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Tesis doctoral

Entrepreneurship, gender and entrepreneurial fundraising through crowdfunding

Doctorando

Pau Sendra-Pons

Directoras

Dra. Irene Comeig

Dra. Alicia Mas-Tur

Dra. Dolores Garzón

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Als meus avis, als meus pares,
per ésser el caliu inesgotable.

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Introducción

Objetivos y enfoque

Esta tesis, que lleva por título “*Entrepreneurship, gender and entrepreneurial fundraising through crowdfunding*”, aborda el objetivo global de entender con mayor profundidad el proceso de creación de empresas y recaudación de fondos por parte del ecosistema emprendedor. Este objetivo se articula, desde un punto de vista teórico y práctico, a través de tres capas de análisis: primero, el entorno y su relación con la creación de empresas; segundo, las características y circunstancias de los emprendedores y su influencia en la creación de empresas; y tercero, la divulgación de información en las campañas de micromecenazgo y el éxito en la recaudación de fondos.

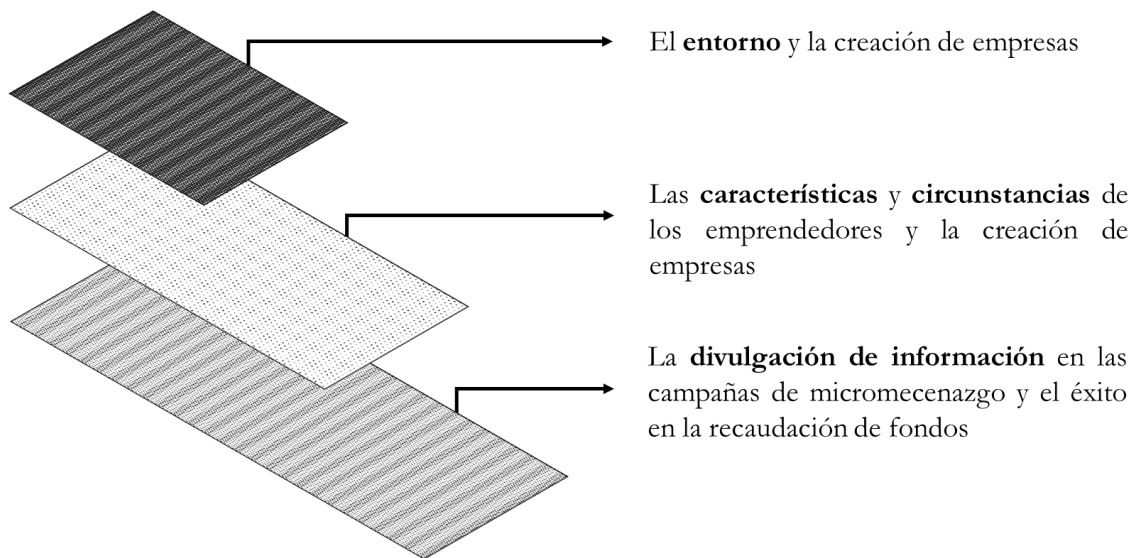


Figura 1. Capas de análisis entorno al objetivo global

A su vez, estas tres capas de análisis cubren cuatro áreas diferentes del modelo simplificado de captación de fondos presentado en la Figura 2. El capítulo 1 se centra en explicar la creación de empresas a través del contexto institucional. El capítulo 2 profundiza en las características y circunstancias de las mujeres emprendedoras como factores que impulsan la creación de empresas por necesidad. El capítulo 3 abarca el proceso de señalización por parte de los emprendedores hacia potenciales financiadores en el micromecenazgo. Por último, los capítulos 4 y 5 abordan el desencadenamiento de un comportamiento de rebaño racional en los potenciales inversores por parte de los inversores líderes y las grandes inversiones, respectivamente. Estas áreas pretenden abarcar la compleja dinámica que subyace a la creación de empresas y a la captación de fondos por parte de los emprendedores a través del micromecenazgo.

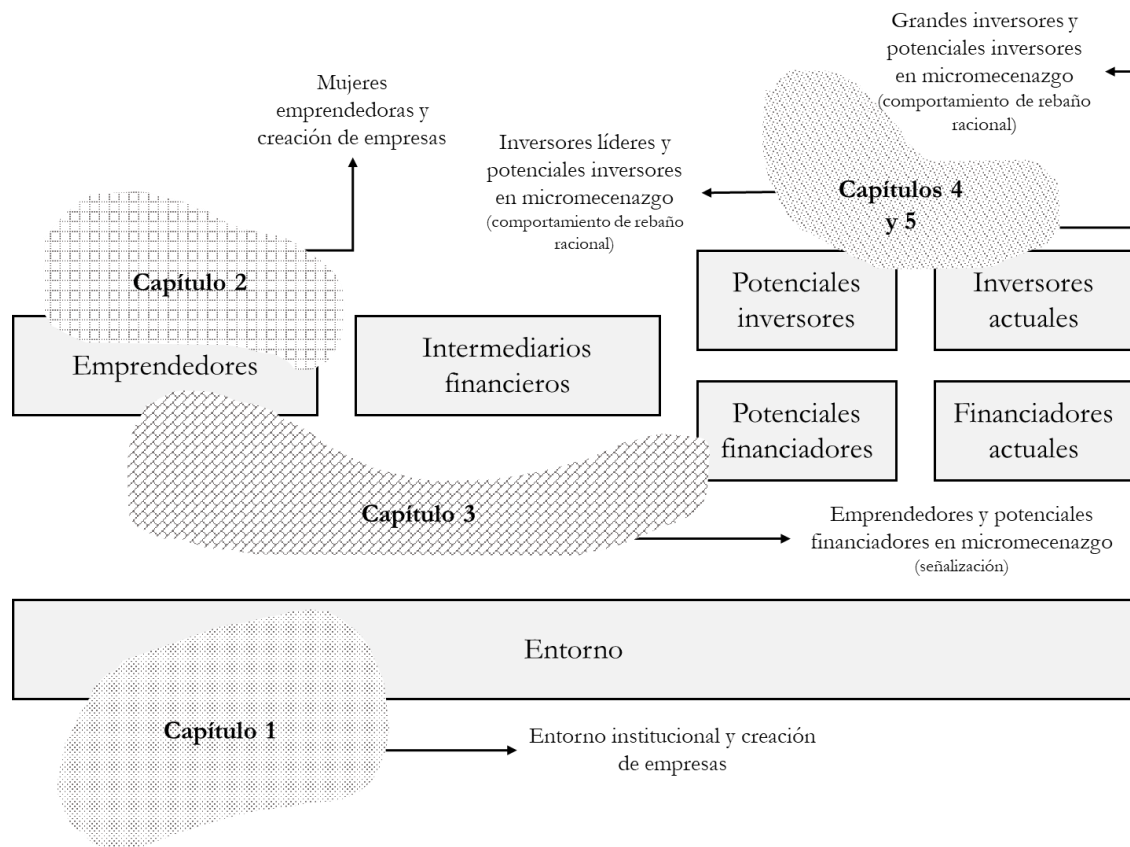


Figura 2. Un modelo simplificado de captación de fondos: áreas de investigación

El objetivo general de ahondar en el proceso de creación de empresas y recaudación de fondos por parte del ecosistema emprendedor se desglosa, a su vez, en cinco objetivos específicos que buscan estudiar pormenorizadamente (i) el papel de las facilidades en el acceso al crédito, como factor institucional, en la creación de nuevas empresas, tanto en entornos socioeconómicos avanzados como en desarrollo; (ii) la dimensión de género en las características y las circunstancias personales de las emprendedoras a la hora de crear nuevas empresas por necesidad; (iii) la divulgación de información para señalar la calidad de un proyecto emprendedor que busca financiación, reduciendo así las asimetrías de información existentes entre los emprendedores y los potenciales inversores o financiadores y logrando, en su caso, la sobrefinanciación; (iv) la divulgación de información sobre el respaldo de un inversor líder, como agente con un alto compromiso financiero y reputacional, y el desencadenamiento de un comportamiento de rebaño racional, un proceso de imitación basado en el aprendizaje observacional, con el que lograr la consecución del objetivo de financiación y la sobrefinanciación en campañas de micromecenazgo sindicado; y (v) la medida en que una gran inversión puede desencadenar el comportamiento de rebaño racional y garantizar el éxito de una campaña de micromecenazgo, estimando el impacto específico de esa inversión en el volumen de inversiones subsiguientes.

Estructura

Para alcanzar los objetivos generales y específicos de esta tesis, el capítulo 1, que lleva por título “*Institutional factors affecting entrepreneurship: A QCA analysis*”, implementa un estudio entre países que, basándose en la teoría institucional (DiMaggio and Powel, 1991; Scott, 2007), aborda qué combinaciones de factores institucionales dan lugar al emprendimiento tanto para los países desarrollados como para los países en desarrollo. Todo ello en un esfuerzo por evaluar la interacción entre la facilidad de acceso al crédito y otros factores institucionales a la hora de crear el entorno óptimo para la creación de empresas. Los datos proceden del *Global Entrepreneurship Monitor* (GEM) de 2019/2020 y del *Global Innovation Index* (GII) de 2020. Metodológicamente, este capítulo utiliza un enfoque configuracional mediante el cual se implementa un análisis cualitativo comparativo (QCA) en busca de combinaciones de condiciones que den lugar al resultado analizado (Ragin, 2008). Esta metodología permite tener en cuenta la equifinalidad (Rey-Martí et al., 2021), adoptando una solución orientada a la multiplicidad de soluciones (Roig-Tierno et al., 2017) que se adapta al objetivo de analizar la importancia de un factor institucional específico, es decir, la facilidad de acceso al crédito, al interactuar con otros factores. Los resultados contribuyen a indagar en la teoría institucional, a la vez que proporcionan conocimientos para la promoción de la creación de empresas por parte del ecosistema emprendedor, las agencias de desarrollo y los gobiernos. Este trabajo ha sido publicado en la revista *European Research on Management and Business Economics*, en coautoría con la Dra. Irene Comeig y la Dra. Alicia Mas-Tur, siendo su referencia: Sendra-Pons, P., Comeig, I., and Mas-Tur, A. (2022). Institutional factors affecting entrepreneurship: A QCA analysis. *European Research on Management and Business Economics*, 28(3), 100187.

El capítulo 2, que lleva por título “*Cross-country differences in drivers of female necessity entrepreneurship*”, se centra en la identificación de combinaciones de características y circunstancias personales de las mujeres emprendedoras como determinantes de la creación de empresas por necesidad: la educación postsecundaria, las habilidades emprendedoras, el hecho de conocer a otras personas que se han convertido en emprendedores, las expectativas de creación de empleo, el miedo al fracaso y las intenciones emprendedoras (Acs and Varga, 2005; Audrestch, 2012; Strobl et al., 2012; Koellinger et al., 2013; Cacciotti et al., 2016; Wyrwich et al., 2016). Los datos de este estudio proceden del informe sobre emprendimiento femenino 2018-2019 publicado por el *Global Entrepreneurship Monitor* (GEM). Esto permite abordar la perspectiva de género, yendo más allá de las relaciones unidireccionales entre cada condición y el resultado, y enfatizando la interacción de todas ellas desde una perspectiva configuracional basada en un análisis cualitativo comparativo (QCA). Las conclusiones identifican el papel relevante de la presencia de habilidades para emprender entre las mujeres, incluso cuando el negocio que se crea es por necesidad. Este capítulo contribuye a la literatura sobre factores individuales clave para la creación de empresas, al tiempo que informa a los reguladores sobre las condiciones reales que conducen a este tipo específico de emprendimiento. Este trabajo ha sido publicado en la revista *Service Business*, en coautoría con Sara Belarbi-Muñoz, la Dra. Alicia Mas-Tur y la Dra. Dolores Garzón, siendo su referencia: Sendra-Pons, P., Belarbi-Muñoz, S., Garzón, D., and Mas-Tur, A.

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El capítulo 3, que lleva por título “*A configurational analysis of signaling strategies in reward-based crowdfunding*”, se traslada a la esfera de la financiación por micromecenazgo, analizando el proceso de revelación de información entre (i) los emprendedores, como parte mejor informada en un proceso de captación de fondos mediante micromecenazgo basado en recompensas, y (ii) los potenciales financiadores, como parte menos informada. En un contexto con elevadas asimetrías de información entre ambos agentes económicos (Akerlof, 1970), acentuadas si cabe por el hecho de que estas operaciones financieras por micromecenazgo se gestionan a través de un canal digital, este estudio busca identificar qué elementos de información, y especialmente qué combinación de ellos, permite señalar la calidad del proyecto emprendedor (Spence, 1973) impulsando la sobrefinanciación, es decir, la obtención de al menos un 10% por encima del objetivo de financiación. Además, se considera la identidad de los emprendedores, identificando patrones de éxito entre los emprendedores individuales y corporativos, así como encontrando otros para los que esta identidad no es relevante. La divulgación de información considerada en este estudio incluye tanto elementos textuales como visuales, así como la interacción continua del emprendedor con la multitud de potenciales financiadores. Los datos de 257 proyectos de orientación social gestionados entre diciembre de 2020 y octubre de 2021, analizados a través de QCA, proceden de Goteo, una plataforma de micromecenazgo por recompensas. Los resultados señalan el importante papel de mantener una comunicación continua con la multitud de potenciales financiadores además de la relevancia de la brevedad de los textos y el uso de imágenes a la hora de señalar la calidad de la campaña. Además de contribuir a una línea de investigación en auge sobre los factores de éxito del micromecenazgo (Davies and Giovannetti, 2018; Huang et al., 2021; de Andrés et al., 2022), este capítulo está especialmente orientado a los emprendedores, adoptando un enfoque eminentemente práctico con el cual proveerles de estrategias de éxito para sus procesos de recaudación de fondos a través de este tipo de micromecenazgo.

Por su parte, el capítulo 4, que lleva por título “*Anchor investors and equity crowdfunding for entrepreneurs*”, se centra en el papel del inversor líder en los procesos sindicados de micromecenazgo por acciones. De este modo, se analiza cómo su alto compromiso financiero y reputacional puede dar lugar al éxito de la campaña o a la sobrefinanciación a través de un proceso de comportamiento de rebaño racional (Comeig et al., 2020), al instigar la imitación informada de los inversores potenciales (Petit and Wirtz, 2022). En concreto, se analiza cómo el hecho de compartir información sobre el apoyo financiero y el compromiso reputacional del inversor principal con la campaña de captación de fondos puede despertar a la multitud de inversores potenciales. Los datos proceden de la plataforma de micromecenazgo Startupxplore, y comprenden información sobre 24 operaciones de captación de fondos, que suponen un volumen de captación de más de cinco millones de euros. La singularidad del estudio radica en que el papel de los inversores líderes, como agentes con más información que la multitud de potenciales inversores y menos que los propios emprendedores, está relativamente inexplorado

en este entorno financiero específico desde un enfoque configuracional. En este capítulo, la metodología QCA no solo encaja por la naturaleza configuracional de las soluciones que se buscan, sino también por el reducido tamaño de la muestra, dada la idoneidad de esta metodología para muestras reducidas de especial relevancia académica. Se identifican una serie de combinaciones de elementos de información sobre el apoyo y el compromiso del inversor líder cuya divulgación, a través del mencionado proceso de comportamiento de rebaño racional, fomenta el éxito y la sobrefinanciación de las distintas campañas de captación de fondos. Se ofrecen implicaciones tanto teóricas como prácticas para lograr una recaudación eficaz de fondos.

Por último, el capítulo 5, que lleva por título “*Herding in equity crowdfunding. A behavioral natural experiment*”, identifica y analiza dos experimentos naturales (Demir et al., 2021) que muestran hasta qué punto una gran aportación de un inversor en micromecenazgo por acciones desencadena inversiones masivas posteriores, asegurando así la consecución del objetivo de financiación. Este capítulo surge de la colaboración entre el mundo académico y la industria, ya que esta última identificó comportamientos únicos entre sus inversores y proporcionó los datos para el estudio. En concreto, los datos se obtuvieron de una plataforma de micromecenazgo por acciones, que permanece anónima dada la especificidad de los datos. Metodológicamente, se realizó un análisis de diferencia en diferencias (*Diff-in-Diff*) para ver si una inversión única del 31% (Tratamiento 1) y el 36% (Tratamiento 2) respecto a la financiación objetivo modificaba el comportamiento posterior de los inversores. Los resultados muestran que la cantidad relativa invertida aumentó un 27.7% (Tratamiento 1) y un 25.6% (Tratamiento 2) después de la gran inversión, que tuvo lugar cuando la campaña ya había recaudado un 22% y un 6% del objetivo de financiación, respectivamente, en relación con el comportamiento del grupo de control. Estos resultados se obtienen de un planteamiento metodológico cuasiexperimental que no solo permite identificar una diferencia estadísticamente significativa en el comportamiento de los inversores tras el evento estudiado, determinando la dirección del impacto, sino también cuantificarlo.

Siguiendo el enfoque descrito, esta tesis evoluciona desde un diagnóstico global, identificando la facilidad de acceso al crédito como condición esencial para promover la creación de nuevas empresas (Capítulo 1) y explorando qué combinaciones de características y circunstancias de las mujeres importan para la creación de empresas por necesidad (Capítulo 2), hasta una solución específica, definiendo los factores de éxito del micromecenazgo basados en la teoría de la señalización (Capítulo 3) y el comportamiento de rebaño (Capítulos 4 y 5).

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Chapter 1. Institutional factors affecting entrepreneurship: A QCA analysis

Chapter 1. Institutional factors affecting entrepreneurship: A QCA analysis

Abstract

A country's institutional framework plays a crucial role in promoting entrepreneurship, which drives economic growth. Encouraging a minimum level of certainty in ambiguous environments characterized by risk taking is important. Aware of this importance, we analyze the influence of institutional factors on entrepreneurship development. Specifically, we analyze political stability, government effectiveness, regulatory quality, a robust rule of law, the ease of starting a new business, and the ease of obtaining credit. We develop two models to explain the presence and absence of entrepreneurship. To do so, we apply qualitative comparative analysis (QCA) to a sample of 48 countries using data sourced from the Global Entrepreneurship Monitor for 1029/2020 and the Global Innovation Index for 2019. The results show that the effect of institutional factors on the level of entrepreneurship varies according to the socioeconomic characteristics of each country. They suggest that a wide range of institutional configurations lead to the presence or absence of entrepreneurship. Although entrepreneurship can be found in unfavorable institutional environments, future research should examine how to formalize such environments as a standardized institutional configuration to shift from necessity to opportunity entrepreneurship. Achieving this shift is relevant for innovation and economic development.

Keywords: entrepreneurship, economic development, institutional theory, regulation, government, credit.

1.1. Introduction

From the Schumpeterian perspective, entrepreneurship is a process that generates economic growth by creating new combinations of factors (Schumpeter, 1934; Almodóvar-González et al., 2020; Content et al., 2020). Under this view, entrepreneurship is considered one of the driving forces of economic development (Acs and Audretsch, 2005; Schumpeter, 2017). When analyzing economic activities, including entrepreneurship, the formal and informal context must be considered (Williamson, 1975; Baumol, 1990; North, 1990; Tonoyan et al., 2010). According to Drucker (1985), entrepreneurship often takes place in uncertain and ambiguous environments (Sikalieh et al., 2012). Thus, a country's institutional framework is decisive in promoting conditions that provide a minimum level of certainty that encourage risk taking.

Institutional factors correspond to the formal structure and the norms derived from the regulatory framework, government agencies, and prevailing cultural and social practices. These factors have proven fundamental in promoting entrepreneurial activity (Akoum, 2009; Bianchi et al., 2015; Bylund and McCaffrey, 2017; Churchill, 2017; Dilli and Westerhuis, 2018; Boudreaux et al., 2019). It is therefore of interest to analyze entrepreneurship from the point of view of institutional theory, given the influence that the context created by these institutions exerts on entrepreneurial activity (DiMaggio and Powell, 1991; Bruton et al., 2010; Singh et al., 2019).

Entrepreneurship is a recurring theme in academic research (see Davidsson, 2004), with the literature exploring the influence of different institutional factors on entrepreneurial activity (Acs and Karlsson, 2002; Carlsson, 2002; Brixiová and Égert, 2017). In this chapter, we analyze the role of institutional factors in promoting entrepreneurship. Specifically, we focus on political stability, government effectiveness, regulation, rule of law, bureaucracy, and access to credit, all of which shape a country's economic, financial, political, and legal framework (Aldrich and Fiol, 1994; Denzau and North, 1994; Tonoyan et al., 2010). These factors, known as the “rules of the game” (Boudreaux and Nikolaev, 2019), define the way in which individuals and organizations act and compete (Davis and North, 1971; North, 1990; Tonoyan et al., 2010).

This study uses qualitative comparative analysis (QCA) and data from the Global Entrepreneurship Monitor and the Global Innovation Index for 48 countries in Asia, Europe, Africa, Oceania, and America. The essence of this analytical approach lies in detecting configurations of causal conditions that give rise to the outcome of interest (Ragin, 1987). Because each country has a unique institutional framework resulting from, among other aspects, its degree of economic development (Eijdenberg et al., 2019), QCA offers a suitable way of examining which configurations of conditions best explain the outcome of interest for each country or group of countries. QCA can thus determine which group of institutional factors is conducive to entrepreneurship both in aggregate terms and by country.

This chapter is organized as follows. The next section presents the theoretical framework, delving into the concept of entrepreneurship, institutional theory, and the variables examined in this study. The propositions are also formulated. The following section describes the data and

the data sources. The penultimate section presents the results of the QCA. The final section provides the conclusions, as well as their theoretical and practical implications, especially regarding institutional and legislative development. The aim of this research is to contribute to the academic literature on entrepreneurship and to provide informed practical implications for economic development and legislative action that may be useful for regulators.

