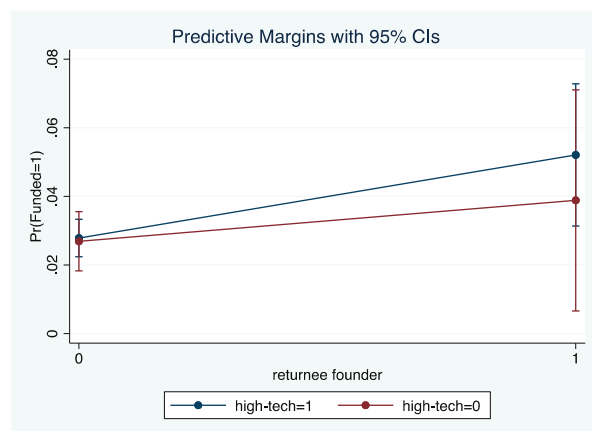


Figure 1. Interaction between returnee founder and high-tech industry.
Source: Authors' own research.

dummy variable that takes the value of 1 if the startup is established in Istanbul and 0 otherwise.

We also account for the startup's affiliation with VDOs and science parks. Connections with such third-party organizations may provide insights into a new venture's underlying quality and future potential, thereby influencing its ability to attract external investment (Pollock et al., 2010; Stuart et al., 1999). Finally, we incorporate the year variable to account for the linear effect of time.

3.3 Analysis

We estimate panel regression logit models using Stata 16 (StataCorp, 2019). These models control for unobserved heterogeneity at the startup level through fixed effects. We address heteroskedasticity by using robust standard

errors clustered at the startup level. The variable measuring the number of women-led startups in the startup ecosystem is lagged by 1 year to reduce the possibility of simultaneity. Some startups in our sample have received investments multiple times. We exclude these startups from the dataset after their initial investment since future investment decisions largely depend on this proof of success. The final dataset contains 12,675 startup-year observations, belonging to 2,231 startups in total.

4. Results and discussion

4.1 Empirical findings

Table 1 provides a summary of descriptive statistics for the study variables. The pairwise correlations are low to moderate. The only exception is the high correlation between the number of women-led startups and year. As expected, there is a significant increase in the number of women-led startups in the ecosystem over time.

The regression results are summarized in Table 2. Model 1 tests for the effects of control variables. We observe that the likelihood of obtaining early-stage finance is higher for startups affiliated with a VDO and lower for startups outside Istanbul. We also observe that the founder's local elite status has a marginally positive effect on attracting funding. Local elites in emerging economies are technically and managerially well-equipped since they are educated in leading domestic universities modeled after Anglo-Saxon exemplars. They also likely have richer and higher-quality networks in their home country. Consistent

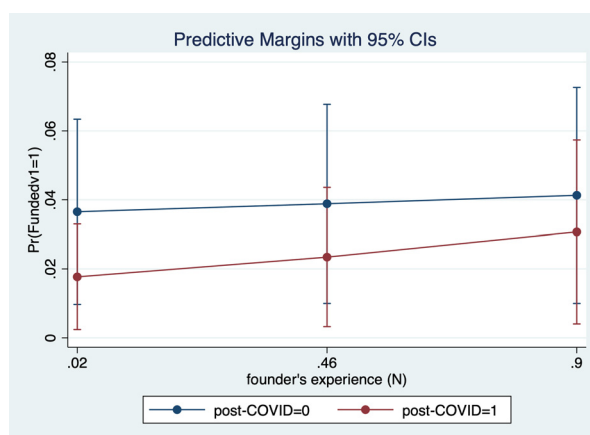


Figure 2. Interaction between the diversity of the founder's experience and post-COVID.

Source: Authors' own research.

with this, our results reveal that these qualifications have some signaling role in the eyes of prospective investors.

As shown in Model 2, startups founded by a returnee entrepreneur are more likely to attract funding, and this effect remains robust in Models 3–6. Therefore, H1 is supported. In Model 3, we also find support for the prediction that this positive signaling of returnee founders will be stronger in high-tech industries. Figure 1 illustrates this interaction, where the positive slope of the relationship between returnee founder and attracting funding is higher for high-tech industries. In supplemental analyses where we test for the effect of the founder's returnee status on attracting funding in split samples for high-tech and low-tech industries, we observe that it is only marginally positive for startups operating in low-tech industries.

The impact of a founder's previous work experience on attracting funding is assessed by examining both the duration and diversity of that experience. The findings reveal that startups led by entrepreneurs with broader work experience across different firms are more likely to secure investment. In contrast, the duration of experience does not appear to have a similar effect (Model 2). Additionally, consistent with Hypothesis 2a, we observe that the positive influence of diverse work experience on funding attraction is stronger in the post-COVID period (Models 4 and 5). Figure 2 illustrates the interaction between the diversity of the founder's work experience and the post-COVID dummy. The slope of the effect of work experience on attracting funding, which is slightly positive in the pre-COVID period, increases in the post-COVID period.