1.2. Theoretical framework

1.2.1. Entrepreneurship

The French term “entrepreneur” appeared for the first time in 1437 in the *Dictionnaire de la Langue Française*, although it has been in use in the French language since the 12th century. The most notable definition in the *Dictionnaire* is that of “an active person who makes things happen” (Landström, 1999). However, Zimmerman’s (2008) detailed study of the definition of the entrepreneur highlights how, far from having a static definition, this term has evolved considerably over time. Early authors defined entrepreneurs as risk managers. Later, the concept of the entrepreneur would be likened to that of a capitalist by economists in the 18th and 19th centuries, an innovator by Schumpeter (1934), a seeker of opportunities by Kirzner (1973), and a manager of limited resources by Casson (1982) and Hebert and Link (1982). See below the evolution of the term “entrepreneur” (Figure 3).

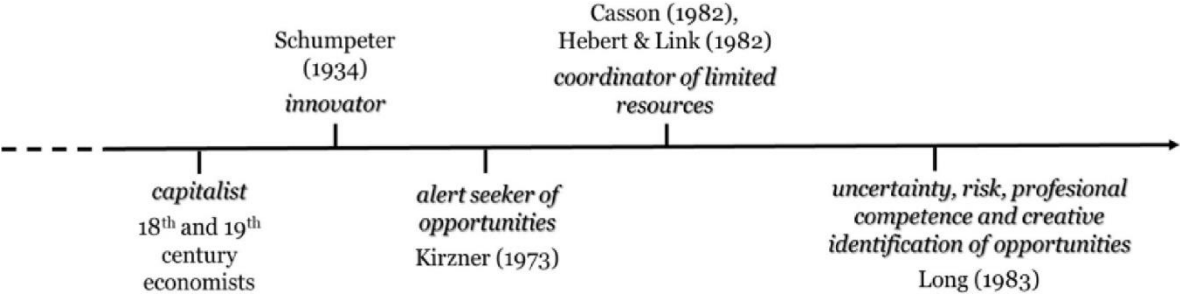


Figure 3. Evolution of the term “entrepreneur”

Source: Based on Zimmerman (2008).

Although the term “entrepreneur” is continuously evolving and there is no consensus on how to define it, three aspects are often used to characterize entrepreneurs: creative search for opportunities, deliberate risk taking, and professional competence (Long, 1983). These aspects reflect an adventurous and proactive attitude. Entrepreneurs are uniquely skilled at perceiving opportunities (Shane and Venkataraman, 2000; Howorth et al., 2005) and tackling unexpected challenges, all of which involves taking risks in uncertain situations (Knight, 1921; Miller, 1983; Marino et al., 2010). However, although risk is inherent to entrepreneurship, an economic, financial, legal, and political framework that provides guarantees encourages business creation (Dinh et al., 2010; Kumar and Borbora, 2016).

With regard to different types of entrepreneurs, there is a difference between independent entrepreneurs, who act autonomously, and intra-entrepreneurs or corporate entrepreneurs, who search for and valorize business opportunities within their companies (Antoncic and Hisrich, 2003; Parker, 2011; Bosma et al., 2013; De Pablo, 2015; Mohedano-Suanes and Garzón-Benítez, 2018). Baumol (1990, 1996) also distinguishes between productive entrepreneurs, who promote social welfare through, for example, innovation, and unproductive entrepreneurs, who focus on obtaining rents by, for example, using violence or manipulating the conditions established by public agencies to regulate the distribution of these rents. This classic characterization suggests the existence of a third type of entrepreneur: destructive entrepreneurs, who focus on obtaining rents and expropriating wealth (Minniti, 2008; Lucas and Fuller, 2017).

Likewise, the literature differentiates between individuals who are attracted by the opportunities they detect in their environment and thus decide to leave their jobs and become entrepreneurs and individuals who are forced into entrepreneurship due to their unfavorable employment situation (Hechavarria and Reynolds, 2009; Block and Wagner, 2010; Williams and Williams, 2014). These two situations correspond to the concepts of opportunity and necessity entrepreneurship, respectively (Van der Zwan et al., 2016; Sendra-Pons et al., 2021). Finally, portfolio entrepreneurs are those who manage several businesses in parallel, while serial entrepreneurs do so consecutively (Carter and Sam, 2003; Westhead et al., 2005; Huovinen and Tihula, 2008; Parker, 2014).

Entrepreneurs can also be classified according to their motivations. For example, social entrepreneurs focus on reaching milestones that improve social welfare. However, far from being charitable individuals, they work on long-term projects that create sustainable social value (Van Slyke and Newman, 2006; Sastre-Castillo et al., 2015). Green entrepreneurs or eco-entrepreneurs incorporate environmental sustainability into the *raison d'être* of their businesses, acting as agents of social change (Anderson, 1998; Azzone and Noci, 1998; Allen and Malin, 2008).

As with the term “entrepreneur”, there is no consensus on the definition of entrepreneurship (Anderson and Starnawska, 2008; Gedeon, 2010). Table 1 shows some of the definitions that have emerged over time. On the whole, they refer to an ingenious, original, and uncertain process of generating value, in which the right combination of productive factors results in an unexpected outcome that, without the entrepreneur’s skills, would not have taken place. Some of these definitions offer a specific description, whereas others provide a more holistic view.

Table 1. Definition of entrepreneurship

Drucker (1985)	“It is the process of extracting profits from new, unique, and valuable combinations of resources in an uncertain and ambiguous environment”.
Schumpeter (1934)	“It is the process of creating ‘new combinations’ of factors to produce economic growth”.
Gartner (1989)	“It is the process by which new organizations emerge”.
Timmons (1989)	“It is the ability to create and build something from practically “nothing”.
Stevenson and Jarillo (1990)	“It is the process by which individuals—either on their own or inside organizations—pursue opportunities without regard to resources they currently control”.
Kao (1993)	“It is the process of doing something new and something different for the purpose of creating wealth for the individual and adding value to society”.
Shane and Venkataraman (2000)	“It is an activity that involves the discovery, evaluation, and exploitation of opportunities to introduce new goods and services, ways of organizing, markets, processes, and raw materials through methods that did not previously exist”.
Coulter (2001)	“It is the process whereby an individual or a group of individuals use organized efforts and means to pursue opportunities to create value and grow by fulfilling wants and needs through innovation and uniqueness, no matter what resources are currently controlled”.
Johannisson (2002)	“It is where the interplay of internal and external forces creates a future”.
Eisenmann (2013)	According to Professor Howard Stevenson, one of the godfathers of entrepreneurship research, “entrepreneurship is the pursuit of opportunity beyond resources controlled”.

Source: Based on Anderson and Starnawska (2008), Zimmerman (2008), Kobia and Sikalieh (2010), Sikalieh et al. (2012), Eisenmann (2013), and Kao (2013).

1.2.2. Institutional theory

Institutional theory deals with the regulatory, social, and cultural aspects that influence organizations and promote their survival and legitimacy (Roy, 1997; Bruton and Ahlstrom, 2003; Scott, 2007; Fang, 2010). It has been widely used as a theoretical foundation in research on economics, organizations, and political science, gaining prominence in the study of the factors that determine the success of new entrepreneurial initiatives (DiMaggio et al., 1991; Ahlstrom and Bruton, 2002; Peng, 2006; Bruton et al., 2010). Savoya and Sen (2016) liken the quality of institutions to the laws and regulations that affect economic incentives for investment.

Kaufmann et al. (2011) provide six dimensions to assess the quality of institutions: (1) accountability, which is related to citizens' participation in electoral processes as well as the freedoms of expression, association, and press; (2) political stability and absence of violence or terrorism; (3) government effectiveness, which is measured by the quality of public services, the civil service, and its independence from political pressures; (4) regulatory quality, which is linked to promoting the development of the private sector; (5) the rule of law, particularly the enforcement of contracts and property rights, as well as respect for the security forces and the courts of law; (6) and the control of corruption.

Low-quality institutions favor corruption, a weak rule of law, and other forms of mismanagement, thus encouraging rent-seeking behavior that diverts resources from productive activities. However, they also increase the cost of doing business, to the detriment of entrepreneurship (Gelb, 1988; Auty, 2001; Ross, 2001; Chambers and Munemo, 2017). In fact, institutional quality pushes entrepreneurial capacity toward productive entrepreneurship (Murphy et al., 1993; Baumol, 1996; Bosma et al., 2018) which helps strengthen innovation and encourages aggregate economic growth (Baumol, 2010).

In addition, a poor institutional structure can hinder the development of firms and their ability to grow as institutions. By either providing incentives or limiting opportunities, the institutional structure can either promote or discourage entrepreneurship (Dinh et al., 2010; Kumar and Borbora, 2016). By promoting the productivity of entrepreneurial processes, high-quality institutions create long-term wealth and prosperity (Baumol, 1990; Dutta et al., 2013). In high-quality institutional environments, uncertainty is reduced thanks to stable monetary policies and lower financial, administrative, and labor costs. These stable policies and lower costs in turn reduce the costs associated with business creation (Soto, 2000; Boudreaux and Nikolaev, 2019). Hence, improving institutional quality, particularly political stability, regulatory quality, and accountability, plays a key role in promoting entrepreneurship in both the short and the long term (Baumol and Strom, 2007; Chambers and Munemo, 2017).

1.2.2.1. Political stability

The political stability of a country and the effective implementation of laws have been linked to an ecosystem that is conducive to higher levels of entrepreneurship and wealth creation (Baumol et al., 2009; Kumar and Borbora, 2016; Singh et al., 2019). Sociopolitical instability leads to greater risk and uncertainty in contracting, enforcement, the structure of property rights, and tax and expenditure policies (Boettke and Coyne, 2003, 2006; Dutta et al., 2013). This instability can hamper a nation's economic growth and development (Levine and Renelt, 1992; Barro, 1996; Jong-a-Pin, 2009; Dutta et al., 2013), decrease investment and generate inflation (Alesina and Perotti, 1996; Aisen and Veiga, 2006; Dutta et al., 2013), and negatively affect financial development (Roe and Siegel, 2011; Dutta et al., 2013). Unstable governments, and their lack of commitment to credible policies that encourage saving, hinder the efficient functioning of financial markets (Roe and Siegel, 2011; Dutta et al., 2013).

In addition, an unstable political framework can lead to corruption or the abuse of public power for private gain (Rodriguez et al., 2006; Anokhin and Schulze, 2009). Thus corruption is considered a negative informal institution (Wiseman, 2015; Mohammadi Khyareh, 2017; Chowdhury et al., 2019) that increases uncertainty and reduces the transparency of transactions. It also makes transactions costlier due to the exposure of entrepreneurs to abuse by government authorities and increased barriers to entry (Klapper et al., 2006; Uhlenbruck et al., 2006; Chambers and Munemo, 2017; Chowdhury et al., 2019). Entrepreneurs associate corruption with the risk of a reduction in their profits because of the self-serving behavior of third parties (Anokhin and Schulze, 2009; Harraf et al., 2020). However, some authors suggest that corruption can actually contribute to entrepreneurship by streamlining the process of business creation through bribery (Rose, 2000; Dreher and Gassebner, 2013; Liu et al., 2019), even though it is morally reprehensible.

Proposition 1: The political stability of a country is conducive to entrepreneurship.

1.2.2.2. Government effectiveness

The promotion and consolidation of entrepreneurship in a country is closely linked to the actions of its government. Entrepreneurship favors job creation and economic development (Acs and Szerb, 2007; Malchow-Møller et al., 2011). Therefore, governments, especially in developing countries, have recently implemented policies to promote entrepreneurship, thereby mobilizing resources (Asghar et al., 2011; Obaji and Olugu, 2014; Urbano et al., 2020). The literature describes how entrepreneurship should be interpreted as part of a specific social context because it is not an isolated phenomenon (Baker et al., 2005; Smallbone and Welter, 2006; Smallbone et al., 2009). Public policies are one of the key elements in this context. Governments often use subsidies to encourage entrepreneurial action. However, there is controversy surrounding their effectiveness in helping projects with real growth prospects (Obaji and Olugu, 2014), as well as the role that governments should play in imperfect capital markets (Li, 2002).

Government policies have changed considerably with the advent of globalization. Entrepreneurship is considered a source of job creation (Storey, 1991), and ultimately an economic engine, in stagnant local and regional economies (Gilbert et al., 2004). Taxation, job creation, education, industrial development, and technology policies, all of which depend on government action, have a significant impact on the development of enterprises, especially new ones (Zerbinati and Souitaris, 2005; Michael and Pierce, 2009; Ribeiro-Soriano and Galindo-Martín, 2012). As explained by Landstrom and Stevenson (2006), there are two main groups of policies: those aimed at supporting entrepreneurs in the initial phases of their projects and those aimed at assisting established companies. In short, government policies, insofar as they shape the institutional framework to allow entrepreneurship to flourish, help minimize transaction costs, lower risks, reduce uncertainties, and establish clear expectations for business actors (North, 1990; Minniti, 2008; Dai and Si, 2018).

Proposition 2: Quality in the formulation and implementation of entrepreneurship policies is conducive to entrepreneurship.

1.2.2.3. Regulatory quality

Given the relationship between the development of the private sector and entrepreneurship (Hadjimichael, 2003), it is important to analyze the nature and effectiveness of regulations to promote the private sector and therefore encourage, develop, and consolidate entrepreneurship. The regulatory quality refers to the formulation and implementation of regulations aimed at developing the private sector. It has a positive impact on the entrepreneurial ecosystem (Marneffe and Vereeck, 2011; Hoogendoorn, 2016; Singh et al., 2019). However, there is a trade-off between strict regulation and the creation of companies along with the consequent economic growth, and regulators must carefully consider the effects of introducing new regulations (Klapper et al., 2006; Bailey and Thomas, 2017).

Economic regulations are the restrictions established by administrative agencies and courts to regulate the behaviors of economic agents to either motivate or dissuade them (Braunerhjelm et al., 2015). According to Agostino et al. (2020), there is agreement in much of the academic literature on regulation and entrepreneurship that business creation is helped by solid and scrupulously applied rules and regulations because they increase market competitiveness and confidence in transactions (Johnson, 2002).

Since the early 1990s, private sector development has intensified because of its importance for economic development, combating poverty, and incentivizing job creation (Reiner and Staritz, 2013). Formal institutions, including a regulatory framework that encourages private sector development, provide the economic incentives that affect how entrepreneurs act as utility-maximizing agents (North, 1990; Williamson, 2000; Agostino et al., 2020). According to Baumol (1996), regulations, along with a society's values and rules of behavior, are as important for entrepreneurial activity as the very resources that are available to entrepreneurs (Sambharya and Musteen, 2014).

Proposition 3: Regulations aimed at private sector development are conducive to entrepreneurship.

1.2.2.4. Rule of law

The rule of law refers to the protection of persons and property from violence, theft, and the like. It requires the effective application of the law and the prosecution of violations by an independent judiciary (Keefer and Knack, 1997; Kumar and Borbora, 2016). The rule of law allows entrepreneurs to optimize their unique skills and knowledge because, together with private property law, it prevents arbitrary and inconsistent unproductive activities by powerful institutions and individuals. Laying the foundations for a climate of certainty suited to business creation can thus encourage entrepreneurship (Harper, 2003; Kumar and Borbora, 2016).

A robust rule of law increases mutual trust and reduces uncertainty and operating costs. It thereby promotes production, attracts fast-growing companies, and allows them to operate on a larger scale over a longer period (Aron, 2000; Rodrik et al., 2004; Estrin et al., 2013; Efendic et al., 2015). In addition, when the rule of law is firmly applied, potential entrepreneurs perceive lower risks of expropriation associated with corruption (Levie and Autio, 2011; Goltz et al., 2015). The degree of formality that a strong rule of law brings to business operations (e.g., in terms of taxation or labor regulation) can be costly for entrepreneurs. However, these costs are offset by other aspects such as formal commercial courts and financial markets (La Porta and Shleifer, 2008; Desai, 2011; Salinas et al., 2019).

The rule of law also contributes to the development of financial institutions. These institutions in turn play a fundamental role in providing credit to entrepreneurial projects. The rule of law is a central element in a market economy (North and Thomas, 1973; Williamson, 1985; Barzel, 1997; Rodrik, 2000; Williamson, 2000; Acemoglu and Johnson, 2005; Estrin and Mickiewicz, 2011). Horvath, et al. (2017) cite the rule of law, along with economic growth, as one of the most important elements in financial development.

Proposition 4: A rule of law in which individuals trust and abide by the rules of society is conducive to entrepreneurship.

1.2.2.5. Procedures for starting a business

To determine the ease of starting a new business, the required procedures as well as their complexity and cost should be considered. Cumbersome procedures and the costs they incur, such as delays in obtaining permits and licenses to start a business, can hinder entrepreneurial activities and even discourage them (Klapper et al., 2006; Sobel, 2008; Chowdhury et al., 2019). For example, increasing the number of procedures required to start a new business decreases the number of startups (Djankov et al., 2002; Bailey and Thomas, 2017), just as bureaucratic market entry regulations reduce domestic investment by discouraging business creation (Desai et al., 2003; Djankov et al., 2010; Bailey and Thomas, 2017; Chambers and Munemo, 2019).

It follows that a reduction in the costs associated with the creation of a business increases the volume of entrepreneurship. However, in terms of quality, costs prevent individuals with less promising or innovative ideas from deciding to become entrepreneurs. There is a significant positive relationship between these costs and the innovative capacity of entrepreneurs, which ultimately contributes to the quality of a country's entrepreneurial talent (Darnihamedani et al., 2018). Obtaining the minimum capital requirement to formally start a company is an important procedure for starting a new business. Many studies have shown that this capital requirement negatively affects entrepreneurship (Klapper et al., 2006; Klapper et al., 2007; Van Stel et al., 2007; Armour and Cumming, 2008). The issue of capital requirements has been especially important since the recent economic crisis, with entrepreneurs experiencing serious difficulties in obtaining credit, especially in the case of highly innovative, and therefore risky, projects (Cosh

et al., 2009). This situation may be aggravated by the economic instability resulting from the COVID-19 pandemic.

Proposition 5: The simplicity of administrative procedures and requirements to start a business is conducive to entrepreneurship.

1.2.2.6. Access to credit

Access to credit has been identified as one of the main barriers to creating a new business, and entrepreneurs are vulnerable to financial constraints (Blanchflower and Oswald, 1998; Levie and Autio, 2008; Fuentelsaz et al., 2015). Various studies indicate that financing is a crucial institutional element for entrepreneurship (Lloyd-Ellis and Bernhardt, 2000; Dinh et al., 2010; Estrin and Mickiewicz, 2010; Kumar and Borbora, 2016), and a lack of funds for investment is one of the main barriers in the entrepreneurial environment (Aidis, 2005; Kumar and Borbora, 2016).

Although financing restrictions are a fundamental concern of entrepreneurs (Kerr and Nanda, 2009), the range of sources of financing available to entrepreneurs has grown considerably in recent years. Entrepreneurs can use tools such as crowdfunding (Carpenter and Petersen, 2002; Comeig et al., 2020) to obtain money from the crowd. They can likewise use incubators or accelerators (Peters et al., 2004), mini-bonds (a form of alternative financing through which companies can obtain capital in exchange for fixed interest payments; Rupeika-Apoga and Danovi, 2015), corporate venture capital (Cumming, 2007) and government venture capital (Colombo et al., 2016; Guerini and Quas, 2016), business angels who invest in highly innovative companies with growth potential in the early stages of development (Ramadani, 2009), and university and private company programs aimed at promoting entrepreneurship (Block et al., 2018). For the purposes of this analysis, we link the ease of obtaining credit to the existence of a solid framework in these transactions. This solid framework ranges from having guarantee laws and bankruptcy laws (Lee et al., 2011) to obtaining credit information on borrowers.

Proposition 6: The existence of a solid framework in financial transactions is conducive to entrepreneurship.

1.3. Data and sources

We analyzed the relationship between the Total Early-Stage Entrepreneurial Activity (TEA) in 48 countries and the institutional factors in each of those countries. Data on TEA were obtained from the Global Entrepreneurship Monitor 2019/2020. The institutional factors were political stability (POSTA), government effectiveness (GOEFF), regulation (REGUL), rule of law (RULAW), procedures for starting a new business (PROCE), and the ease of obtaining credit (EACRE), as reflected in the Global Innovation Index 2019. Data on these factors were drawn from the I Markit Country Risk Scores (POSTA), the 2018 Worldwide Governance Indicators compiled by the World Bank (GOEFF, REGUL and RULAW), and the World Bank's Doing

Business 2019: Training for Reform report (PROCE and EACRE). The countries spanned five continents: Asia, Europe, Africa, Oceania, and America. They also represented a wide range of economic, financial, and institutional development and per capita wealth. This variation led to different patterns in specific groups of countries.

Table 2. Description of the outcome and conditions used in the study

Outcome	Description	Source
Total Early-Stage Entrepreneurial Activity (TEA)	“Percentage of the 18–64 population who are either a nascent entrepreneur or are owner-manager of a new business (i.e., the proportion of the adult population who are either starting or running a new business)”.	GEM ¹
Conditions	Description	Source
Political stability (POSTA)	“Index that measures the likelihood and severity of political, legal, operational, or security risks impacting business operations. Scores are annualized and standardized”.	I Markit, Country Risk Scores. GII ²
Government effectiveness (GOEFF)	“Index that reflects perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies. Scores are standardized”.	World Bank, Worldwide Governance Indicators 2018. GII ²
Regulatory quality (REGUL)	“Index that reflects perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private-sector development. Scores are standardized”.	World Bank, Worldwide Governance Indicators 2018. GII ²
Rule of law (RULAW)	“Index that reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Scores are standardized”.	World Bank, Worldwide Governance Indicators 2018. GII ²

<p>Procedures for starting a business (PROCE)</p>	<p>“The ranking of economies on the ease of starting a business is determined by sorting their scores. These scores are the simple average of the scores for each of the component indicators. The World Bank’s <i>Doing Business</i> records all procedures that are officially required, or are commonly performed in practice, for an entrepreneur to start and formally operate an industrial or commercial business, as well as the time and cost to complete these procedures and the paid-in minimum capital requirement. These procedures include obtaining all necessary licenses and permits and completing any required notifications, verifications, or inscriptions for the company and employees with relevant authorities. Data are collected from limited liability companies based in the largest business cities”.</p>	<p>World Bank, <i>Doing Business</i> 2019: Training for Reform. GII²</p>
<p>Ease of obtaining credit (EACRE)</p>	<p>“The ranking of economies on the ease of getting credit is determined by sorting their scores for getting credit. These scores are the score for the sum of the strength of the legal rights index (range: 0–12) and the depth of credit information index (range: 0–8). <i>Doing Business</i> measures the legal rights of borrowers and lenders with respect to secured transactions through one set of indicators and the reporting of credit information through another. The first set of indicators measures whether certain features that facilitate lending exist within the applicable collateral and bankruptcy laws. The second set measures the coverage, scope, and accessibility of credit information available through credit reporting service providers such as credit bureaus or credit registries. Although <i>Doing Business</i> compiles data on getting credit for public registry coverage (% of adults) and for private bureau coverage (% of adults), these indicators are not included in the ranking”.</p>	<p>World Bank, <i>Doing Business</i> 2019: Training for Reform. GII²</p>

¹ GEM: Global Entrepreneurship Monitor ² GII: Global Innovation Index

Note: TEA refers to the share of 18-64 population who are either an owner-manager of a new business or nascent entrepreneur. This indicator is measured using data from the Adult Population Survey (APS).

1.4. Method and results

1.4.1. Fuzzy-set qualitative comparative analysis (fsQCA)

Qualitative comparative analysis (QCA) enables the formal systematic study of the causality of variables or “conditions” (to use the correct terminology for this method). It was created by Charles Ragin in 1987 for empirical studies with small samples (Ragin, 1987). QCA bridges the gap between quantitative and qualitative research by identifying patterns of cross-cases (Escott, 2018). Using QCA, it is possible to explore similarities and differences between comparable cases. This comparison is based on the truth table, which displays the data in a matrix of logically viable configurations of causal conditions. This method provides explanatory models following an iterative process, resolving the contradictions that arise when the data matrix is transformed into the truth table. It also enables the evaluation of multiple conjectural causes. That is, the outcome often occurs because of the combination of multiple conditions that give rise to the same result (Ragin, 1987).

QCA is based on Boolean logic. Its essence is the study of sufficient conditions (i.e., those that when present always produce a certain outcome) and necessary conditions (i.e., those that are present in all cases of the outcome; Ragin, 1987, 2000, 2008; Ragin and Fiss, 2008; Schneider and Wagemann, 2012; Roig-Tierno et al., 2017; Garcia-Alvarez-Coque et al., 2021a, 2021b). Interpretation of the results of QCA is based on two key concepts: consistency and coverage. Consistency is the extent to which similar causal configurations give rise to the outcome, whereas coverage refers to the number of cases for which a given combination is valid. Low levels of consistency indicate a lack of empirical relevance. However, a given combination of conditions, even with low coverage, may be useful to explain the causes of the outcome (Ragin, 1987, 2000; Woodside and Zhang, 2012; Cruz-Ros et al., 2017; Tur-Porcar et al., 2017). This study uses fuzzy-set qualitative comparative analysis (fsQCA). Unlike crisp-set qualitative comparative analysis (csQCA), which uses binary or dichotomous data, fsQCA permits the use of continuous data in the range of 0 to 1 (Tóth et al., 2015; González-Cruz et al., 2018; Alamá Sabater et al., 2019; Martínez-Cháfer et al., 2021).

1.4.2. Results

Two models are used to analyze the data. The outcome in the first model is the presence of entrepreneurship, measured using Total Early-Stage Entrepreneurial Activity (TEA). In the second model, the outcome is the absence of entrepreneurship. It is important to consider both models because the asymmetric causality in fsQCA means that knowing the causes of a certain outcome does not imply that the causes of the opposite outcome are known. That is, a condition that leads to the outcome of interest does not mean that the opposite condition leads to the opposite outcome.

Model 1: $TEA = f(POSTA, GOEFF, REGUL, RULAW PROCRE, EACRE)$

Model 2: $\sim TEA = f(POSTA, GOEFF, REGUL, RULAW PROCRE, EACRE)$

Table 3 shows the results of the analysis of necessary conditions. A condition is considered necessary when its consistency is greater than 0.9 (Schneider and Wagemann, 2010; Cruz-Ros et al., 2017). No condition is necessary for either the presence or the absence of entrepreneurship.

Table 3. Analysis of necessary conditions

Condition	Outcome: TEA		Outcome: \sim TEA	
	Consistency	Coverage	Consistency	Coverage
POSTA	0.521767	0.521182	0.605903	0.600306
\sim POSTA	0.599858	0.605457	0.516718	0.517303
GOEFF	0.536946	0.550963	0.574986	0.585201
\sim GOEFF	0.595753	0.585615	0.558800	0.544827
REGUL	0.566508	0.559702	0.584391	0.572677
\sim REGUL	0.567480	0.579232	0.550695	0.557531
RULAW	0.544990	0.554711	0.579109	0.584648
\sim RULAW	0.591927	0.586416	0.558930	0.549226
PROCE	0.564050	0.549013	0.589169	0.568801
\sim PROCE	0.556991	0.577502	0.532864	0.547996
EACRE	0.645212	0.660398	0.482624	0.489968
\sim EACRE	0.501696	0.494346	0.665488	0.650410

Note: The symbol (\sim) refers to the absence of the condition. For example, \sim POSTA refers to the absence of political stability.

Although no individual condition is necessary (consistency < 0.9), one of the advantages of fsQCA is that causal configurations (i.e., combinations of various conditions that give rise to the outcome of interest) are also considered. Table 4 presents the intermediate solution for Model 1, consisting of two causal configurations.

Table 4. Intermediate solution for Model 1

Causal configuration	Raw coverage ¹	Unique coverage ²	Consistency
~RULAW * ~PROCE * EACRE	0.268225	0.199135	0.777827
GOEFF * REGUL * RULAW * PROCE * EACRE	0.32752	0.25843	0.777752

Solution coverage: 0.526654

Solution consistency: 0.77459

¹ It designates the share of the outcome explained by a certain solution.

² It designates the share of the outcome explained by each individual condition within the causal configuration (Florea et al., 2019).

The coverage of the solution is 0.526654, indicating that the two causal configurations explain approximately 50% of the empirical cases. The first causal configuration explaining the presence of entrepreneurship in a given country consists of three conditions: the absence of a robust rule of law, the absence of simple procedures to start a new business, and the presence of easy credit. For this causal configuration, the countries with the highest rates of entrepreneurship (i.e., with a membership > 0.5 in this configuration) are Colombia (0.880511, 0.993868), Mexico (0.852295, 0.729323), India (0.830301, 0.866718), Guatemala (0.806376, 0.998206), and Egypt (0.679179, 0.0242922). According to the Global Innovation Index database for 2019, the gross domestic product (GDP) per capita in dollars adjusted for purchasing power parity (PPP\$) in Colombia (14,943.50 PPP\$), Mexico (20,601.70 PPP\$), India (7873.70 PPP\$), Guatemala (8436.40 PPP\$), and Egypt (13.366.50 PPP\$) is lower than the average calculated across the 128 countries in the index (25,534.47 PPP\$ per capita).

These low levels of per capita income suggest that far from being motivated by opportunity, entrepreneurship in these countries is related to the pressing economic needs of citizens (Munoz, 2010; Margolis, 2014). Therefore, in environments where economic conditions are conducive to necessity entrepreneurship (Hechavarria and Reynolds, 2009; Van der Zwan et al., 2016), we conclude that the combination of the absence of a strong rule of law and the ease of starting a business coupled with the presence of easy credit encourages entrepreneurship. The fact that the absence of a robust rule of law encourages entrepreneurship in these countries contradicts Proposition 4. However, it is consistent with the findings of Rose (2000), Dreher and Gassebner (2013), and Liu et al. (2019), who report that corruption, which tends to occur in countries with a weak rule of law (Nwabuzor, 2005), can benefit entrepreneurship by streamlining the process of business creation through bribery. According to the Corruption Perceptions Index by Transparency International for 2019, Colombia (37), Mexico (29), India (41), Guatemala (26), and Egypt (35) are prone to corruption. This index takes values ranging from 0 to 100, where 0 indicates that the country is highly corrupt. The fact that entrepreneurship is a necessity for many of the individuals who create businesses in these countries, together with these high levels of corruption, justifies the fact that the absence of simple procedures to start a business encourages

entrepreneurship. The relevance of the ease of obtaining credit in encouraging entrepreneurship confirms Proposition 6.

The second causal configuration consists of the presence of effective government, regulatory quality, a strong rule of law, and the ease of compliance with procedures when starting a new business and obtaining credit. This configuration thus provides support for Propositions 2, 3, 4, 5, and 6. The countries with the highest rates of entrepreneurship are Canada (0.970057, 0.963804), Australia (0.952094, 0.443255), United Kingdom (0.904651, 0.210454), Ireland (0.817574, 0.674119), Latvia (0.724243, 0.885792), United Arab Emirates (0.709444, 0.923366), the United States of America (0.681662, 0.949286), Israel (0.679179, 0.702458), and the Republic of Korea (0.679179, 0.861546). These countries have above-average levels of GDP per capita in PPP\$: Canada (49,651.20 PPP\$), Australia (52,373.50 PPP\$), United Kingdom (45,704.60 PPP\$), Ireland (78,784.80 PPP\$), Latvia (29,901.30 PPP\$), United Arab Emirates (69,381.70 PPP\$), United States of America (62,605.60 PPP\$), Israel (37,972.00 PPP\$), and Republic of Korea (41,350.60 PPP\$). Unlike for the countries in the previous group, the economic conditions of these countries make entrepreneurship more of an opportunity than a necessity (Block and Wagner, 2010; Williams and Williams, 2014). The countries in this group also have lower levels of corruption. All the countries in this group have a score of more than 50 for the Corruption Perceptions Index by Transparency International (2019).

Although these more economically developed countries generally require a more robust institutional framework to foster entrepreneurship, the ease of obtaining (EACRE) credit is a condition in both causal configurations. Countries with low per capita incomes and those with greater wealth both require optimal financial development to channel credit toward entrepreneurial action. This finding confirms the relevance of access to financing in entrepreneurship (Lloyd-Ellis and Bernhardt, 2000; GERA, 2011; Kumar and Borbora, 2016).

Table 5 presents the intermediate solution for Model 2 (outcome = absence of entrepreneurship). The solution coverage of 0.492963 indicates that approximately 50% of empirical cases are explained by the four causal configurations in the solution. The first causal configuration attributes the absence of entrepreneurship to a lack of simple procedures to start a business, even though the government is effective. Procedures take precedence over government efficiency. For this configuration, the countries with the lowest rates of entrepreneurship are Germany (0.936447, 0.946462), Japan (0.841735, 0.992448), Spain (0.793329, 0.984464), Switzerland (0.675616, 0.703967), Luxembourg (0.648263, 0.622816), Poland (0.523132, 0.992448), Chile (0.610252, 1.10269e-05), Qatar (0.607427, 0.149302), and Slovakia (0.656593, 0.245,391). The latter three countries, although meet the conditions of the configuration, have low levels of TEA.

Table 5. Intermediate solution for Model 2

Causal configuration	Raw coverage ¹	Unique coverage ²	Consistency
GOEFF * ~PROCE	0.342163	0.0082755	0.80152
REGUL * ~PROCE	0.355504	0.0270322	0.78879
~GOEFF * ~REGUL * ~RULAW * PROCE * ~EACRE	0.218267	0.0615551	0.808785
POSTA * ~GOEFF * ~REGUL * ~RULAW * ~EACRE	0.188977	0.00253615	0.895977

Solution coverage: 0.492963

Solution consistency: 0.771623

The second causal configuration combines the presence of regulatory quality and the absence of simple procedures to start a business. Again, this condition is repeated, with the absence of simple procedures taking precedence over regulatory quality. This situation is the case in several countries, including Germany (0.936447, 0.946462), Japan (0.841735, 0.992448), Spain (0.748448, 0.984464), Poland (0.716529, 0.992448), Switzerland (0.675616, 0.703967), Luxembourg (0.648263, 0.622816), Italy (0.570851, 0.99929), Slovakia (0.684484, 0.245391), and Chile (0.610252, 1.10269e-05). The latter two counties have low levels of TEA despite meeting the conditions of this configuration. According to this combination of conditions, the presence of regulatory quality is conducive to the absence of entrepreneurship. This finding is consistent with the inverse relationship between excessive regulation and entrepreneurship levels noted by Klapper et al. (2006) and Bailey and Thomas (2017).

The third causal configuration results from the absence of effective governance, regulatory quality, a robust rule of law, and the ease of obtaining credit, as well as the presence of easy procedures when starting a business. The countries with the lowest rates of entrepreneurship for this causal configuration are Morocco (0.893973, 0.428899), Greece (0.765024, 0.910945), Belarus (0.731059, 0.989161), and Oman (0.518415, 0.970989). Together with the other conditions in the causal configuration, the presence of simple procedures encourages the absence of entrepreneurship. This finding seems to be consistent with the argument for Model 1, whereby in countries with less economic development and more corruption, simple procedures are less relevant when illegal means are used to speed up procedures. All countries in this group, except Oman (52), have scores below 50 on Transparency International's Corruption Perceptions Index (2019).

The fourth and final causal configuration in this intermediate solution consists of the presence of political stability and the absence of government effectiveness, regulatory quality, a robust rule of law, and ease of obtaining credit. The absence of these conditions prevails over political stability. The countries with the lowest rates of entrepreneurship for this causal configuration are Croatia (0.53031, 0.556745) and Oman (0.518415, 0.970989). With respect to financial and institutional development, the lack of ease of obtaining credit (EACRE) and the absence of a robust rule of law (RULAW), effective government (GOEFF), and regulatory quality (REGUL)

are conditions in two of the causal configurations leading to the absence of entrepreneurship. The fact that these conditions appear in more than one configuration reflects their importance. The results of the four causal configurations show that even in institutional frameworks with powerful institutional factors, the lack of other conditions can lead to the absence of entrepreneurship. Table 6 summarizes the analysis of sufficient conditions for Models 1 and 2 and shows core and peripheral conditions following terminology from Fiss (2011), which have been obtained after comparing the parsimonious and intermediate solutions.

Table 6. Analysis of sufficient conditions for Models 1 and 2

Configuration No.	High rates of TEA		Low rates of TEA			
	1	2	1	2	3	4
POSTA						●
GOEFF		●	●		○	○
REGUL		●		●	○	○
RULAW	○	●			○	○
PROCRE	○	●	○	○	●	
EACRE	●	●			○	○
Raw coverage	0.268225	0.32752	0.342163	0.355504	0.218267	0.188977
Unique coverage	0.199135	0.25843	0.0082755	0.0270322	0.0615551	0.00253615
Consistency	0.777827	0.777752	0.80152	0.78879	0.808785	0.895977
Solution coverage	0.526654		0.492963			
Solution consistency	0.77459		0.771623			

Note: As per Fiss (2011) black circles “●” indicate the presence of antecedent conditions. White circles “○” indicate the absence or absence of antecedent conditions. Big circles indicate core conditions and small circles indicate peripheral conditions. Blank cells represent ambiguous conditions.

1.5. Conclusions and theoretical and practical implications

The results confirm that the relevance of institutional factors varies depending on each country’s socioeconomic conditions and the nature of the venture. The analysis of Model 1 shows that in

countries with low levels of per capita GDP and a propensity for corruption, the absence of a robust rule of law and simple procedures encourages entrepreneurship. In countries with weak institutional frameworks, corruption can help business creation by streamlining procedures. By contrast, in countries with above-average per capita income and low levels of corruption, the results support Propositions 2, 3, 4, 5, and 6, suggesting that an institutional framework characterized by effective government, regulatory quality, a robust rule of law, and easy bureaucratic procedures and access to credit is conducive to entrepreneurship.

In terms of implications, the results for countries with low per capita incomes and high levels of corruption should lead to reflection on the nature of the entrepreneurship that takes place. The study suggests that the absence of a robust rule of law and ease of bureaucratic procedures encourages entrepreneurship. However, because of the way things work in corrupt societies, this model must be transformed into a formal standardization of the institutions that encourage opportunity rather than necessity entrepreneurship. This transformation is important because the literature explains that opportunity entrepreneurship, which is encouraged by formal institutions, contributes more to a country's economic development than necessity-based entrepreneurship (Bratu et al., 2009).

In relation to the analysis of Model 2, the intermediate solution provides four causal configurations. The results imply that a lack of institutional factors such as regulatory quality and government effectiveness may take precedence over the presence of other factors and result in the absence of entrepreneurship. In short, the results suggest that analysis of the institutional factors affecting entrepreneurship should involve scrutiny of the characteristics of each region, given the potential variation between regions. The practical implications of the study can prove useful in economic and financial development and legislative action. One notable implication is the need to carefully consider the transition of a country's institutional model, given that different combinations of institutional conditions may be responsible for stimulating entrepreneurship in different contexts. Second, the nature of the entrepreneurship in each country (necessity vs. opportunity) should be analyzed in depth because each type of entrepreneurship requires a specific institutional configuration.

This study has several limitations. First, the data set contained data for 48 countries for the year 2019. It would be advisable to carry out studies for different years and a greater number of countries to confirm the results and appreciate the differences between countries and the relationship between the evolution of the rates of entrepreneurship and the institutional configuration over time. This analysis would provide a more detailed understanding of how institutional development results in higher rates of entrepreneurship. The time lag needed for a country to improve its institutions and increase the rate of business creation could also be observed. Finally, it would be of interest to differentiate between necessity and opportunity entrepreneurship to detect which is the predominant form of entrepreneurship in each country. The conclusions of the study could be better supported by accounting for the characteristics of entrepreneurship in specific countries.

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Chapter 2. Cross-country differences in drivers of female necessity entrepreneurship

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Abstract

This chapter analyzes the drivers of female necessity entrepreneurship using a sample of 59 countries, with data sourced from the 2018–2019 global entrepreneurship monitor (GEM). It develops a theoretical framework describing how post-secondary education, startup skills, fear of failure, knowing another entrepreneur, entrepreneurial intentions, and hiring expectations act as drivers of female necessity entrepreneurship. Using qualitative comparative analysis, two models are tested to explain the presence and absence of female necessity entrepreneurship. This outcome is measured using the GEM indicator of total early-stage entrepreneurial activity.

Keywords: women entrepreneurship; Global Entrepreneurship Monitor; necessity entrepreneurship; QCA.

2.1. Introduction

“There is no royal flower-strewn path to success. And if there is, I have not found it... for if I have accomplished anything in life it is because I have been willing to work hard.” —Madam Walker

According to Audretsch (2014), the economy has transitioned from one driven by physical capital, as per Solow’s model, to, first, one driven by knowledge, as per Romer’s model, and then to one driven by entrepreneurship, as per Audretsch’s model. This evolution means that, worldwide, entrepreneurship is perceived as the engine of economic and social development (Audretsch, 2006). Hence, understanding entrepreneurship and its repercussions for the economy and society have become an issue of growing interest in the literature. As a specific example of these repercussions, Martínez-Rodríguez (2021) empirically showed that more women enter entrepreneurship for necessity than for opportunity, regardless of their home country’s GDP.

According to the global entrepreneurship monitor (GEM), entrepreneurship is “any attempt at new business or new venture creation, such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business.” A clear trend in entrepreneurship is the increasing rate of women entrepreneurs, which is growing internationally. Despite this growth, the rate of women entrepreneurship is still low compared to the rate of male entrepreneurship. According to the GEM, the average total early-stage entrepreneurial activity (TEA) was 11.45% for women and 15.82% for men in the period 2019–2020. Even though the importance of women entrepreneurship has been recognized by governments, academics (Cardella, 2020), and policymakers, especially from the institutional side (Udimal, 2020), this phenomenon remains an untapped source of economic growth (Georgeta, 2012). Unsurprisingly, diversity in terms of age, religion, nationality, and gender, among others, is a recurring topic in research (Dos Reis et al., 2007).

Given the need to investigate what factors lead to the presence of women entrepreneurship worldwide, the current study uses a sample of 59 countries and qualitative comparative analysis (QCA) to provide causal configurations of conditions that explain both the presence (Model 1) and the absence of female necessity entrepreneurship (Model 2) in different socioeconomically diverse countries. Qualitative comparative analysis (QCA), specifically fuzzy-set qualitative comparative analysis (fsQCA), which is used for continuous data, can reveal causal configurations of logically possible conditions that result in a given outcome. Given the wide range of relationships between social and economic factors and the presence or absence of female necessity entrepreneurship, the study starts by exploring one-directional linear relationships between the factors in the fuzzy model and the outcome. Then, the interactions between these factors are explored by studying the combinations emerging in the resulting causal configurations. Therefore, while this study initially follows a deductive approach focusing on

one-directional relationships, the analysis is enriched by the inductive process initiated in the discussion, which reveals interrelationships between these antecedent factors (Ragin, 1987). Thus, theoretical and configurational multiplicity emerge in the form of causal recipes, generating two-way knowledge: from theoretical background to configurations and vice versa.

The chapter is organized as follows. First, the theoretical framework reviews both necessity and opportunity entrepreneurship, as well as women entrepreneurship. It then discusses the conditions employed in the QCA models aimed at explaining the rate of female necessity entrepreneurship. Second, the data and method are explained. Third, the results and discussion are presented. Finally, the conclusions, limitations and implications of the study are provided.