The founder's gender does not significantly impact the ability to attract early-stage financing (Model 2). Additionally, we found that the likelihood of a female founder securing funds increases slightly as the number of women-led startups grows within the ecosystem (Model 6). This finding offers partial support for Hypothesis 3. Figure 3 illustrates this interaction. The negative slope of the relationship between female founder and attracting funding becomes slightly positive only after an extensive increase in women-led startups in the ecosystem. We also estimated these models without including the year variable to determine whether the strong correlation between the year and the number of women-led startups in the ecosystem (Table 1) influences our results. However, we did not observe any significant changes in our findings.

In our main analysis, the dependent variable does not differentiate between the amounts of funding received by the startups. We performed additional analyses to check whether outlier values in funding amount change our statistical conclusions. For each year, we excluded

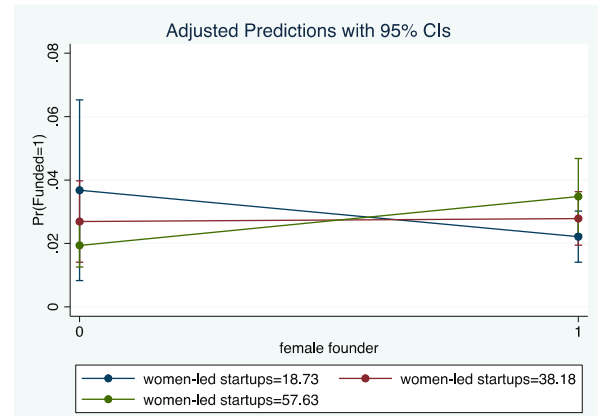


Figure 3. Interaction between female founder and women-led startups in the ecosystem.
Source: Authors' own research.

observations with funding amounts (in US dollars) that fell below the 25th percentile or above the 75th percentile. This resulted in a total of 12,322 startup-year observations. Our findings regarding the hypothesized effects remained consistent in this sample. We also checked whether our results are robust to the investor type. Most investments in our sample (145 out of 174) are by venture capital firms. Analyses where we used a restricted definition of the dependent variable (i.e., receiving venture capital funding) produced similar results, with no change in the support for hypotheses.²

5. Discussion

Our findings indicate that returnee entrepreneurs with better access to advanced technical and managerial knowledge receive favorable evaluations from investors in emerging market economies. This effect is particularly strong for startups in high-tech industries, while it appears to be only marginally significant for those in low-tech industries. This suggests that investors might have concerns about potential weaknesses associated with returnee entrepreneurs, viewing the situation as a double-edged sword. Consequently, investors are likely to place greater trust in a returnee entrepreneur when the advantages, such as access to advanced technology, outweigh any drawbacks, like difficulty adapting to the local business environment.

² The results of these supplemental analyses are available from the first author upon request.

Regarding the impact of a founder's work experience, our findings indicate that the diversity of that experience, specifically, the total number of different firms in which the entrepreneur has worked, positively influences investors' funding decisions. A diverse work background allows entrepreneurs to build a broad and diverse social network, which investors deem essential for gaining a competitive advantage in the uncertain and turbulent environment of emerging market economies. We further observe that investors respond more positively to this signal during the heightened turbulence caused by the COVID-19 pandemic. This finding, again, indicates that investors make a holistic evaluation of the benefits and drawbacks of an entrepreneurial characteristic and can be sensitive to the shifts in the balance between the advantages and disadvantages. Managing a broad and diverse network is very costly and challenging (Shipilov et al., 2023), which can become a significant burden, especially in stable industry environments where the flexibility offered by such networks may not provide substantial benefits.

We find partial support for the argument that investors will have a more favorable view of startups founded by female entrepreneurs as the number of female entrepreneurs in the ecosystem increases. Lack of full support may be because the current level of female entrepreneurship in the ecosystem we studied has not yet reached a threshold that would grant cognitive legitimacy, despite the increasing numbers. According to the Global Entrepreneurship Monitor (2021), Turkey lags other emerging markets such as BRIC countries in terms of the ratio of female entrepreneurs to male counterparts, which may be related to very low levels of structural and cultural support that women receive to run a business. Furthermore, the persistent gender gap in obtaining new venture finance, despite the increasing prevalence of female entrepreneurs in this startup ecosystem, might have led to a biased view of female entrepreneurs and an increased threshold for legitimacy and trust. As a result, growing numbers alone may not be sufficient to block the unbalanced flow of status and resources to male entrepreneurs.