2.2. Theoretical framework

2.2.1. Necessity, opportunity, and women entrepreneurship

The GEM report classifies the motivations that drive entrepreneurship using the approach of Reynolds et al. (2005), who differentiated between necessity and opportunity entrepreneurship. Until then, the dominant logic was push–pull theory (Sexton and Vasper, 1982; Shapero and Sokol, 1982; Hisrich and Brush, 1985; Sibanda, 2020; Alam et al., 2021). Under this theory, when entrepreneurs consider company creation as a source of income (material or otherwise), a pull force acts. In contrast, when entrepreneurs are forced to find a company to attain a desirable state of living, a push force acts (Giacomin et al., 2011).

However, the most popular classification in the literature, and the one used in the GEM reports, was introduced by Reynolds et al. (2005). Under this approach, the motivation for entrepreneurship is classified as opportunity or necessity. Opportunity entrepreneurship occurs when entrepreneurs identify and exploit a business opportunity, whereas necessity entrepreneurship occurs when entrepreneurs feel forced to undertake a business endeavor because employment alternatives are non-existent or unsatisfactory (Wennekers et al., 2005). Although the nomenclature is different, there are similarities with push–pull theory, and both classifications relate to the origin or cause of entrepreneurial activity: necessity entrepreneurship corresponds to push motivations, whereas opportunity entrepreneurship corresponds to pull motivations. Later, Caliendo and Kritikos (2019) showed that there is a third type of entrepreneur, namely one who is motivated by both pull and push forces.

Entrepreneurial motivation has been linked to entrepreneurs' level of knowledge about starting a business. A low level of knowledge can lead to greater difficulty in finding a job, which would encourage necessity entrepreneurship (Arenius and Minniti, 2005). Necessity-driven entrepreneurship is usually less innovative than opportunity-driven entrepreneurship, which, by its nature, usually requires a higher level of knowledge and is usually more innovative. Nair (2020) provides a discussion of the links between women entrepreneurship and innovation.

Additionally, the literature suggests that the relationship between entrepreneurship and economic development depends on the nature of the entrepreneurship (Audretsch and Keilbach, 2008; Aparicio et al., 2016), with opportunity-driven entrepreneurship having a positive relationship with economic development. However, Acs and Varga (2005) concluded that necessity entrepreneurship has no effect.

In recent years, scholars have also highlighted the relationship between women's empowerment and economic development. Duflo (2012), whose research was later developed by Doepke and Tertilt (2019), reported that women's empowerment and economic development are closely related in two ways: development can reduce inequality between genders and women's empowerment may benefit development. Sarfaraz et al. (2014) also concluded that both women entrepreneurship and gender equality result in economic development.

Nevertheless, some studies suggest that the motivations behind entrepreneurship differ between men and women (Hisrich and Brush, 1985; Orhan and Scott, 2001; Manolova et al., 2008). According to the literature, some of the motivations that drive women to engage in entrepreneurial activity are frustration, dissatisfaction at work, the existence of glass ceilings, the need for flexibility to find a work-life balance, the need for inclusion in the labor market, and the need for increased wage income. Ultimately, these motivations are of a social or economic nature. Thus, the distinction between opportunity and necessity entrepreneurship is particularly relevant when considering gender.

As Kelley et al. (2010) noted, in most countries, women are more likely than men to be necessity entrepreneurs. The reasons for this difference were identified by Warnecke (2013). First, the informal economy is usually dominated by women. Second, in developing countries, the educational level of women is usually lower than that of men. Third, access to formal business networks is less likely and access to finance presents more barriers in all countries, regardless of the level of development. Fourth, due to gender norms related to domestic work, women tend to have "time poverty". Necessity entrepreneurs can be considered agents of social change because, through entrepreneurship, they not only improve their employment situation but also influence the environment where they operate. This argument is in line with the development of a social economy after the 2008 financial crisis (Chaves and Monzón, 2012). Thus, entrepreneurship is motivated by a need to be included in the labor market and to seek improvements in quality of life (Velásquez et al., 2008).

2.2.2. Drivers of female necessity entrepreneurship

This section discusses the drivers of female necessity entrepreneurship. It provides a theoretical framework of the drivers of female necessity entrepreneurship, which is later taken as the outcome in the QCA. Specifically, the following conditions are used to explain female necessity entrepreneurship: post-secondary education level, entrepreneurial skills, knowing another entrepreneur, job creation expectations, fear of failure, and entrepreneurial intentions. Previous

literature often focuses on female or necessity entrepreneurship, but there is a greater scarcity of papers that combine both dimensions.

2.2.2.1. Post-secondary education level

Educational level is cited in the literature as one of the key socioeconomic characteristics in the decision to become an entrepreneur and as an important indicator of entrepreneurial success (Kolstad and Wiig, 2015). Education, together with an individual's skills, is responsible for human capital (Becker, 1994). Le (1999) identified two channels through which the level of education can influence the propensity to become an entrepreneur. First, through education, individuals can improve their managerial skills, which can increase their willingness to become entrepreneurs. Second, a higher level of education can help people enter the paid market.

According to Shane (2000), through formal education, individuals become better equipped to learn about markets and technology and to recognize opportunities in their environment. Becker (1964) not only put forward some ideas that were later defended by Shane but also argued that entrepreneurs with higher levels of education want to receive a higher return on their investment. Several authors have argued that education makes it possible to develop skills that then help with the identification of market opportunities (Grant, 1996; Shane, 2000) and even allow people to engage in knowledge-intensive activities (Bosma et al., 2004). For instance, Audretsch (2012) reported that both education and experience enable entrepreneurs to identify sources of information and know how, thus contributing to firm performance growth. In fact, according to Van der Sluis et al. (2008), the benefits of education for entrepreneurs' performance are quantifiable not only in terms of income (as in the basic human capital model) but also in terms of business survival, firm growth, and return on investment. Additionally, as noted by Gawel (2021), "female entrepreneurship is explained by both male and female education levels" because it generates the right social environment for entrepreneurship promotion.

The GEM Report defines the variable "post-secondary education" [POSED] as the "percentage of 18–64 women (individuals involved in any stage of entrepreneurial activity excluded) indicating to have a post-secondary degree or more" (Reynolds et al., 2005). Much of the literature is based on the assumption that opportunity and necessity entrepreneurs differ in their human capital. Accordingly, individuals with high educational levels would generally be opportunity entrepreneurs (Ucbasaran et al., 2008), whereas necessity entrepreneurs would have difficulties in developing differentiated products and services because of, among other conditions, their educational limitations (Dencker et al., 2009; Poschke, 2013). These difficulties are linked to the fact that necessity entrepreneurs have a lower educational level, that their companies are smaller, and that they have less growth potential. However, although much of the literature suggests a positive relationship between educational level and opportunity entrepreneurship, Block and Wagner (2010) concluded that specific vocational education is positively related to the income of necessity entrepreneurs but not to that of opportunity entrepreneurs.

Proposition 1: A lower level of education is conducive to female necessity entrepreneurship.

2.2.2.2. Entrepreneurial skills

Entrepreneurial skills are another source of human capital, together with knowledge, abilities, experience, and training. Being an entrepreneur requires the execution of a wide variety of tasks that may require different skills. According to Lazear (2004), as a consequence, entrepreneurs must be “jacks of all trades” (JATs). That is, they do not have to be experts in any particular skill or area, but they have to be good enough in a wide variety of skills or areas for the business not to fail. He also reported that JATs have a higher probability of becoming entrepreneurs. This positive relationship between the variety of skills and entrepreneurial activity has been confirmed by other authors (e.g., Wagner, 2003; Baumol, 2005). In fact, based on JAT theory, Stuetzler et al. (2013) concluded that entrepreneurs with varied professional experience have greater entrepreneurial skills and that this greater skill level increases their tendency to engage and persist in entrepreneurial activities.

The GEM report defines the variable “startup skills” [SKILL] as the “percentage of adults aged 18–64 indicating to have the required skills and knowledge to set up a business” (Reynolds et al., 2005). According to this definition, the skills variable is measured based on an individual’s self-perception of skills, knowledge, and abilities. Therefore, the term “perceived self-efficacy” plays an important role when analyzing the skills variable. This concept was introduced by Bandura in 1977 to refer to individuals’ perceptions of their ability to influence events that occur in their lives (Bandura, 2010). In entrepreneurship, an individual’s ability to start a successful entrepreneurial venture is measured through entrepreneurial self-efficacy (Chen et al., 1998). Several studies linking this variable to entrepreneurial intentions (Krueger and Brazeal, 1994; Chen et al., 1998) have empirically shown a positive relationship between entrepreneurial self-efficacy and entrepreneurial intentions. However, fear of failure can negatively alter that relationship (Ng and Jenkins, 2018). In addition, self-efficacy facilitates entrepreneurs’ opportunity detection (Shane, 2000), which should encourage opportunity entrepreneurship.

Considering gender, Bandura (1992) argued that women are more likely to limit their career aspirations because they believe they lack the necessary skills. Eccles (1994) reported that there are social and psychological reasons why women are still underrepresented in some occupational and educational areas. These gender differences are mainly observed in areas that have been stereotypically linked to “masculine” skills, including business and entrepreneurship careers (Wilson et al., 2007). Koellinger et al. (2013) concluded that women have more fear of failure and less confidence in their entrepreneurial skills than men and are less likely to know other entrepreneurs than men. According to these authors, greater fear of failure, lower self-confidence and less exposure to other entrepreneurs are factors that reduce women’s propensity to start a business.

Proposition 2: Entrepreneurial skills are not conducive to female necessity entrepreneurship.

2.2.2.3. Knowing an entrepreneur

As discussed, human capital is the set of experiences, training, knowledge, skills, and capabilities that define and add value to a person's profile. This human capital is complemented by social capital, which is regarded as "friends, colleagues, and more general contacts through whom you receive opportunities to use other forms of capital" (Burt 1992, p. 9). According to this definition, social capital depends on interaction with other agents. Forret (2006) argued that, although individuals tend to develop human capital, this human capital is not enough. Hence, the development of social capital provides individuals with a formidable professional advantage. In addition, social capital is more difficult to imitate than human capital because relationships are unique, valuable, and not replicable.

The GEM report defines the variable "knowing entrepreneurs" [KNOW] as referring to any entrepreneur who "personally knows someone who started a firm in the last two years" (Reynolds et al., 2005). The influence of others is often crucial in the decision to become an entrepreneur (Bosma et al., 2012). The literature explains that peer influence can affect entrepreneurial potential in several ways by providing role models and access to networks and knowledge (Markussen and Røed, 2017). In addition, knowledge transfer can reduce the level of uncertainty experienced by potential entrepreneurs (Wyrwich et al., 2016). Perceiving similarities in certain attributes is a key factor when selecting role models (Byrne, 1971; Gibson, 2004). In particular, perceiving demographic similarities intensifies interpersonal attraction (Ibarra, 1992). Gender is a demographic attribute that can lead to similarity perception and can thus influence the selection of role models. In line with this idea, Markussen and Røed (2017) concluded that, generally, same-sex peers have a greater influence than opposite-sex peers and that this gender-based influence explains the existence of a gender gap in entrepreneurship. Rocha and Van Praag (2020) have observed that the influence of women company founders on female workers is even greater than the influence of other social interactions such as that exerted by interactions with peers or parents.

Klyver and Grant (2010) showed that individuals who know an entrepreneur show a greater tendency to become entrepreneurs. However, women are less likely to know an entrepreneur. The reasons are a lack of resource providers or a lack of role models in their networks. Warnecke (2013) went further, explaining that it is more difficult for women to access formal business networks. When having entrepreneurial connections is linked to entrepreneurial motivation, Wagner (2005) found that opportunity entrepreneurs are more likely than necessity entrepreneurs to have a role model in the family. In contrast, Morales-Gualdrón and Roig (2005) argued that the influence of knowing an entrepreneur is equivalent for both types of entrepreneurship.

Proposition 3: Knowing an entrepreneur is not conducive to female necessity entrepreneurship.

2.2.2.4. Job creation expectation

In recent years, entrepreneurship has been seen as an opportunity to create jobs and contribute to economic development. Despite a lack of consensus on the relationship between entrepreneurship and job creation and the effects of entrepreneurship on job creation (Fritsch and Muellero, 2004), research has identified a clear link between the two (Badal 2010). However, some literature suggests that the contribution of employment to economic development depends on the reason for starting a business. Opportunity-driven entrepreneurship has a positive relationship with economic development, whereas necessity entrepreneurship has no effect (Acs and Varga, 2005).

The GEM report defines the variable “high job creation expectation rate” [HIRES] as the “percentage of those involved in TEA who expect to create 6 or more jobs in 5 years”. The literature on this variable treats it as closely related to firm growth expectations and links it to the term “high-growth entrepreneurship”. Just as the literature classifies entrepreneurs according to their motivation (i.e., necessity vs. opportunity), it emphasizes the existence of “solo entrepreneurs”. According to GEM, a solo entrepreneur is an entrepreneur “that operates on their own, with no co-founders or employees, and projecting no hiring”.

When analyzing the hiring expectations of entrepreneurs, it is important to differentiate between solo entrepreneurs and those who enter the world of entrepreneurship to found and grow a company. According to Fairlie and Fossen (2018), three quarters of necessity entrepreneurs are solo entrepreneurs, whereas only 53% of opportunity entrepreneurs are solo entrepreneurs. This gap implies that opportunity entrepreneurs are more likely to contribute to job creation than necessity entrepreneurs. Additionally, according to Bergmann and Sternberg (2007, p. 206), “the majority of necessity entrepreneurs are primarily looking to safeguard their own living, not to generate revenue growth or additional jobs.”

The hiring expectations of solo entrepreneurs have been studied by Van Stel et al. (2020), who concluded that solo entrepreneurs with high educational levels tend to have low hiring intentions and that these low intentions are due to the need for autonomy and self-expression or self-realization. Darnihamedani and Terjesen (2020) analyzed the hiring expectations of entrepreneurs from the perspective of regulatory efficiency, composed of business freedom, labor freedom, and monetary freedom. After analyzing 68 countries, they concluded that entrepreneurs in countries with fewer labor restrictions and greater monetary freedom have higher growth ambitions. Moreover, these conclusions are accentuated when gender is considered, with men having higher growth ambitions than women.

Proposition 4: Hiring expectations are not conducive to female necessity entrepreneurship.

2.2.2.5. Fear of failure

According to Frank Knight, risk occurs when the future is unknown, but the probability of the future is “known”. In contrast, uncertainty occurs when the probability is unknown (Runde, 1998). Thus, coping with uncertainty and predicting what will happen in the future is one of the biggest challenges that entrepreneurs have to face (Forrester, 1971). Traditionally, entrepreneurs have been perceived as risk takers. Some of the literature depicts fear of failure as an attitude towards risk. Fear of failure continues to be one of the factors that is most feared by entrepreneurs, and much of the literature identifies it as a barrier to entrepreneurship. Several studies have shown that fear of failure has a negative relationship with entrepreneurial activity (e.g., Arenius and Minniti, 2005; Ardagna and Lusardi, 2010). In a society where success and achievement are so important, the possibility of failure is often minimized or even denied (Rothblum, 1990). According to the GEM report, “fear of failure” [FAILU] is defined as the “percentage of 18–64 women (individuals involved in any stage of entrepreneurial activity excluded) who indicate that fear of failure would prevent them from setting up a business.”

The relationship between fear of failure and entrepreneurship has also been analyzed by differentiating between opportunity and necessity entrepreneurship. According to Morales-Gualdrón and Roig (2005), this negative relationship between fear of failure and entrepreneurship is present in both types of entrepreneurs but is accentuated in necessity entrepreneurs (Morales-Gualdrón and Roig 2005). Some studies have shown that opportunity entrepreneurs are more willing to accept risks than necessity entrepreneurs (Brünjes and Diez, 2013; Block et al., 2015). Wagner (2005) concluded that fear of failure is lower among opportunity entrepreneurs. However, conceiving fear of failure as a negative emotion, Cacciotti and Hayton (2014) argued that risk aversion is a simplistic conceptualization of fear of failure. Several studies have shown that fear of failure can not only inhibit entrepreneurs but also have a motivational effect (Ray, 1994; Cacciotti et al., 2016).

With respect to gender, most articles report that men and women perceive fear of failure differently, which can be linked to the gender gap in entrepreneurship (Wagner, 2007). Several studies suggest that women are more risk averse and thus less risk tolerant than men (Johnson and Powell, 1994; Eckel and Grossman, 2003). They also suggest that women consider fear of failure to be an obstacle to entrepreneurship. In fact, fear of failure and women’s perceptions of their capabilities and skills are two of the most common subjective variables in the literature on the barriers to women entrepreneurship and the gender gap.

Proposition 5: Fear of failure is not conducive to female necessity entrepreneurship.

2.2.2.6. Entrepreneurial intentions

The models that are most commonly used to study entrepreneurship from the perspective of intentions are the theory of planned behavior, proposed by Ajzen (1991), and the entrepreneurial event model of Shapero and Sokol (1982). One of the main elements in the theory of planned

behavior is the individual's intention to carry out a specific behavior. This intention captures a motivating element in that the more intense the intention is, the more likely an individual will be to carry out the action (Ajzen 1991). In contrast, the event model seeks to explain why individuals become entrepreneurs, describing an entrepreneurial event as the result of an individual's perceptions in terms of desire and feasibility. In the model described by Ajzen (1991), intention is influenced by "personal attitude, subjective norm and perceived behavioral control." These two models have served as the basis for new models aimed at explaining entrepreneurial intentions (Krueger and Carsrud, 1993; Boyd and Vozikis, 1994) and have generally been applied in an educational context focusing on opportunity entrepreneurship. In fostering entrepreneurial intentions, culture, which has been found to be crucial in creating high growth expectations among female entrepreneurs, is decisive (Xie et al., 2021). For example, Anggadwita (2021) found that sociocultural environment has a positive effect on a woman's intention to become an entrepreneur.

The GEM report defines entrepreneurial intentions" [INTEN] as "the percentage of 18–64 population (individuals involved in any stage of entrepreneurial activity excluded) who are latent entrepreneurs and who intend to start a business within three years." Bird (1988) affirmed that the intentional process starts with an entrepreneur's needs, values, wants, habits, and beliefs. Accordingly, the assumption is that different necessities may lead to different entrepreneurial intentions. This assumption has been tested by Lucas and Cooper (2012), who concluded that one of the effects of necessity is its direct influence on intentions. However, given the lack of literature linking necessity-driven entrepreneurship and entrepreneurial intentions, the results of the aforementioned study should be further tested.

In terms of gender, Strobl et al. (2012) found that men have stronger entrepreneurial intentions than women. Haus et al. (2013) supported this idea, concluding that men are more likely to transform their intentions into actions. There are also numerous studies relating entrepreneurial intentions with all the variables described throughout this chapter (Krueger and Brazeal, 1994; Chen et al., 1998; Do Paço et al., 2015; Ng and Jenkins, 2018).

Proposition 6: Entrepreneurial intentions are not conducive to female necessity entrepreneurship.

2.3. Data and method

2.3.1. Data

The data used in this study were gathered from the 2018/2019 Women's Entrepreneurship Report issued by the GEM. The outcome was female necessity total early-stage entrepreneurial activity (TEA). The conditions analyzed in the study are reported in the following Table 7.

Table 7. Conditions used in the study

Outcome	Definition
Women TEA post-secondary education [POSED]	Percentage of 18-64 women (individuals involved in any stage of entrepreneurial activity excluded) indicating to have a post-secondary degree or more
Conditions	Definition
Women have startup skills [SKILL]	Percentage of 18-64 women (individuals involved in any stage of entrepreneurial activity excluded) who believe they have the required skills and knowledge to start a business
Women personally know an entrepreneur [KNOW]	Percentage of 18-64 women (individuals involved in any stage of entrepreneurial activity excluded) who indicate that they personally know someone who started a firm in the past two years
Women expecting 6+ hires in next five years [HIRES]	Percentage of those involved in TEA who expect to create 6 or more jobs in 5 years
Women undeterred by fear of failure [FAILU]	Percentage of 18-64 women (individuals involved in any stage of entrepreneurial activity excluded) who indicate that fear of failure would prevent them from setting up a business
Women entrepreneurial intentions [INTEN]	Percentage of 18-64 population (individuals involved in any stage of entrepreneurial activity excluded) who are latent entrepreneurs and who intend to start a business within three years

Source: GEM – Reynolds et al. (2015)

The sample covered 59 countries: Angola, Argentina, Australia, Austria, Bosnia and Herzegovina, Brazil, Bulgaria, Canada, Chile, China, Colombia, Croatia, Cyprus, Ecuador, Egypt, Estonia, France, Germany, Greece, Guatemala, India, Indonesia, Iran, Ireland, Israel, Italy, Japan, Kazakhstan, Republic of Korea, Latvia, Lebanon, Luxembourg, Madagascar, Malaysia, Mexico, Morocco, Netherlands, Panama, Peru, Poland, Puerto Rico, Qatar, Russian Federation, Saudi Arabia, Slovak Republic, Slovenia, South Africa, Spain, Sudan, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, United Kingdom, United States, Uruguay, and Vietnam.

2.3.2. Method

Qualitative comparative analysis (QCA) was used to study the causality of conditions leading to a given outcome in a systematic way. There are several methodological variants of QCA, all of which enable the evaluation of different conjectured causes of a given outcome. Fuzzy-set qualitative comparative analysis (fsQCA) was used in this study. This approach differs from crisp-set qualitative comparative analysis (csQCA) in that it permits the use of continuous data, whereas csQCA uses dichotomous data. Using this method and the data sourced from the GEM,

a cross-sectional study was carried out for the period 2018–2019. To determine which combinations of conditions lead to the presence or absence of female necessity entrepreneurship in the current sample of countries, two models were designed. The outcome analyzed in Model 1 was the presence of female necessity entrepreneurship, measured as the indicator of female necessity total-early state entrepreneurial activity (TEA) provided by the GEM. The outcome in Model 2 was the absence of female necessity entrepreneurship. Both models were considered because, under the concept of asymmetric causality, knowing the causes of the presence of a given outcome does not automatically reveal the causes of the absence of that outcome. The models can be stated as follows:

Model 1: $NECTEA = f(POSED, SKILL, KNOW, HIRES, FAILU, INTEN)$.

Model 2: $\sim NECTEA = f(POSED, SKILL, KNOW, HIRES, FAILU, INTEN)$.

Note: NECETA refers to female necessity total-early state entrepreneurial activity (TEA) provided by the global entrepreneurship monitor (GEM).

2.4. Results and discussion

First, analysis of necessary conditions was conducted. Given that no condition had a consistency greater than 0.9 (Cruz-Ros et al. 2017), this analysis indicates that no condition is necessary for the presence or absence of female necessity entrepreneurship (Table 8).

Table 8. Analysis of necessary conditions

Condition	Outcome: NECTEA		Outcome: \sim NECTEA	
	Consistency	Coverage	Consistency	Coverage
POSED	0.582430	0.571620	0.580368	0.579608
\sim POSED	0.571658	0.572422	0.571059	0.581872
SKILL	0.653421	0.610733	0.544208	0.517595
\sim SKILL	0.483876	0.510591	0.590718	0.634287
FAILU	0.633314	0.611908	0.534261	0.525276
\sim FAILU	0.508669	0.517680	0.605269	0.626819
ENTRE	0.549875	0.530623	0.622307	0.611075
\sim ENTRE	0.596963	0.608343	0.521995	0.541295
INTEN	0.636836	0.651518	0.479047	0.498705
\sim INTEN	0.510002	0.490334	0.665255	0.650842
HIRES	0.638888	0.635390	0.480694	0.486464
\sim HIRES	0.483637	0.477869	0.639715	0.643195

Note: The symbol “ \sim ” refers to the absence of a condition. For example, “ \sim POSED” refers to the absence of post-secondary education.

Second, although no condition was found to be necessary at the individual level in either of the two models (consistency less than 0.9 in all cases), the fsQCA method can be used to obtain causal configurations of several conditions that explain the outcome (Table 9).

Table 9. Parsimonious solution for Model 1

Causal configuration	Raw coverage ¹	Unique coverage ²	Consistency
SKILL*~KNOW*~INTEN	0.204767	0.050884	0.761445
SKILL*~FAILU*~KNOW	0.227713	0.019253	0.869208
~KNOW*INTEN*HIRES	0.288821	0.092501	0.793201
SKILL*FAILU*KNOW*INTEN	0.232808	0.006155	0.871145
SKILL*INTEN*HIRES	0.333994	0.031221	0.825055

Solution coverage: 0.575351 Solution consistency: 0.77991

¹ Indicates the proportion of the outcome explained by a certain solution.

² Indicates the proportion of the outcome explained by each individual condition in the causal configuration (Florea et al., 2019).

Overall, proposition one is rejected. For the rest of the propositions, the results are mixed. Some causal configurations include conditions in line with the propositions, whereas others do not. No causal configuration includes either the presence or absence of post-secondary education.

The five causal configurations in the parsimonious solution for Model 1 explain approximately 57% of the empirical cases, as reflected by the solution coverage of 0.575351. The first causal configuration of conditions in the parsimonious solution attributes the presence of female necessity entrepreneurship to the presence of entrepreneurial skills, the absence of knowing another entrepreneur, and the absence of entrepreneurial intentions. For this causal configuration, South Africa (0.841, 0.928), Argentina (0.718, 0.953), Spain (0.625, 0.633), and Ireland (0.559, 0.237) have high levels of female necessity entrepreneurship. That is, their membership in this configuration is greater than 0.5. The second causal configuration combines the presence of entrepreneurial skills with the absence of fear of failure and the absence of knowing another entrepreneur. Uruguay (0.754, 0.943), India (0.628, 0.999), Ireland (0.559, 0.237), and Spain (0.546, 0.633) have a membership greater than 0.5. The third causal configuration consists of not knowing other entrepreneurs but having entrepreneurial intentions and hiring expectations. It applies to Ecuador (0.994, 0.997), Egypt (0.847, 0.998), Guatemala (0.727, 0.995), Turkey (0.708, 0.047), India (0.632, 0.999), Republic of Korea (0.598, 0.249), Madagascar (0.586, 0.925), and Qatar (0.547, 0.123), each with a membership greater than 0.5. The fourth causal configuration combines four conditions: the presence of entrepreneurial skills, fear of failure, knowing other entrepreneurs, and entrepreneurial intentions. Countries with a membership greater than 0.5 are Saudi Arabia (0.809, 0.98), Indonesia (0.68, 0.711), Lebanon

(0.667, 0.953), and Angola (0.52, 0.999). Finally, the fifth causal configuration consists of the presence of entrepreneurial skills, intentions, and hiring expectations. Sudan (0.996, 0.977), Ecuador (0.814, 0.997), Saudi Arabia (0.809, 0.98), Lebanon (0.793, 0.953), Peru (0.783, 0.402), Turkey (0.708, 0.047), Indonesia (0.68, 0.711), Qatar (0.676, 0.123), and India (0.628, 0.999) all have a membership greater than 0.5. when allowing for Interactions between factors, the linear relationships described in the propositions are no longer valid, offering a wide range of causal multiplicity, i.e., combinations of conditions.

In Model 2, the outcome was the absence of female necessity entrepreneurship. Three causal configurations were found (Table 10). The first consists of the absence of entrepreneurial skills, entrepreneurial intentions, and knowing another entrepreneur. The second configuration attributes the absence of female necessity entrepreneurship to the absence of hiring expectations, despite the absence of fear of failure and the presence of knowing other entrepreneurs. Finally, the third causal configuration consists of the absence of entrepreneurial skills and the presence of fear of failure and entrepreneurial intentions. These intentions are normally conducive to opportunity entrepreneurship, whereas necessity entrepreneurship is generally linked to economic survival. Table 11 summarizes results on both models.

Table 10. Parsimonious solution for Model 2

Causal configuration	Raw coverage	Unique coverage	Consistency
~SKILL*~KNOW*~INTEN	0.264072	0.125550	0.756887
~FAILU*KNOW*~HIRES	0.298350	0.184494	0.851280
~SKILL*FAILU*INTEN	0.214101	0.074201	0.879365

Solution coverage: 0.542965

Solution consistency: 0.784625

Table 11. Summary of conditions for models 1 and 2

Configuration No.	High rates of women entrepreneurship by necessity					Low rates of women entrepreneurship by necessity		
	1	2	3	4	5	6	7	8
POSED								
SKILL	●	●		●	●	○		○
KNOW	○	○	○	●		○	●	
HIRES			●		●		○	
FAILU		○		●			○	●
INTEN	○		●	●	●	○		●
Raw coverage	0.204767	0.227713	0.288821	0.232808	0.333994	0.264072	0.298350	0.214101
Unique coverage	0.050884	0.019253	0.092501	0.006155	0.031221	0.125550	0.184494	0.074201
Consistency	0.761445	0.869208	0.793201	0.871145	0.825055	0.756887	0.851280	0.879365
Solution coverage	0.575351					0.542965		
Solution consistency	0.77991					0.784625		

2.5. Conclusions

Building on a literature-based theoretical framework that offers six linear propositions regarding the conditions that explain necessity entrepreneurship, this chapter presents two models: one that explains the presence of female necessity entrepreneurship and one that explains its absence. Data were sourced from the GEM, and fsQCA was then applied to these data.

Ultimately, the results for Model 1 provide five causal configurations of logically feasible conditions that explain the presence of necessity entrepreneurship in different countries. The results provide information about the countries that each configuration applies to with a membership greater than 0.5. In terms of explaining the absence of such female necessity entrepreneurship, the solution for Model 2 presents three causal configurations. In Model 1, the presence of entrepreneurial skills is a recurring condition when explaining the presence of female necessity entrepreneurship. Likewise, in Model 2, the lack of such skills is a recurring explanatory condition in explaining the absence of female necessity entrepreneurship. This finding is in line with the fact that women entrepreneurs, even when engaging in necessity entrepreneurship, seem to have a high level of skills. This attribute could hypothetically support the conversion from necessity entrepreneurship to opportunity entrepreneurship.

In short, this study provides a better understanding of what combinations of conditions foster both the presence and absence of female necessity entrepreneurship. Although the study was limited by the size of the sample and its cross-sectional nature, it contributes to the literature on entrepreneurship and has practical policy-making implications by highlighting the aspects that should be fostered to promote this type of entrepreneurship. In particular, as explained earlier, skills matter even for necessity entrepreneurship. These skills could be further supported by policies in favor of women's acquisition of a skills toolkit through government-supported training programs. Entrepreneurial skills are present in most of the causal configurations, and the promotion of these skills is crucial for necessity entrepreneurship. Indeed, even when individuals do not know another entrepreneur or have entrepreneurial intentions, the presence of skills is conducive to female necessity entrepreneurship. The presence of entrepreneurial intentions, along with other factors, similarly emerges as conducive to female necessity entrepreneurship. This finding highlights the importance of creating a culture that encourages these intentions. In addition to programs to promote entrepreneurial intentions, often led by governmental organizations, it would also be worth developing programs to facilitate third-party hiring. A crucial aspect of necessity entrepreneurship is the drive to ensure that close family and friends are supported financially. This aspect is reflected by the fact that hiring third parties is a recurring condition in the causal configurations.

As for the limitations of the study, because it was cross-sectional, it was not possible to analyze the evolution of the causal configurations conducive to the presence and absence of female necessity entrepreneurship over time. In addition, the sample, which covered 59 countries, could be expanded. Future lines of research could therefore consider a longitudinal study, as well as including a larger number of countries in the analysis, thus making it possible to form groups of countries with similar socioeconomic characteristics that present the same causal configurations. Additionally, it would be of interest to analyze women's motivations to become necessity entrepreneurs at the individual level because assumptions of homogeneity might mask differences between different groups of women (Brush and Greene, 2021).

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Chapter 3. *A configurational analysis of signaling strategies in reward-based crowdfunding*

Chapter 3. A configurational analysis of signaling strategies in reward-based crowdfunding

Abstract

Crowdfunding is an Internet-based fundraising method that relies on contributions from a large crowd of investors to fund innovative and risky projects. It has experienced massive growth since the credit crunch following the 2008 financial crisis. Crowdfunding is widely used and represents a major advance over traditional funding methods by democratizing access to finance and sustaining an agile and dynamic entrepreneurial ecosystem. However, there is still a need for strategies that help mitigate fundraising campaigns' failure rate. Based on the information asymmetries between the entrepreneurs who seek funding and the crowd, this chapter draws on signaling theory to explore the elements of campaign design that contribute to overfunding (i.e., raising at least 10% above the funding target). The chapter focuses on the entrepreneur's identity as an individual or corporation [IDEN], pitch video length [LVIDE], budget explanation length [LBUDG], number of images [NIMAG], project abstract length [LEXP], and number of updates by the entrepreneur [NUPD]. Qualitative comparative analysis (QCA) is performed using publicly available data sourced from 257 socially oriented projects managed through a reward-based crowdfunding platform from December 2020 to October 2021. The results confirm the importance for entrepreneurs to maintain continuous communication with the crowd. The results also reveal a series of configurations of design features that result in overfunding.

Keywords: signaling, information asymmetries, reward-based crowdfunding, qualitative comparative analysis (QCA).

3.1. Introduction

“Before you even start building your crowdfunding page, start building a crowd first.” —Roy Morejon of Command Partners

Born out of the credit shortage following the 2008 financial crisis (Pichler and Tezza, 2016), crowdfunding soon emerged as a financing method that democratizes innovation and access to capital, especially for early-stage startups. As Mollick and Robb (2016) noted, crowdfunding allows the creation of a global, agile, and dynamic funding market that interconnects geographically distant funders and entrepreneurs thanks to its use of the Internet and social media, while also allowing the crowd to act as a feedback mechanism to inform on market preferences that can aid in the innovation generation process.

Many studies have addressed the dynamics of the crowdfunding process (e.g., Mollick, 2014; Kuppuswamy and Bayus, 2017; Belleflamme et al., 2019) and its different forms depending on the reward offered to backers (e.g., Gierczak et al., 2016; Leboeuf and Schwienbacher, 2018). However, although the campaign design factors that contribute to crowdfunding success have been explored, they still require thorough analysis, especially from a configurational perspective, given the existing variety of crowdfunding platforms and rewards dynamics. Unsurprisingly, the major barrier to the successful financing of innovative and risky projects through crowdfunding is the failure to attract funders (Ryoba et al., 2020). Similarly, the ease of obtaining credit has been found to be a core condition affecting the presence of entrepreneurship across countries (Sendra-Pons et al., 2022).

The dynamics of engaging new funders has been studied using signaling theory, which was initially devised by Spence (1973) in the field of contract theory. For example, Davies and Giovannetti (2018) analyzed a sample of 10,000 crowdfunding successes and failures on the Kickstarter platform, concluding that on-platform information contributes to overcoming moral hazard and adverse selection, signaling further quality. In turn, Huang et al. (2021) conducted qualitative comparative analysis (QCA), employing the signaling theory model to address the interaction of different cues, including entrepreneur credibility and project quality, using data sourced from Kickstarter and Indiegogo. The results suggest two configurational patterns: one based only on entrepreneur credibility when seeking funding and the other combining this form of credibility with project quality. Other recent studies based on signaling theory include those of Baid and Allison (2019) and Calic and Shevchenko (2020), who analyzed how certain cues are crucial to ensuring the success of a campaign.

The rationale for studying the drivers of success of a crowdfunding campaign through the lens of signaling theory rests largely on the information asymmetries that exist between entrepreneurs as fund seekers and prospective project backers, who can only rely on the information provided by entrepreneurs to make funding allocation decisions (Courtney et al., 2017). Accordingly, whereas entrepreneurs have privileged information about their projects and hence a better

understanding of their chances of success, backers confronted with a catalog of projects soliciting investment must infer project quality from the limited available information (Comeig et al., 2020; Miglo, 2021).

As already advanced in Akerlof's (1970) seminal work on the "Market for Lemons", asymmetric information between two parties can result in market failure by rendering a transaction inefficient. Hence, this chapter aims to provide practical guidelines for entrepreneurial fundraising to help alleviate information asymmetries and thus increase the probability of project overfunding through optimal quality signaling. This chapter analyzes the design elements of reward-based crowdfunding campaigns that convey positive information to backers and hence generate confidence-building strategies in relation to the expected probability of success.

The analysis is based on qualitative comparative analysis (QCA) with the outcome of campaign overfunding. Here, overfunding is operationalized as exceeding the funding goal by at least 10%. This outcome is explored in terms of configurations of conditions related to the design elements of the crowdfunding campaign: the entrepreneur's identity as an individual or corporation [IDEN], pitch video length [LVIDE], budget explanation length [LBUDG], number of images [NIMAG], project abstract length [LEXP], and number of updates by the entrepreneur [NUPD]. The sample consists of data from 257 socially oriented projects launched on Goteo.org, a reward-based crowdfunding platform, from December 2020 to October 2021.

In the next section, a theoretical framework is built around the origins and dynamics of crowdfunding, its risks, information asymmetries, the role of signaling, incentive misalignment, and information disclosure. Next, the data and method are described. Following the method section, the results are presented. Then, a discussion is developed, paying special attention to recommendations for entrepreneurs. Lastly, the conclusions, practical implications, and ideas for further research are presented.

3.2. Theoretical framework

3.2.1. Crowdfunding as an alternative to traditional funding channels: origins and dynamics

The 2008 financial crisis is arguably one of the most severe in recent macroeconomic history. The credit crunch was a major impediment not only to business growth but also to access to credit for innovative ideas (Cowling et al., 2012). In fact, innovative startups were at a clear disadvantage to non-innovative ones, with a higher probability of facing absolute credit rationing (Lee et al., 2015; Comeig et al., 2015). However, although the financial crisis drove the emergence of crowdfunding as a fundraising method, similar pre-digital forms of crowdfunding could already be found much earlier. For example, as noted by Rouzé (2019), the expansion of religions was financed through the logic of charitable or soul-saving gift-giving.

According to Belleflamme et al. (2015), there are two major crowdfunding business models. Investment-based crowdfunding includes equity-based, royalty-based, and lending-based crowdfunding, in which every backer receives financial compensation (Gierczak et al., 2016). Non-financial-based crowdfunding, in contrast, includes reward-based and donation-based crowdfunding, which is characterized by compensation in the form of products (Steigenberger, 2017) or personal satisfaction for supporting a cause (Bagheri et al., 2019).

Table 12. Major crowdfunding business models

	Business model	Reward
Investment-based crowdfunding models	Equity-based	Shares
	Royalty-based	Royalties
	Lending-based	Interest
Non-financial-based crowdfunding models	Reward-based	Sample product
	Donation-based	Personal satisfaction

Source: Adapted from Belleflamme et al. (2015). **Note:** “Non-financial-based crowdfunding models” is a term coined by the authors of the present chapter as an extension of the initial characterization.

In terms of crowdfunding dynamics, there is an important distinction between the behavior of the entrepreneurs who seek funding and that of prospective backers. Initially, entrepreneurs register on a crowdfunding platform and decide on the type of reward they want to offer the crowd. In this stage, they provide the information they deem appropriate (e.g., images, minimum project budget, description, videos, and expert opinions) to endorse their ability to carry out the project. They thus try to mitigate information asymmetries. Then, the crowd plays its role by funding the project before the last day of the campaign (Deb et al., 2019).

In all-or-nothing campaigns, investment is not possible after the last day of the campaign. Moreover, any funds that have been pledged will be returned to the crowd if the funding goal is not met, incurring an opportunity cost (Cumming et al., 2020). During the fundraising process, entrepreneurs can take actions to encourage investment. For example, they can send messages to prospective backers via their campaign page (Dorfleitner et al., 2018). Upon successful completion of the funding process, entrepreneurs carry out the project, rewarding the crowd in a timely fashion as previously agreed with products, interest on investment, shares, or explicit recognition as a project funder (Kuppuswamy and Bayus, 2017).

As explained by Meyskens and Bird (2015), the process essentially has five phases: (i) an entrepreneur designs a campaign and (ii) chooses a platform; (iii) the crowd funds the project

and interacts with the entrepreneur; (iv) the entrepreneur carries out the project and (v) distributes the rewards, if any, to the backers. Phase (iii) has three subphases: so-called “friend funding”, where contributions come mainly from the entrepreneur’s immediate circle, “getting crowded”, where the herding or cascade process begins to grow, providing a reinforcing cycle of investments, and the “race to the goal”, in which momentum builds and investments accelerate until the goal is achieved (Kim et al., 2020).

This study aims to shed light on the campaign design phase, a crucial juncture in the subsequent fundraising process. The campaign design phase influences all other phases of the fundraising process (i.e., “friend funding”, “getting crowded”, and “race to the goal”). An optimal design is especially relevant in the early stages of the campaign, when there are few backers, because information asymmetries are at their greatest. The next section contextualizes information asymmetries in terms of the risks involved in fundraising in crowdfunding environments. A distinction is drawn between the main risks faced by the crowd, whose funds are required for campaign success, and by entrepreneurs, as fund seekers.

3.2.2. Crowdfunding risks

Perhaps surprisingly, crowdfunding entails a series of risks that are compounded by information asymmetries between entrepreneurs and potential funders. On the funder side, one risk is that the campaign will not achieve its funding goal. In an all-or-nothing campaign, this failure to achieve the funding goal would mean that funds would be returned to entrepreneurs, thus incurring an opportunity cost (Comeig et al., 2020). There is also the risk of entrepreneur default as a result of external circumstances that cause the venture to collapse once the crowd’s funds have been employed or because of intentional misconduct (Cumming et al., 2021).

On the entrepreneur side, although crowd-based systems favor innovation by providing the entrepreneur with real market feedback when designing, producing, and marketing a product or service, there is a risk of imitation by third parties. This risk increases if the goods or services are not subject to intellectual property protection (Cowden and Young, 2020). Another risk, which is closely related to the risk of default, is the legal liability that entrepreneurs may have to the crowd for non-compliance with their commitments.

Table 13. Main risks for entrepreneurs and the crowd

	Risk	Definition
Risks for the crowd	Campaign withdrawal risk	The risk that the funds required for an all-or-nothing campaign are not raised and funds are returned to the crowd, incurring an opportunity cost for the time they have been withheld
	Default risk	The risk that rewards are not delivered to the crowd because of campaign default, either due to external circumstances or misconduct
Risks for the entrepreneur	Copycat or idea-stealing risk	The risk of other entrepreneurs taking advantage of freely available information from a crowdfunding campaign to copy an innovation
	Legal liability risk	The risk of legal liability in the event of default to the crowd for failure to meet commitments

Source: Compiled by the authors based on Comeig et al. (2020), Cumming et al. (2021), and Cowden and Young (2020).

This chapter focuses on the elements of crowdfunding campaign design that help mitigate information asymmetries between entrepreneurs and the crowd. These elements are described in the next section. Campaign withdrawal risk can thus be reduced by activating a reinforcing cycle of capital raising that results in high fundraising rates. By revealing configurational strategies that increase the crowd’s engagement in campaign fundraising, this research has practical implications for promoting overfunding.

3.2.3. Asymmetric information in the crowd-based funding model: the role of signaling

Drawing on the arguments of Akerlof (1970) in “Market for ‘Lemons’”, any entrepreneur possesses, *ex-ante*, the most accurate information available about the unbiased likelihood of success of the entrepreneur’s campaign. In contrast, the crowd, under a veil of ignorance, can only infer the assumed quality of the project, and thus the likelihood that it will be financed, based on the limited information offered by the entrepreneur. The principal-agent relationship occurs both *ex-ante* and *ex-post* the beginning of the funding transaction between the crowd and the entrepreneur. This chapter focuses on the *ex-ante* stage by exploring which strategies minimize the information asymmetries between principal and agent prior to the transaction and thus support completion of the transaction.