6. Conclusion

Researchers have recently emphasized the need for a deeper understanding of how context affects new venture signaling processes and outcomes (Colombo et al., 2023; Cumming et al., 2023). This study addresses these calls by examining investors' consideration of founder characteristics as signals of success shaped by contextual factors at the sector, ecosystem, and economic system levels. We provide evidence for how signal strength (Colombo, 2021; Connelly et al., 2011) can be shaped

by the environmental context. Notably, our findings reveal the complex screening utilized by early-stage investors. Their attention spans a wide array of contextual factors that can affect entrepreneurial success. These include established resource dependencies, such as an emerging market's reliance on advanced economies, particularly in high-tech industries, and exogenous shocks that disrupt the economic system, like the COVID-19 pandemic. Furthermore, investor decision-making is shaped not only by rational calculations, such as assessing the alignment between founders' characteristics and performance requirements, but also by socio-cognitive processes within a specific entrepreneurial ecosystem, like the growing legitimacy of female entrepreneurship.

While this study focused on the characteristics of single-founder companies, it is worth noting that in companies with multiple founders, differences in their backgrounds and networks can lead to synergistic or complementary effects on the performance outcomes of new ventures (Franke et al., 2006; Gompers et al., 2020). Since many new ventures are established by teams instead of solo entrepreneurs, it is crucial to comprehend how team characteristics act as signals and how this signaling process is influenced by contextual factors (Esen et al., 2023).

One limitation of this study is the inference of investor decision-making without directly observing their cognitive processes. Utilizing surveys, interviews, and archival data to examine the criteria behind investors' decisions may result in omitted variable bias and potential issues with reverse causality. These challenges can be addressed through experimental designs that control for potentially confounding environmental attributes. Future research may utilize techniques such as policy capturing to directly analyze how investors make decisions (Aiman-Smith et al., 2002; Priem et al., 2011).

The findings of this study should be interpreted within the context of the Turkish startup ecosystem. Similar to those in other emerging market economies, this ecosystem suffers from an underfunded educational system and knowledge gaps (Cao & Shi, 2021), putting returnee entrepreneurs from developed economies in a higher status position. Remarkably, given extremely low levels of general trust in Turkish society (Inglehart et al., 2020), economic transactions in Turkey rely heavily on network-based trust and norms of reciprocity (Çetin & Demiral, 2018; Kayaoglu, 2017). Investors in this context might attach greater importance to the network structure of the entrepreneurs in making funding decisions. Furthermore, although social and cultural support for entrepreneurship in Turkey is close to the BRIC average, this country lags in terms of the support that women receive to run a business and the prevalence of female entrepreneurship (Global Entrepreneurship Monitor, 2021). Future research on startup ecosystems in other emerging market

environments will contribute to the generalizability of the insights developed here. Similarly, we did not examine whether and how signaling processes vary for investor types and different kinds of new ventures, such as startups and corporate ventures. Researchers can study these dynamics to provide a more nuanced understanding of new venture signaling and financing.

The findings of this study can guide policy in emerging market economies where obtaining external investment is challenging for new ventures (Ahlstrom & Bruton, 2006; Klonowski, 2007). Investors' favorable evaluation of returnees compared to local entrepreneurs can facilitate reverse brain drain. Yet policymakers can take initiatives to support qualified local entrepreneurs in accessing local and global financing opportunities. This is especially important for high-tech industries where poor trust in local capabilities is more pronounced. Another suggestion is to support business partnerships between returnees and local entrepreneurs to generate positive spillover and a more convincing proposal for prospective investors.

The findings also show that entrepreneurs can increase their chances of external finance by building work experience, preferably in multiple firms or sectors, before establishing a business. In Turkey, the prevalence of early-stage entrepreneurial activity is highest among individuals aged 18–34 years (Global Entrepreneurship Monitor, 2021), who are likely to lack long and diverse work experience. People with entrepreneurial intentions may either consider starting careers earlier during their university years or establish their business while gaining industry experience.

Finally, female entrepreneurs encounter significant challenges in securing venture capital and angel investment, and these obstacles are only somewhat alleviated by their growing prevalence and acceptance. Policymakers can enhance support for female entrepreneurs by implementing targeted funding programs and offering training and mentorship opportunities. Addressing gender gaps in entrepreneurship will enhance equity and improve startups' market and social outcomes (Berger & Kuckertz, 2016; Jennings & Brush, 2013).

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Author contributions

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Preparation. Hamza Khan: Data Curation, Methodology, Review & Editing. All authors read and approved the final manuscript.

Conflict of interest statement

Authors state no conflict of interest.

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