Principal-agent theory refers to the relationship between two parties: the principal and the agent. The principal delegates work to the agent according to pre-established conditions (Eisenhardt, 1989; Chaney, 2019). Two information problems occur under this theory. The first is a pre-contractual or *ex-ante* problem, whereby adverse selection can occur when the agent has information about the quality of the project that the principal lacks. The second is a post-

contractual or *ex-post* problem, whereby moral hazard occurs when the principal selects an agent that does not deliver what was promised (Jensen and Meckling, 1976; Rothschild and Stiglitz, 1976).

Since Spence (1973) presented an analogy of job choice in terms of playing the lottery, the theory of signaling has been a fundamental part of academic research in a variety of fields, including anthropology, management, and psychology. As accurately portrayed by Courtney et al. (2016), because backers in entrepreneurial crowd-based fundraising have incomplete and imperfect information, they are exposed to the economic risk of investing in a lemon, in terms of Akerlof's original theory. Therefore, entrepreneurs must provide credible information to the less-informed party (i.e., the crowd of backers) to aid with the transaction's completion.

Of all the theories used to study situations of incomplete and asymmetrically distributed information, signaling theory (Spence, 1973; 2002) is perhaps the most widely used in the context of entrepreneurial finance and, specifically, crowdfunding. As explained by Vismara (2018), crowdfunders are faced with high information-processing costs that they have neither the ability nor the incentive to cope with, either because they invest too little, making the investment economically inefficient, or because they are unable to decide who should pay for the due diligence and thus suffer free riding if they invest a larger amount. This entire situation may result in a reluctance to invest in crowdfunding projects, which “could eventually produce an Akerlof-type market failure, resulting in vanishing markets because the only equilibrium price would be zero” (Vismara, 2018, p. 30). Furthermore, as an extension to classical signaling theory, Steigenberger and Wihelm (2018) point out that potential backers, far from processing signals in isolation, see bundles of signals as a complement to substantive signals. This emphasizes the importance of the configurational approach, i.e. studying combinations of signals, considered in this research.

3.2.4. Incentive misalignment and information disclosure

Reward-based crowdfunding is a sort of Internet-based fundraising in which an entrepreneur usually compensates the crowd by providing a sample of the final product once it has been manufactured (Steigenberger, 2017). Some authors even consider this type of crowdfunding a process of co-production (Leyshon et al., 2016) or deferred purchase (Roma et al., 2018), in that the crowd provides the funds beforehand and receives the goods much later.

According to Wessel et al. (2021), four strategies can be implemented when there is incentive misalignment: (i) a contracting strategy, in which a reward scheme is implemented; (ii) a voluntary disclosure strategy, in which trust is generated through voluntary disclosure of information; (iii) a feedback strategy, in which an iterative process of communication between principal and agent occurs in bilateral negotiation; and (iv) a deferred compensation strategy, in which an effortful attitude of the agent is encouraged, thereby moving away from opportunism by sharing costs or benefits.

Arguably, campaign design strategies aimed at favoring fundraising success would be directly aligned with Wessel et al.'s (2021) strategies (ii) and (iii). Specifically, these design strategies would seek to build trust by displaying detailed information about the campaign and establishing an effective, fast, and agile communication channel in which uncertainty is reduced as the entrepreneur builds a sense of trust and reassurance with the crowd. The design elements of a campaign considered in this study are the entrepreneur's identity as an individual or corporation [IDEN], pitch video length [LVIDE], budget explanation length [LBUDG], number of images [NIMAG], project abstract length [LEXP], and number of updates by the entrepreneur [NUPD].

The following subsections present propositions regarding the individual influence of these conditions (IDEN, LVIDE, LBUDG, NIMAG, LEXP, and NUPD) on the outcome of interest (i.e., overfunding or OVERF). These conditions are then arranged into configurations (logically feasible combinations of conditions) based on the results of the QCA.

3.2.4.1. The entrepreneur's identity as an individual or corporation [IDEN]

The entrepreneur's identity as either an individual or a corporation is included in the model to explore whether the fact that the fund seeker is a human or a company influences the achievement of campaign overfunding. From a legal point of view, the fact that the entrepreneur is a human and not a corporate entity entails greater individual liabilities than those that could arise from criminal conduct by a limited liability company (Khandekar and Young, 1985). Beyond the tax implications or the costs associated with business creation, the fact that an entrepreneur is not incorporated as a company with limited liability may demonstrate her or his degree of confidence in the success of the entrepreneurial project. On the other hand, however, it signals a lower level of formalization or maturity of the project, which can translate into a higher probability of failure. From the point of view of the emotional bonds that potential backers can forge with entrepreneurs, there is evidence that individual entrepreneurs, as human entities, are capable of fostering trust among potential backers (Boeuf et al., 2014) as well as that brands can also generate attachment through trust, familiarity and experience (Chinomona and Maziriri, 2017). Given this mixed evidence, one might argue that whether the entrepreneur's identity matters for overfunding might depend on the interplay of the different information elements that make up the information disclosure process. Accordingly, it is proposed that both individual and corporate entrepreneurs seeking funds can lead to overfunding, in conjunction with other information elements disclosed in the fundraising campaign beyond entrepreneur's identity:

Proposition 1a. Being an individual seeking funds (as opposed to a corporation) is conducive to overfunding in reward-based crowdfunding.

Proposition 1b. Being a corporation seeking funds (as opposed to a corporation) is conducive to overfunding in reward-based crowdfunding.

3.2.4.2. Pitch video length [LVIDEO]

Homer et al. (2008) and Courtney et al. (2017) have found that using videos and images in a crowdfunding campaign can mitigate the problems arising from information asymmetries in such digital financial environments. As noted by Yang et al. (2020), a number of studies have indicated that using rich multimedia for information disclosure can signal fund seeker credibility (Parhankangas and Ehrlich, 2014; Calic and Mosakowski, 2016; Courtney et al., 2017). Indeed, the use of videos in entrepreneurial crowdfunding campaigns has been found to play a vital role in raising psychological capital (Anglin et al., 2018). Videos that are especially enthusiastic raise the most investment (Li et al., 2017), whereas those that narrate real testimonials are preferred (Appiah, 2006). Unsurprisingly, Bi et al. (2017) concluded that videos can make backers infer higher project quality. In line with this research, Wheat et al. (2013) identified the use of a video as the most relevant resource in attracting potential backers, not only because it demonstrates a minimum level of preparation when launching the fundraising campaign, but also because it allows to introduce both the project and team of entrepreneurs leading it. However, as Sundar (2000) warn, excessive video content in a campaign might hinder cognition, losing the attention of prospective backers. This favors the use of informative and concise videos, thus maximizing their signaling power.

Delving into the specifics of the video to be posted in a crowdfunding campaign, from the formal point of view, it must be professional and addressed to the target audience in order to take advantage of all its signaling potential (Frydrych et al., 2014). Ultimately, the use of videos in crowdfunding should be seen as an opportunity to build organizational legitimacy in asymmetric information environments, insofar as the lack of such legitimacy may hinder access to those economic agents with resources (Alvarez and Busenitz, 2001; Chen et al., 2009). In particular, legitimacy can speed up the capital acquisition process (Lounsbury and Glynn, 2001). All this occurs because videos allow the creation of narratives (O'Connor, 2014) with which to reduce uncertainty and give the impression that the campaign is “likely to succeed” (Mollick, 2014). Eventually, once videos have enhanced perceived fund seeker legitimacy, subsequent investments are expected to be encouraged (Frydrych et al., 2014). In view of the above, the role of pitch video length in overfunding is proposed as follows:

Proposition 2. A short pitch video is conducive to overfunding in reward-based crowdfunding.

3.2.4.3. Budget explanation length [LBUDG]

Financial and economic metrics regarding an entrepreneurial venture seeking funding offer pivotal information to decide where to invest. As noticed by Hobbs et al. (2016), it is essential to provide detailed information on how the funds raised will be used. Entrepreneurs' ability to produce financial information is evidence of their financial literacy, the lack of which has been identified as a potential failure factor in the creation of new businesses (Bosma and Harding, 2006; Oseifuah, 2010). In this context, financial literacy theory holds that those individuals with greater financial literacy will be in a position to better meet their financial obligations through

proper planning, management and control of their business activity (Greenspan, 2002). Given that crowdfunding is a highly asymmetric environment, it is vital for potential backers to identify those signals that allow them to infer the entrepreneurs' commitment to reward them as previously agreed. The budget explanation, as a financial literacy signaling device, allows the crowd of potential backers to infer such financial commitment.

According to Mason and Stark (2004), economic-financial rationale of a business proposal, together with other aspects such as the competitive environment, is fundamental in an investment decision-making process. In fact, financial aspects are of importance whether for bankers, equity investors, venture capital fund managers and business angels, although the latter give more importance to the specific knowledge they may have on the industry or market involved. This only reinforces the “‘hard evidence’-oriented, ‘substance’-based” nature of the decision-making process by investors (Clark, 2008). However, it is important to consider the non-professional nature of potential backers in some types of crowdfunding, such as reward-based crowdfunding, that requires financial information to be reported in a more accessible jargon (Leboeuf and Schwienbacher, 2018). In any case, financial projections, including budgeting or financial forecasts, help to better understand the entrepreneurial project's potential risks, allowing the crowd of investors to form better expectations about its attractiveness (Ahlers et al., 2015). Therefore, the role of the length of the budget explanation is proposed as follows:

Proposition 3. A detailed budget explanation is conducive to overfunding in reward-based crowdfunding.

3.2.4.4. Number of images [NIMAG]

Like videos, images are another type of multimedia content that have been found to be crucial for campaign success. A higher number of images has been linked to more funding (Chan and Park, 2015) by mitigating information asymmetries (Courtney et al., 2017). Images have also been associated with an easier understanding of the project by the crowd (Xu, 2018), in line with the general role of multimedia content in crowdfunding campaigns. More specifically, image attributes can influence emotions, with a resulting relationship with pledge intention (Hou et al., 2020). Consequently, the potential of images to attract the attention of potential backers can be influenced by aspects such as their design or the colors used (Danaher et al., 2006). Within the variety of images that can be included in the fundraising campaign, personal images of the entrepreneurs in charge of the project have been identified as sources of trust generation (Boeuf et al., 2014). On the other hand, images make it possible to overcome the limitations of written information, with which it would be highly complex to show prototypes or designs, and to offer much more easily interpretable information (Koch and Siering, 2019). In addition, images can convey moods as well as a certain wealth or poverty status which could influence perceived borrower trustworthiness and, ultimately, the fundraising campaign success (see Anderson and Saxton, 2016).

In the words of Xiao et al. (2021, p. 3216), “more picture postings may signal the creator’s diligence and preparation (...) enhancing creator’s perceived credibility”. Indeed, preparedness and commitment can in turn give the impression of a better qualified and more determined entrepreneur, ultimately gathering more contributions (Colombo, 2021). However, when considering the interaction between different types of information, e.g. images, videos, text, Yang et al. (2020) found that the positive influence of text length on fundraising success might decrease when videos and images become redundant. Drawing on cognitive load theory, they suggest the existence of an “overshadowing effect” by which “redundant media can obscure the effects of other media in working memory” (Yang et al., 2020, p. 13). Accordingly, the role of the number of images on campaign overfunding is proposed as follows:

Proposition 4. A large number of images is conducive to overfunding in reward-based crowdfunding.

3.2.4.5. Project abstract length [LEXP]

In online financial environments where information asymmetries are even more pronounced, the project explanation is essential. When an entrepreneur joins a crowdfunding platform, regardless of its nature, s/he is required to provide basic written information to communicate what her/his entrepreneurial project is about (Xiao et al., 2021). Based on Zhou et al. (2016), it can be assumed that a more detailed explanatory text means greater success in terms of reducing information asymmetries and increasing investment. When comparing the signaling capacity of videos with that of textual information, Lagazio and Querci (2018), making use of narrative theory, found that texts of a descriptive nature are even more persuasive than videos. Specifically, Parhankangas and Renko (2017) point out that longer texts prove to be more informative and further incentivize potential backers to contribute. Additionally, as more textual information is provided, these texts are perceived as more helpful (Mudambi and Schuff, 2010) or even more useful for readers (Cheung et al., 2008). Length, a recurring measure in crowdfunding research (Koch and Siering, 2019), offers a proxy for quality of information. This is further substantiated by Ahlers et al. (2015). Moreover, Adamska-Mieruszewska et al. (2021) find that text length and its readability significantly affect crowdfunding success and argue that longer texts are able to develop a greater number of arguments in favor of entrepreneurial venture, favoring persuasion.

Ultimately, the project abstract is understood as a written pitch of the entrepreneurial idea used by entrepreneurs to offer potential uninformed backers privileged information on which they will rely given information scarcity and the cognitive cost of generating it themselves (Burtch et al., 2016; Parhankangas and Renko, 2017). Specifically, providing a more detailed information has been identified as a central element in the creation of trust, thus reducing the perceived risk in online settings (Hsu et al., 2014). A study by Zhou et al. (2016) found that text length is positively linked to crowdfunding success. In this line, Moy et al. (2018) reported a U relationship between text length and campaign success meaning that both extremes, a very short or a very long text, translate into higher quality signaling, smaller information asymmetries and a greater

chance of success. The role of project abstract length in project overfunding is proposed as follows:

Proposition 5. A detailed project abstract is conducive to overfunding in reward-based crowdfunding.

3.2.4.6. Number of updates by the entrepreneur [NUPD]

In any business transaction, a continuous communication between parties is crucial, mainly for generating confidence. Updates provided by entrepreneurs to the crowd are a form of one-sided communication that could signal value to the crowd by providing additional information beyond what is available on the crowdfunding website (Block et al., 2018). These updates have been associated with crowdfunding success (Mollick, 2014; Hornuf and Schwienbacher, 2015; Wu et al., 2015; Kuppuswamy and Bayus, 2017). This is also clear from the study by Xu et al. (2014), which not only asserts the unequivocal role of updates by entrepreneurs in leading to the success of the fundraising campaign, but also concludes that the interaction between entrepreneurs and potential backers is even more relevant than the explanation of the project itself. In the same direction, Mejia et al. (2019) also report a correlation between campaign updates and backer contributions. However, these updates should be informative as it has been identified that messages without a clear content aimed only at capturing the attention of the crowd of potential backers can have counterproductive effects (Granados et al., 2010).

This caution is also mentioned by Xiao et al. (2021) who, after concluding that a large number of updates are effective in getting more backers to fund, warn that the information presented in these updates must add to the information already available to these backers. It should be noted that the specific sequence through which the updates would lead to a better fundraising performance involves generating higher levels of attention towards the campaign, i.e., more visits from potential backers (Kromidha and Robson, 2016), and leveraging this increased visibility to create enthusiasm around the entrepreneurial idea to be funded (Kuppuswamy and Bayus, 2017). Updates are also more likely to occur when there is strong competition (Dorfleitner et al., 2018) since campaign information normally remains static while updates can be used by mutually exclusive competing campaigns to try to convince potential backers towards one of them. Ultimately, as De Larrea (2019) concluded, success can be enhanced through frequent communication in the form of timely updates. Hence, the role of updates, by creating a climate of greater trust, is proposed as follows:

Proposition 6. A large number of updates is conducive to overfunding in reward-based crowdfunding.

3.3. Data and method

The data for this study were hand-collected from the Goteo.org platform website. The data cover all successful and failed socially oriented projects for which data were publicly available.

Their social character is reflected in the fact that the projects are oriented towards the achievement of certain sustainable development goals. The projects were completed between December 2020 to October 2021. For each project, data were gathered on a number of design factors, namely the entrepreneur’s identity as an individual or corporation [IDEN], pitch video length [LVIDE], budget explanation length [LBUDG], number of images [NIMAG], project abstract length [LEXP], and number of updates by the entrepreneur [NUPD]. These design factors were then employed as conditions in the subsequent analyses. The outcome in the analysis was campaign overfunding [OVERF]. For this dichotomous condition, a value of 1 denoted that the campaign achieved funding at least 10% above target, and 0 indicated that it failed to do so. Table 14 shows the outcome and conditions used in the study, also denoting whether they were crisp (dichotomous) or fuzzy (continuous). The LVIDE, LBUDG, NIMAG and LEXP conditions follow the operationalization procedure described in Geiger and Moore (2022) for text, images and videos (Kim et al., 2016; Bi et al., 2017; Tafesse, 2021).

Table 14. Outcome and conditions used in the study

Type	Acronym	Definition	Codification
Outcome	OVERF	Project raising at least 10% above target funding (overfunding = 1, otherwise = 0)	Crisp value
Condition	IDEN	Entrepreneur’s identity as individual (1) or corporation (0)	Crisp value
Condition	LVIDE	Pitch video length	Fuzzy value
Condition	LBUDG	Budget explanation length	Fuzzy value
Condition	NIMAG	Number of images in the project description	Fuzzy value
Condition	LEXP	Project abstract length	Fuzzy value
Condition	NUPD	Number of updates by entrepreneur	Fuzzy value

Note: Crisp values refer to dichotomous data (0, 1), whereas fuzzy values refer to continuous data.

Fuzzy-set qualitative comparative analysis (fsQCA) was used for the study. This person-centered approach to management scholarship can reveal configurations of conditions leading to a certain outcome (Rey-Martí et al., 2021). Rather than establishing one-directional relationships between a single variable and a given outcome, fsQCA examines combinations of conditions (i.e., configurational paths). The advantage is that this approach can get closer to reality. FsQCA is built around the principle of equifinality, whereby an outcome can be achieved through different combinations of causally heterogeneous conditions (Ragin, 2008).

Data calibration was carried out using fsQCA software to establish the three anchors associated with this method: full membership, maximum ambiguity, and full non-membership (Woodside et al., 2015). It must determine when a case has full set membership (i.e., a score of 1), full set non-membership (i.e., a score of 0), and ambiguity in set membership (i.e., a score of 0.5; Ragin,

2008). To calibrate conditions based on fuzzy values (LVIDE, LBUDG, NIMAG, LEXP and NUPD), the breakpoints for full membership, the cross over point and full non-membership are set at 20% above mean, mean, and 50% below mean, respectively (Berné-Martínez et al., 2021; Garcia-Alvarez Coque et al., 2021). From the aforementioned theoretical foundation, the model to be tested using qualitative comparative analysis (QCA) is defined as follows:

$$OVERF = f(IDEN, LVIDE, LBUDG, NIMAG, LEXP, NUPD)$$

OVERF refers to overfunding (i.e., achieving funding at least 10% above target), and *IDEN*, *LVIDE*, *LBUDG*, *NIMAG*, *LEXP*, and *NUPD* are conditions capturing crowdfunding design elements.

3.4. Results

The results reflect the analysis of necessary conditions, as well as the parsimonious solution of configurations of conditions that result in the outcome (i.e., overfunding).

3.4.1. Analysis of necessary conditions

First, an analysis of the necessary conditions for overfunding was performed. Necessary conditions are those that are always present when the outcome occurs. According to Wagemann (2012), for a condition to be necessary, consistency must exceed 0.9. No condition reached or exceeded a consistency of 0.9, so no condition was considered necessary. However, the ones that came closest to this value were \sim IDEN (0.762712) and \sim LBUDG (0.617427).

Table 15. Analysis of necessary conditions

Condition	Outcome: OVERF	
	Consistency	Coverage
IDEN	0.218447	0.762712
\sim IDEN	0.762712	0.817259
LVIDE	0.454660	0.815143
\sim LVIDE	0.545340	0.796173
LBUDG	0.382573	0.802301
\sim LBUDG	0.617427	0.806174
NIMAG	0.436748	0.804237
\sim NIMAG	0.563252	0.805037
LEXP	0.435777	0.787663
\sim LEXP	0.564223	0.818348
NUPD	0.451456	0.857143
\sim NUPD	0.548544	0.766102

Note: The symbol “ \sim ” refers to the negation of a condition.

3.4.2. Parsimonious solution

The three possible solutions to the analysis of the fsQCA model are the complex, intermediate, and parsimonious solutions. The parsimonious solution, which includes all simplifying assumptions made in line with the researchers' specific knowledge (Rey-Martí et al., 2021), is reported. Raw coverage shows the proportion of the outcome explained by a specific solution, whereas unique coverage shows the proportion of the outcome explained by each condition of a causal configuration (Florea et al., 2019). A configuration with low coverage is not always less relevant because it might be useful to explain a particular outcome (Ragin, 1987).

Table 16. Parsimonious solution

Causal configuration	Raw coverage	Unique coverage	Consistency
~LVIDE*~LEXP*NUPD	0.216116	0.0182038	0.842225
~IDEN*~LEXP*NUPD	0.223447	0.0134466	0.875261
~LBUDG*NIMAG*NUPD	0.208592	0.0269417	0.879272
~IDEN*LVIDE*~LBUDG*NUPD	0.158204	0.00917467	0.882959
IDEN*LBUDG*NIMAG*LEXP	0.0453884	0.0197086	0.873016
~IDEN*LVIDE*NIMAG*NUPD	0.145728	0.0174271	0.859926

Solution coverage: 0.378932 Solution consistency: 0.875014

The results for the parsimonious solution show six configurational paths. The coverage of the solution is 0.378932, indicating that the six causal configurations explain roughly 40% of the empirical cases. The first and second causal configurations consist of three conditions: the negation of LEXP and the presence of NUPD for both configurations, and the negation of LVIDE and IDEN, respectively. The third causal configuration also contains three conditions: the negation of LBUDG and the presence of NIMAG and NUPD. The other configurations contain four conditions each: the negation of IDEN and LBUDG, and the presence of LVIDE and NUPD for the fourth configuration; the presence of IDEN, LBUD, NIMAG, and LEXP for the fifth configuration; and the negation of IDEN and the presence of LVIDE, NIMAG, and NUPD for the sixth configuration.

3.5. Discussion

Regarding the fulfillment of the initial propositions, only two conditions meet the initial expectations in all configurations. Specifically, NIMAG always appears to be present (i.e., a high number of images favors campaign overfunding; Proposition 4) and NUPD also always appears in the form of presence (i.e., a high number of updates by the entrepreneur favors campaign overfunding; Proposition 6). For the other conditions, the results are mixed, as was particularly expected for the influence of the entrepreneur's identity on campaign overfunding (Proposition

1a and 1b). That is, both presence and absence of the condition can be found in the causal configurations.

3.5.1. Detailed analysis of causal configurations

Of all causal configurations in the parsimonious solution, four are specific to a particular identity of the entrepreneur (individual or corporate). For the other two, identity is irrelevant. For corporate entrepreneurs, a concise explanation of the project and continuous communication with the crowd (Configuration 2), a concise budget explanation, long video, and continuous communication (Configuration 4), and a long video, large number of images, and continuous communication (Configuration 6) result in overfunding.

In the case of individual entrepreneurs, both the budget and the entrepreneurial project should be explained extensively and should be accompanied by a large number of images (Configuration 5). Finally, two causal configurations have no predefined entrepreneur identity. In the first, overfunding is achieved through a concise explanation of the project and a concise video pitch, together with continuous communication from the entrepreneur to the crowd (Configuration 1). In the other, the budget must be concise, communication continuous, and the number of images high (Configuration 3).

3.5.2. Overall findings

Overall, the following findings can be derived from the above causal configurations. However, their meaning only makes sense when considering the interrelationship of each condition with others in the form of configurations. They should not be interpreted as unidirectional relationships.

Finding 1. Maintaining a continuous communication with the crowd during the campaign matters.

The NUPD condition is present in five of the six causal configurations. This finding confirms the importance for entrepreneurs to maintain a fluid communication channel with the crowd through which they can resolve their queries and provide additional information to reduce information asymmetries.

Finding 2. The identity of the entrepreneur seeking funding matters.

This identity is a condition in four of the six causal configurations. In three causal configurations, being a corporate entrepreneur is identified as a success factor, while in another, being an individual entrepreneur is identified as a success factor.

Finding 3. The shorter the text, the better.

Both the LEXP and LBUDG conditions, which refer to the length of the project abstract and budget explanation, respectively, appear in two causal configurations each in the form of negation. Because the presence of these conditions would refer to having a long text, their negation (absence) suggests that the brevity of texts matters for campaign success.

Finding 4. Images about the project are relevant.

The NIMAG condition is present in three of the six causal configurations, suggesting that the greater the number of images, the greater the success.

3.6. Conclusions, implications, and further research

The present study used fsQCA to explore the configurations of conditions that result in overfunding, referring to achieving funding at least 10% above target. The conditions employed in the study were campaign design factors, which are associated with information disclosure by entrepreneurs in an attempt to reduce information asymmetries. The conditions were the entrepreneur's identity as an individual or corporation [IDEN], pitch video length [LVIDE], budget explanation length [LBUDG], number of images [NIMAG], project abstract length [LEXP], and number of updates by the entrepreneur [NUPD].

The study has two core findings. First, the configurations of conditions that result in overfunding suggest that the role of continuous communication from the entrepreneur to the crowd is especially relevant. Second, a series of exploratory findings, which must always be interpreted under a configurational logic, suggest the importance of the identity of the entrepreneur, the brevity of the texts included on the campaign website, and the amount of visual content in the form of images.

The implications of this study are of particular importance in relation to the design of crowdfunding campaigns that are able to signal success and result in an overfunded campaign. The study was limited by the sample size and the choice of conditions, which did not account for specific types of images, videos, or texts. Further research could include a more detailed study of text content using text mining, given that this study only considered text length. This line of study could also be further developed by analyzing in detail the success and overfunding of crowdfunding campaigns depending on their specific type.

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Chapter 4. *Anchor investors and equity crowdfunding for entrepreneurs*

Chapter 4. Anchor investors and equity crowdfunding for entrepreneurs

Abstract

This empirical study uses herding behavior theory to explore the role of anchor investors in ensuring fundraising success of new ventures seeking funding through equity crowdfunding platforms. Such online environments are characterized by large information asymmetries between fund-seeking entrepreneurs and potential investors. The attributes of anchor investors can help mitigate these asymmetries by awakening herding behavior. Qualitative comparative analysis (QCA) is applied to examine the configurational patterns leading to successful financing and overfunding (i.e., raising at least 10% above target funding). The results show that even when the anchor investor's resume is not detailed or the anchor investor has little experience in entrepreneurial investment, success or overfunding can be achieved, provided the anchor investor is a corporation rather than an individual. Regarding overfunding, when dealing with an individual anchor investor, a detailed resume matters, even when the anchor investor makes a small relative investment. Moreover, the number of years of experience in entrepreneurial investment is crucial when the anchor investor has made few previous investments. Finally, regardless of the anchor investor's identity, the investment in absolute terms is crucial when experience in entrepreneurial investment is low. In contrast, such experience must be extensive whenever the anchor investor's resume is not detailed. These findings have implications for both entrepreneurs and intermediary crowdfunding platforms in relation to the design of successful campaigns.

Keywords: anchor investor; herding behavior; equity crowdfunding; success; qualitative comparative analysis (QCA).

4.1. Introduction

“It is a far, far better thing to have a firm anchor in nonsense than to put out on the troubled seas of thought.” —John Kenneth Galbraith

The mobilization of financial resources by the entrepreneurial ecosystem has been identified as one of the major difficulties in the creation of new companies (Ko and McKelvie, 2018). With the emergence of crowdfunding, which makes it possible to reach a multitude of potential backers through the internet, the need to develop strategies to ensure the success of crowdfunding campaigns is becoming increasingly important (Kraus et al., 2016; Moritz and Block, 2016). In this sense, the main challenge for fundraising by new ventures lies in mitigating information asymmetries between entrepreneurs and potential backers, building trust around technologies, products or services whose quality or market demand are unproven or costly to determine (Murray and Marriott, 1998; Nagy et al., 2012; Colombo, 2021).

Several crowdfunding success factors (e.g. campaign design, entrepreneur characteristics and motivations, biases, culture) have been studied through a plethora of theoretical approaches (e.g. information asymmetries, social influence, game theory, cognitive evaluation theory, impression management, signaling theory or herding), considering different ways of measuring success (Alegre and Moleskis, 2016). One approach to mitigating prevailing information asymmetries in crowdfunding is for entrepreneurs seeking funding, as the better informed party, to convey signals about the quality of venture (see Ahlers et al., 2015; Piva and Rossi-Lamastra, 2018; Chakraborty and Swinney, 2021; Huang et al., 2022). Another approach is to use others' behavior to trigger a process of imitation, based on observational learning or mere imitation, known as herding behavior. In this case, the crowd's decision-making is influenced by others' previous decisions to invest, given the cognitive cost of generating a much more exhaustive evaluation of the different projects available for investment (see Comeig et al., 2020; Petit and Wirtz, 2022). We focus on the latter by studying the role of anchor investors in triggering such herding behavior and leading to campaign success and overfunding.

The present study uses qualitative comparative analysis (QCA) to establish configurational patterns of the conditions that lead to fundraising success of an equity crowdfunding campaign, as well as overfunding, defined here as raising at least 10% above the fundraising target, through a process of observational learning that results in herding behavior. In this study, the informational structure through which herding behavior is triggered is evaluated through two different models. The first aims at exploring the successful achievement of the funding target (Model 1), whereas the second aims at exploring the achievement of particularly high levels of funding, namely overfunding (Model 2). It is especially valuable to understand overfunding because of the vital importance of knowing which information results in high levels of fundraising when disclosed.

The current study is original in that it is one of the very few that explores the role of anchor investor attributes when it comes to securing syndicated equity crowdfunding success and overfunding by differentiating between configurational patterns according to whether the anchor investor is an individual or corporate investor. This approach not only enriches the possible theoretical implications but also makes it easier to derive practical guidelines to ensure successful entrepreneurial fundraising processes.

Next, a discussion of the theoretical foundations of the research is provided, building on information processing, observational learning and herding behavior theory. Then, the data and method are presented, with emphasis on the configurational nature of the analysis and the relevance of this approach. The results are then presented, followed by a discussion of the information disclosure strategies identified in the analysis. Finally, the conclusions are provided, together with the theoretical contributions, practical implications, and limitations of the study.

4.2. Theoretical background

4.2.1. Investors' cognitive processing in asymmetric informational settings

Credit markets for highly innovative small and medium sized companies, including crowd-based financial environments, are characterized by high levels of information asymmetries often resulting in a credit rationing problem (Comeig et al., 2014). When confronted with a catalogue of mutually exclusive projects for investment or individual projects with budget constraints, an increasingly complex cognitive processing as more information is added to decision-making (Anderson, 2003) calls for the need of relying on heuristics (Burch et al., 2013; Stevenson et al., 2018), i.e. methods aimed at streamlining information processing and subsequent decision-making in the light of limited cognitive resources (Gigerenzer and Goldstein, 1996; Ferretti et al., 2021). This need is even more imperative in the case of equity-based crowdfunding for which Hemers (2011) and Ahlers (2015) found specially high levels of information asymmetries and complexity in information processing.

In an equity crowdfunding context, potential investors possess limited information prior to decide to invest. The most-informed party, i.e., the entrepreneur, provides potential investors with information on the venture to be carried out, in an effort to mitigate information asymmetries within a trust-building strategy (Ahlers et al., 2015). However, this study does not analyze the role of the entrepreneur in signaling the expected future success of an equity crowdfunding campaign, thereby reducing uncertainty and arousing investment, but rather focuses on how the behavior of a quasi-informed party, i.e. the anchor investor, triggers a process of observational learning leading to herding behavior.

In equity syndicated crowdfunding, the fundraising campaigns are always sponsored by an anchor investor who, after a due diligence process, invests a considerable amount of money in the venture prior to launching. In addition, s/he often provides written justification for her/his decision in favor of the venture. Accordingly, the anchor investor's access to information is

somewhere in between the insider information that the entrepreneur possesses and the entrepreneur-induced information to which potential investors have access.

The anchor investor intervening in an equity crowdfunding campaign implies two paths to information asymmetries mitigation and confidence generation: (i) the anchor investor’s considerable investment, before the venture is exposed to public investment, reduces the distance to the minimum amount to be raised, lowering the risk that the funding target will not be reached and investors will incur an opportunity cost for the time their funds have been held up (the target funding and opportunity cost path); and, (ii) the anchor investor’s endorsement of the campaign, as a specialized investor who has a sizeable stake in the campaign, deploys a process of observational learning and trust-building that can trigger rational herding. This study focuses on both paths, exploring the anchor investor’s monetary contribution in relative and absolute terms (the opportunity cost risk reduction path) and the anchor investor’s information disclosure (the information gathering and disclosure path) when awakening herding and leading to fundraising success and overfunding.

Figure 4 shows the aforementioned dual path towards mitigating information asymmetries and generating confidence. Section A exemplifies how, prior to the start of the campaign ($t_0 - x$) the target funding is an amount α that is lowered once the anchor investor makes a sizeable investment (α/y) that makes such target funding to decrease at $(\alpha - \alpha/y)$ once the campaign starts (t_0). This way, the chances of not raising the needed funds to achieve the target funding are reduced significantly. Additionally, Section B shows how the anchor investor’s due diligence between $t_0 - x$ and t_0 generates the information that will be disclosed from t_0 to t_1 , thereby building momentum on herding behavior.

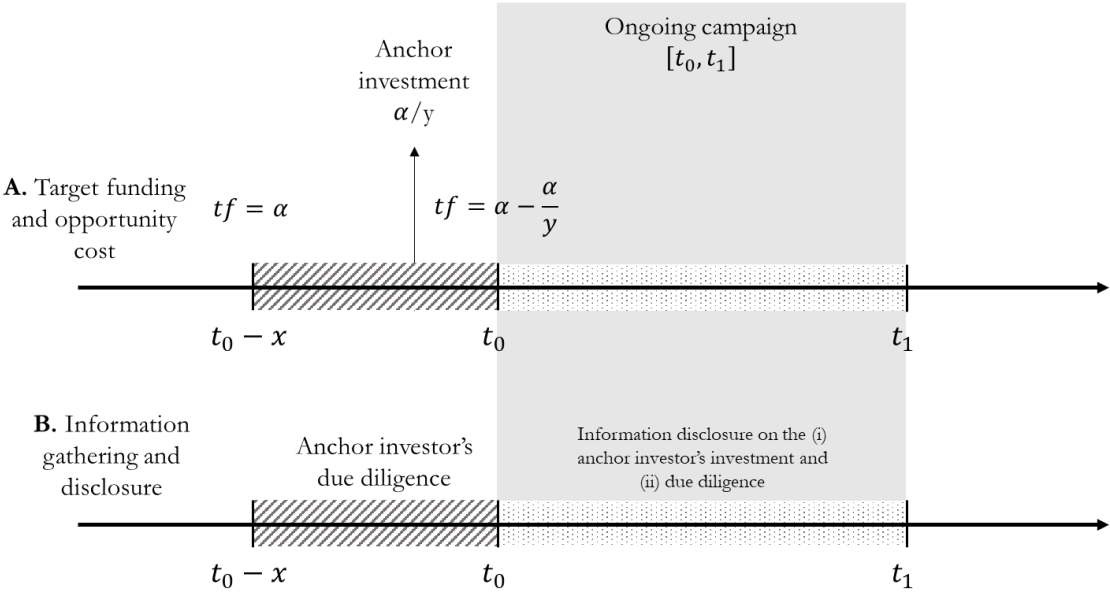


Figure 4. A dual path toward mitigating information asymmetries and generating confidence

The next section develops rational herding behavior dynamics which, according to Hoegen et al. (2018) stand out among heuristics used in financial situations with multiple investment alternatives competing against each other.

4.2.2. Information disclosure and rational herding dynamics

In evaluating the information structure and rational herding behavior awakening, this empirical study employs three subsets of cues: (i) information disclosure on the investment endowment of the anchor investor, (ii) information disclosure on the anchor investor’s experience, and (iii) information disclosure on the explanation that led the anchor investor to invest. Figure 5 shows that the first subset (i) of cues comes from the opportunity cost risk reduction path where the others (ii, iii) come from the information gathering and disclosure path. In QCA terminology, the first subset has two conditions: absolute investment and relative investment in relation to target funding. These conditions could be used as indicators of the anchor investor’s endowment. The second subset has three conditions: the number of years that the anchor investor has been investing in startups, the number of investments that the anchor investor has made, and the length of the anchor investor’s resume displayed on the platform, used as a proxy of detail. The last subset consists of a single condition: the detail of the explanation as to why the anchor investor has decided to invest. In addition, the anchor investor’s identity as either an individual or a corporation is included in the analysis to help characterize the configurational patterns. The aforementioned subset of cues is developed in the next section.

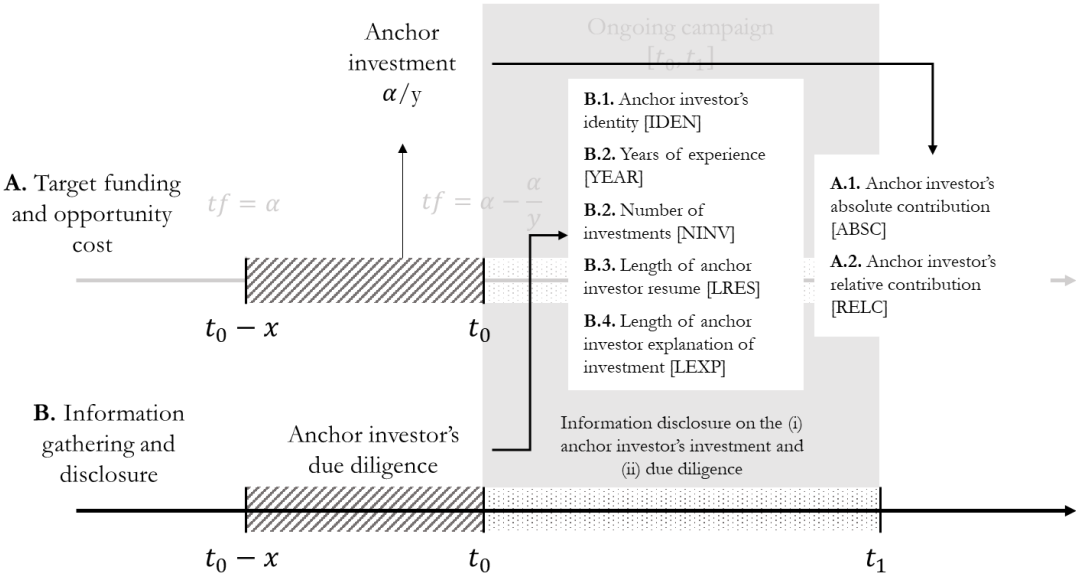


Figure 5. Information disclosure on the anchor investor financial and reputational commitment

4.2.2.1. Information disclosure on the investment endowment of the anchor investor

In a crowd-based funding process, it is usually impossible to assess a business venture's quality directly. Therefore, signaling theory offers a suitable theoretical construct for research in this area (Butticè et al., 2021; Kleinert et al., 2021; Xu et al., 2022). In the same way that potential buyers in the used car market described by Akerlof (1970) knew little or nothing about the cars' quality, the crowdfunding market requires the construction of credible signals to combat the prevailing information asymmetries in this market. As Pabst and Mohnen (2021) remarked, trust building through such signals is critical in crowdfunding platforms. Reputational intermediation, whereby car dealers introduced warranties for used cars, was established in the used car market to prevent the "lemons" problem from occurring (Ibrahim, 2015). As in crowdfunding, the main role of such reputational intermediaries is to provide signals of quality that mitigate information asymmetries (Black, 2001).

The original lead investor–follower model was introduced by the American equity crowdfunding platform AngelList. In this model, the crowd invests in the lead's syndicated operations (Agrawal et al., 2016). Under this model, Shen et al. (2020) found that the amount of funds invested by anchor investors in the financing process matters. Thus, anchor investors' decisions trigger more investment from the crowd because these decisions are deemed to be informed and reliable. An analogy is the fact that entrepreneurs' investment in their own ventures or their decisions to retain more equity are seen as an indication of overall venture quality (Brealey et al., 1977; Vismara, 2016; Löher et al., 2018; Shen et al., 2020).

As argued by Agrawal et al. (2016), syndicates (i.e., the use of an anchor investor to whom the crowd is syndicated) help mitigate market failures by shifting the focus of the crowd's investment activities from startups (i.e., the entrepreneurs) to anchor investors. Li et al. (2016) identified information on the lead or anchor investor as a peripheral cue. Although they observed a positive relationship between the leader's identity certification and the number of followers, they found a negative link between the percentage of money invested by the lead investor and the number of followers, probably due to the fear of collusion between the lead and the entrepreneur. Despite concerns about collusion, the aforementioned arguments lead to the following propositions:

Proposition 1a. High monetary contributions are conducive to funding success in syndicated co-investment campaigns.

Proposition 1b. High monetary contributions are conducive to high levels of investment (i.e., exceeding the funding target by at least 10%) in syndicated co-investment campaigns.

Proposition 2a. High relative levels of anchor investment with respect to the funding target are conducive to funding success in syndicated co-investment campaigns.

Proposition 2b. High relative levels of anchor investment with respect to the funding target are conducive to high levels of investment (i.e., at least 10% above the funding target) in syndicated co-investment campaigns.

4.2.2.2. Information disclosure on the anchor investor's experience

Entrepreneurs' observable attributes have been recognized as valuable signals for the market (Baum and Silverman, 2004; Hsu, 2007; Gimmon and Levie, 2010; Piva and Rossi-Lamastra, 2018). Regarding human capital, Piva and Rossi-Lamastra (2018) noted that entrepreneurial experience is a key factor for fundraising success in equity crowdfunding. Given that human capital is a key factor in funding new ventures, particularly young ones, firms with greater human capital (i.e., with higher expected efficiency) should attract more money (Zacharakis and Meyer, 2000; Colombo and Grilli, 2005; Unger et al., 2011; Barbi and Mattioli, 2019).

Arguably, just as the human capital of entrepreneurs who run fundraising campaigns is relevant to potential backers (Hunter, 1986; Ackerman and Humphreys, 1990; Shane and Venkataraman, 2000; Baum et al., 2001; Ahlers et al., 2015), human capital signals from anchor investors are similarly important pieces of information when it comes to trigger observational learning (see Unger et al., 2011). Specifically, in the same way that there are studies that have seen in entrepreneurs past crowdfunding experience a source of credibility towards potential backers (Courtney et al., 2017; Davies et al., 2017), anchor investor previous experience has arguably the potential to enhance credibility. Anchor investors (i.e., venture capitalists or "VCs") scout and coach future business ideas (Baum and Silverman, 2004), so their judgment indicates venture quality.

As Wang et al. (2019) noted, angels' behavior in equity crowdfunding platforms can reduce information asymmetries, thus mitigating possible market inefficiencies. Thus, platforms can enable the flow of information from angels (i.e., experienced individuals) working with such investments (see Maula et al., 2005; Ramadani, 2009; Mason et al., 2016) to the non-professional crowd (which is generally less experienced), thereby helping the former send signals on venture quality (Agrawal et al., 2016). Research has not only confirmed the central role of angels in financing large ventures but also revealed the complementarity between business angels and crowd investors as a source of greater overall efficiency in highly uncertain and asymmetric information environments (Wang et al., 2019). Specifically, Shen et al. (2020) found that the lead investor's experience was positively related to fundraising success. Kim and Viswanathan (2019) concluded that experienced early investors within the app development crowdfunding market provide credible signals to the crowd regarding the quality of the project. This discussion leads to the following propositions:

Proposition 3a. A greater number of years of experience investing in startups is conducive to funding success in syndicated co-investment campaigns.

Proposition 3b. A greater number of years of experience investing in startups is conducive to high levels of investment (i.e., 10% above the funding target) in syndicated co-investment campaigns.

Proposition 4a. A higher number of previous investments by the anchor investor is conducive to funding success in syndicated co-investment campaigns.

Proposition 4b. A higher number of previous investments by the anchor investor is conducive to high levels of investment (i.e., 10% above the funding target) in syndicated co-investment campaigns.

Proposition 5a. A more detailed anchor investor resume (i.e., a longer resume) is conducive to funding success in syndicated co-investment campaigns.

Proposition 5b. A more detailed anchor investor resume (i.e., a longer resume) is conducive to high levels of investment (i.e., 10% above the funding target) in syndicated co-investment campaigns.

4.2.2.3. Information disclosure on the explanation for investment

The rationale behind an anchor investor's decision to financially and reputationally support a funding campaign is of vital importance in instigating observational learning among potential investors that results in rational herding behavior. That is why the anchor investor offers potential investors a reasoned explanation of her/his investment decision. A multitude of authors have found a positive relationship between an optimal word count in the written content displayed in a crowdfunding campaign and investment, thus implying that the word count of the explanation for the investment decision acts as a signal (Ahlers et al., 2015; Bi et al., 2017; Moy et al., 2018). However, an excessive word count may hinder the assessment of the project, disincentivizing the funding process (Moy et al., 2018; Du and Wang, 2019; Zhang and Chen, 2019).

Ultimately, it can be argued that the written endorsement of an anchor investor to the entrepreneurial project seeking funding is an element with which to increase the perceived trust of the campaign (Hsu et al., 2014) by not only evidencing that someone has already committed considerable financial resources to that campaign but also that s/he is able to give a detailed justification of the drivers that have motivated her/his investment decision. Thus, just as the length of information initially presented by entrepreneurs in their campaign has been identified as more informative (Parhankangas and Renko, 2017), more helpful (Mudambi and Schuff, 2010) or more useful (Cheung et al., 2008) for potential backer's decision-making, a longer word count in the anchor investor written endorsement contributes to the generation of a trusting environment where the anchor investor endorsement is seen as a credible signal due to her/his large financial commitment.

Proposition 6a. A more detailed explanation of the anchor investor's decision to invest (i.e., a longer explanation) is conducive to funding success in syndicated co-investment campaigns.

Proposition 6b. A more detailed explanation of the anchor investor's decision to invest (i.e., a longer explanation) is conducive to high levels of investment (i.e., 10% above the funding target) in syndicated co-investment campaigns.

4.2.2.4. Anchor investor identity

One of the key methodological advancements of the current study is to provide configurational patterns of successful equity crowdfunding campaigns that apply to corporate or individual anchor investors. Previous research has identified the power of peer endorsement in attracting investment in crowd-based environments (Comeig et al., 2020). Hence, it could be argued that individual anchor investors would be deemed as more credible than corporate investors because prospective investors see themselves as more similar to individuals than corporations. Alternatively, a corporate anchor investor could be seen as more mature or experienced by the crowd of potential investors, i.e. perceived as most reputed (Lee et al., 2011). However, the anchor investor's identity, despite being important for developing effective fundraising strategies in digital fundraising environments, remains unexplored as a quality signal awakening imitation. This condition is included in Model 1 and Model 2 (i.e., the models of fundraising success and overfunding, respectively) to study how to improve the design of informational structures that effectively convey venture quality and informed imitation.

4.3. Data and method

4.3.1. Data

The data were gathered from the website of the equity crowdfunding co-investment platform Startupxplore, based in Valencia, Spain. Startupxplore is a leading Spanish equity crowdfunding platform, legally constituted as Startupxplore PFP, S.L., authorized by the Spanish National Securities Market Commission (Comisión Nacional del Mercado de Valores, CNMV) from April 2017. Already in June 2016, two years after its launch, Startupxplore became Europe's second largest community. At the time of writing this research, the platform has raised more than 14 million euros from 60 deals. Among all fundraising campaigns raised through Startupxplore, 85% have been successfully accomplished, involving an investment of more than 70,000 investors.

The data covered all campaigns managed until late 2021, representing €9,804,879.06 in requested funding and €10,984,543.65 in raised funding. From this initial data set, we discarded campaigns with no anchor investor, as well as those with missing data for any of the conditions included in the analysis. Therefore, the final sample was homogeneous in terms of the information displayed on the platform to prospective backers, with the same signals provided in all campaigns.

The sample comprised 24 syndicated equity crowdfunding financing operations carried out between 2016 and 2021. Requested funding amounted to €5,141,261.06, and raised funding totaled €5,695,426.90. The anchor investor provided an average share of 23.68% of the target funding for the sample. In absolute terms, the average funding provided by anchor investors was €51,855.75. In all transactions, the anchor investor was an organization or an individual male investor. No female anchor investors were found in either the sample or the original data set prior to filtering. Hence, gender was not considered in this study.

The data necessary to perform the qualitative comparative analysis (QCA) included both dichotomous (i.e., 0 or 1) and fuzzy (i.e., continuous values ranging from 0 to 1) conditions (Sendra-Pons et al., 2022). To calibrate fuzzy values full membership was set at 20% above mean, the cross-over point was set at mean value and the full-non membership at 50% below mean (Berné-Martínez et al., 2021; Garcia-Alvarez Coque et al., 2021). The data were collected by hand from the publicly available data from Startupxplore. The authors processed the data themselves and were fully responsible for the data collection process. Table 17 explains both the outcomes and conditions. All the information associated with the conditions was publicly displayed to all prospective backers.

Table 17. Outcomes and conditions used in the study

Outcomes	Definition	Codification
Success [SUCC]	Whether campaign is successful (i.e., meets or exceeds target funding)	Crisp value
Overfunding [OVER]	Whether campaign raises funding exceeding the target by 10% or more	Crisp value
Conditions	Definition	Codification
Anchor investor's identity [IDEN]	Identity of anchor investor (1 = corporate anchor investor; 0 = individual anchor investor)	Crisp value
Anchor investor's absolute contribution [ABSC]	Euro denominated amount deposited by anchor investor in campaign	Fuzzy value
Anchor investor's relative contribution [RELC]	Ratio of anchor investor's investment in euros to campaign funding target (relative amount)	Fuzzy value
Years of experience [YEAR]	Years of experience in entrepreneurial fundraising	Fuzzy value
Number of investments [NINV]	Number of investments by anchor investor prior to campaign	Fuzzy value
Length of anchor investor resume [LRES]	Word count of anchor investor's resume	Fuzzy value

Length of anchor investor explanation of investment [LEXP]	Word count of explanation for anchor investor's decision to invest in campaign	Fuzzy value
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Note: Success [SUCC] is the outcome for Model 1 and overfunding [OVER] is the outcome for Model 2.

4.3.2. Method

The method was based on two QCA models: Model 1 aimed at providing configurations of conditions resulting in campaign success [SUCC]; Model 2 aimed at providing configurations of conditions resulting in overfunding (i.e., raising at least 10% more than the target) [OVER].

Model 1: $SUCC = f(IDEN, ABSC, RELC, YEAR, NINV, LRES, LEXP)$

Model 2: $OVER = f(IDEN, ABSC, RELC, YEAR, NINV, LRES, LEXP)$

QCA allows for the study of configurational patterns leading to a certain outcome (Rey-Martí et al., 2021). It has been widely used in business research and has the advantage of allowing for causal multiplicity (Sendra-Pons et al., 2021). Hence, it can offer a useful way of studying reality. It uses Boolean logic to examine interrelations of conditions in the form of causal configurations to explain the presence or absence of the outcome of interest (Ragin, 2008).

4.4. Results

The results were obtained by applying QCA to the aforementioned models. Reporting begins with the analysis of necessary conditions. Table 18 reports this analysis for Model 1, where the outcome is the success of the fundraising campaign [SUCC], and Model 2, where the outcome is overfunding (i.e., raising at least 10% more than the target) [OVER].

Table 18. Analysis of necessary conditions for Models 1 and 2

Condition	Model 1 Outcome: SUCC		Model 2 Outcome: OVER	
	Consistency	Coverage	Consistency	Coverage
IDEN	0.611111	0.785714	0.692308	0.642857
~IDEN	0.388889	0.700000	0.307692	0.400000
ABSC	0.532778	0.832465	0.358462	0.404514
~ABSC	0.467222	0.673878	0.641539	0.668269
RELC	0.630000	0.855849	0.497692	0.488302
~RELC	0.370000	0.619535	0.502308	0.607442
YEAR	0.316111	0.729487	0.269231	0.448718
~YEAR	0.683889	0.759877	0.730769	0.586420
NINV	0.298889	0.778582	0.288462	0.542692
~NINV	0.701111	0.73844	0.711538	0.541252
LRES	0.338889	0.604559	0.315385	0.406343
~LRES	0.661111	0.855500	0.684615	0.639827
LEXP	0.344444	0.668103	0.306923	0.429957
~LEXP	0.655556	0.801630	0.693077	0.612092
ENDO	0.642222	0.829268	0.506153	0.472023
~ENDO	0.357778	0.640159	0.493846	0.638171
INFD	0.594444	0.721510	0.576154	0.505057
~INFD	0.405556	0.796074	0.423846	0.600872
EXPE	0.533333	0.818414	0.506923	0.561807
~EXPE	0.466667	0.684597	0.493077	0.522412

Note: The symbol “~” refers to the absence of a condition. For example, “~ABSC” corresponds to a low level of absolute investment by the anchor investor [ABSC]. Gray-shaded conditions are combinations of various individual conditions.

“ENDO” refers to “endowment” and comprises “ABSC” and “RELC”; “INFD” refers to “information disclosure” and comprises “LRES” and “LEXP”; and “EXPE” refers to “experience” and comprises “YEAR” and “NINV”.

The analysis of necessary conditions for Models 1 and 2 (see Table 18) shows that no condition is considered necessary for the presence of funding success [SUCC] and overfunding [OVER] in equity crowdfunding campaigns because consistency is below 0.9 in all cases. Even when these conditions are grouped (see notes to Table 18), the consistency is still less than 0.9. Therefore, the next step is to explore configurational patterns leading to the aforementioned outcomes.

Table 19 shows the parsimonious solution for Models 1 and 2, aimed at exploring funding success [SUCC] and overfunding [OVER]. Raw coverage refers to the percentage of the

outcome that can be explained by a specific solution, whereas unique coverage refers to the percentage of the outcome that can be described by each condition within a causal configuration (Florea et al., 2019). The results show four configurations leading to funding success (i.e., achieving the funding goal within the predefined period) [Model 1]. There are also four configurations leading to overfunding (i.e., achieving at least 10% more than the target) [Model 2].

Table 19. Parsimonious solution for Models 1 and 2

	Causal configuration	Raw coverage	Unique coverage	Consistency
Model 1	[C1] IDEN*~LRES	0.425556	0.155000	0.998696
	[C2] ~IDEN*LRES	0.153333	0.104444	0.734043
	[C3] ABSC*~YEAR	0.354444	0.163333	0.864499
	[C4] ~LRES*YEAR	0.290556	0.161111	0.984934

Solution coverage: 0.903333 Solution consistency: 0.887554

Model 2	[C5] IDEN*~LRES*~YEAR	0.435385	0.265385	1
	[C6] IDEN*~YEAR*NINV	0.265385	0.095384	0.991379
	[C7] ~IDEN*~RELC*LRES	0.135385	0.131539	0.649447
	[C8] ~IDEN*YEAR*~NINV	0.147692	0.143846	0.668990

Solution coverage: 0.81 Solution consistency: 0.881171

4.5. Discussion

Based on the previous results, this discussion follows two main paths. The first explores the configurational patterns resulting in funding success [Model 1]. The second explores the configurations resulting in overfunding [Model 2]. We distinguish between the corporate versus individual identity of the anchor investor.

4.5.1. Configurations leading to the success of entrepreneurial fundraising

One of the configurations of logically feasible conditions resulting in entrepreneurial fundraising success is ascribed only to corporate anchor investors, another is ascribed only to individual anchor investors, and the remaining two are not confined to a specific anchor investor identity. The configurations that apply to a particular anchor investor identity (corporate or individual) are shaded in gray in Table 20.

The theoretical and practical implications of these configurations differ depending on the identity of the anchor investor.

Finding 1. If the anchor investor is a corporate investor (i.e., a company not an individual), then the entrepreneurial fundraising campaign through equity crowdfunding can be successful even if the length of the anchor investor's resume shown on the crowdfunding website is short.

Finding 2. If the anchor investor is an individual, then the path to a successful fundraising campaign requires a much more extensive explanation of the anchor investor's resume than if the anchor investor is a corporation.

Finding 3. Two alternative paths apply to both corporate and individual anchor investors. When the number of years of entrepreneurial investment experience is low, then the absolute amount invested matters, and it must be high. Conversely, if the experience in entrepreneurial investment is extensive, then less disclosure may be given in the anchor investor's resume. Thus, if experience is limited (i.e., the investor has spent few years in entrepreneurial investment), then this relatively low experience should be complemented by a large absolute investment. If experience is extensive, less information can be provided in the anchor investor's resume.

These findings are especially interesting because they provide clear insights into the role of the anchor investor's identity. Finding 1 and Finding 2 suggest that when the anchor investor is a corporate investor, it is less important to provide details on the anchor investor's identity. The fact that the investor is a company has enough signaling power to result in the success of the funding campaign. However, this signaling power seems to be diluted when the anchor investor is an individual. Hence, more detail is required in the anchor investor's resume.

The raw coverage, which is the percentage of the outcome explained by a specific solution (Florea et al., 2019), implies that more than 40% of the outcome can be explained by Configuration 1. Configuration 2 explains approximately 15% of the outcome, Configuration 3 approximately 35%, and Configuration 4 approximately 29%. Thus, most of the outcome is explained when the anchor investor is a corporation (Configuration 1), partly due to the dominance of this type of anchor investor. The next most explanatory configurations are Configuration 3 and Configuration 4, which are independent of the anchor investor identity. Configuration 2, which refers to individual anchor investors, explains the smallest percentage of the outcome (roughly 15%).

Table 20. Causal configurations leading to success in entrepreneurial fundraising by anchor investor identity

	Causal configuration	Raw coverage	Unique coverage	Consistency
Model 1	[C1] IDEN*~LRES ⁽¹⁾	0.425556	0.155000	0.998696
	[C2] ~IDEN*LRES ⁽¹⁾	0.153333	0.104444	0.734043
	[C3] ABSC*~YEAR ⁽²⁾	0.354444	0.163333	0.864499
	[C4] ~LRES*YEAR ⁽²⁾	0.290556	0.161111	0.984934

Solution coverage: 0.903333 Solution consistency: 0.887554

Note (1): IDEN refers to corporate anchor investors, whereas ~IDEN refers to individual anchor investors.

Note (2): These configurations do not refer to any specific anchor investor identity.

4.5.2. Configurations leading to overfunding of entrepreneurial ventures

In reference to Model 2, all configurational paths resulting in overfunding (i.e., raising at least 10% more than the target) are ascribed to the identity of the anchor investor (either corporate or individual). The first two (Configuration 5 and Configuration 6) refer to corporate anchor investors. The next two configurations (Configuration 7 and Configuration 8) refer to individual anchor investors. The configurations associated with corporate anchor investors are shaded in gray in Table 21.

Again, the theoretical and practical inferences from these configurations can be stated.

Finding 4. Overfunding in entrepreneurial fundraising (i.e., exceeding target funding by at least 10%) can be achieved even if the anchor investor's resume and experience are limited, as long as the anchor investor is a corporate anchor investor.

Finding 5. Overfunding can also be achieved when experience (number of years) in entrepreneurial investment is limited, as long as the number of previous investments by the anchor investor is high and the anchor investor is a corporation.

Finding 6. When the investor is an individual, overfunding can be achieved even when the relative size of investment by the anchor investor is low, as long as a detailed resume is provided.

Finding 7. Also when the investor is an individual, overfunding can be achieved even if the anchor investor has made a small number of investments, as long as the anchor investor's experience is extensive in terms of number of years in entrepreneurial investment.

In summary, if the investor is a corporate investor, overfunding can be achieved even if the resume provides little detail and the investor lacks experience or if the anchor investor's experience is limited but the investor has made a large number of investments. If the anchor investor is an individual, the length of resume and experience matter to achieve overfunding, even if the relative size of investment is low or the investor has made few previous investments.

In terms of ranking how much of the outcome is explained by each configuration, the raw coverage again suggests that the configurations relating to corporate anchor investors are the most explanatory. Configuration 5 accounts for more than 40% of the explanation of the outcome, and Configuration 6 accounts for roughly 26%. Configuration 7 (roughly 14%) and Configuration 8 (roughly 15%) explain a smaller percentage of the outcome.

Table 21. Causal configurations leading to overfunding in entrepreneurial fundraising by anchor investor identity

	Causal configuration	Raw coverage	Unique coverage	Consistency
Model 2	[C5] IDEN*~LRES*~YEAR ⁽¹⁾	0.435385	0.265385	1
	[C6] IDEN*~YEAR*NINV ⁽¹⁾	0.265385	0.095384	0.991379
	[C7] ~IDEN*~RELC*LRES ⁽²⁾	0.135385	0.131539	0.649447
	[C8] ~IDEN*YEAR*~NINV ⁽²⁾	0.147692	0.143846	0.668990

Solution coverage: 0.81 Solution consistency: 0.881171

Note ⁽¹⁾: IDEN refers to a corporate anchor investor. This configuration is ascribed to corporate anchor investors.

Note ⁽²⁾: ~IDEN refers to an individual anchor investor. This configuration is ascribed to individual anchor investors.

4.5.3. Visual representation of successful strategies

Overall, three configurations are ascribed to corporate anchor investors, three to individual anchor investors, and two to both types. Four configurations explain success in equity crowdfunding [SUCC], and another four explain overfunding in equity crowdfunding [OVER].

Besides investor identity, the most common conditions in the configurations (in terms of both presence and absence) are the number of years in entrepreneurial investment [YEAR] and the length of the anchor investor's resume [LRES]. Each of these conditions appears in five causal configurations (Configurations 3, 4, 5, 6, and 8 and Configurations 1, 2, 4, 5, and 7, respectively). The absence of YEAR and LRES appears three times for each condition, and the presence of each condition appears twice. Additionally, the presence of ABSC and the absence of RELC can be found in one configuration, and each of the presence and absence of NINV can be found in

one configuration. LEXP does not appear in any configuration. Table 22 summarizes causal configurations leading to entrepreneurial fundraising success and overfunding.

Table 22. Causal configurations leading to entrepreneurial fundraising success and overfunding

Configuration No.	Success in equity crowdfunding [SUCC]				Overfunding in equity crowdfunding [OVER]			
	C1	C2	C3	C4	C5	C6	C7	C8
CORP	●	○			●	●	○	○
ABSC			●					
RELC							○	
YEAR			○	●	○	○		●
NINV						●		○
LRES	○	●		○	○		●	
LEXP								
Raw coverage	0.425556	0.153333	0.354444	0.290556	0.435385	0.265385	0.135385	0.147692
Unique coverage	0.155000	0.104444	0.163333	0.161111	0.265385	0.095384	0.131539	0.143846
Consistency	0.998696	0.734043	0.864499	0.984934	1	0.991379	0.649447	0.668990
Solution coverage	0.903333				0.81			
Solution consistency	0.887554				0.881171			

Note: Gray-shaded configurations refer to corporate anchor investors. “●” refers to the presence of a condition within the configuration. “○” refers to the absence of a condition.

4.6. Conclusions

The present study has theoretical and practical implications. On the theoretical side, based on Akerlof's (1970) theory of information asymmetries and herding behavior theory, it contributes to a growing body of academic research on success factors in crowdfunding campaigns. On the practical side, it shows crowdfunding platforms which information is most relevant and informs potential investors about which information elements to look for when searching for potentially successful investment projects.

To the authors' knowledge, this configurational study is one of the very few studies exploring funding success and overfunding in online investment campaigns through syndicated equity crowdfunding. Crucially, the study accounts for the identity of the anchor investor (corporate

vs. individual) to derive guidelines for campaign design. The study provides several main findings. (i) Corporate anchor investors have prominent signaling power. Despite situations where the anchor investor's resume is poorly explained and experience is low, this signaling power enables success or high success (Configurations 1, 5, and 6). (ii) There is a need for a detailed resume when the investor is an individual. This situation was observed in Configurations 2 and 7, despite a low relative investment. There is also a need for a high number of previous investments when experience is low (Configuration 8). (iii) In cases where the identity of the anchor investor is not specified, absolute investment matters when experience (years in entrepreneurial investment) is low (Configuration 3). When little information is disclosed about the anchor investor, the number of years of experience in entrepreneurial investment should be high (Configuration 4).

This study has several limitations. (i) Although the sample was representative, the small sample size means that the results should be validated with larger samples. (ii) The information provided in the anchor investor's resume and the explanation of the investment decision were characterized in a simplistic way, relying on word count. (iii) The study focused on a specific type of crowdfunding, namely equity crowdfunding. Further research should seek to enlarge the sample and broaden the types of platforms considered, include discourse analysis with text processing techniques, and develop a theoretical model of anchor investor signaling in online financial and crowd-based environments for subsequent validation in an experimental setting.

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Chapter 5. Rational herding in equity
crowdfunding. A behavioral natural
experiment

Chapter 5. Rational herding in equity crowdfunding. A behavioral natural experiment

Abstract

Equity crowdfunding financial transactions are marked by the existence of significant information asymmetries between fund seekers and a crowd of potential investors. This requires exploring strategies to awake rational herding among the crowd in order to ensure the campaign's success. Rational herding involves a process of imitation by potential investors of others' behavior based on observational learning, whereby such previous behavior is interpreted as a sign of quality of the entrepreneurial project seeking funds, thus reducing existing information asymmetries and promoting investment. This chapter uses data gathered from a natural experiment observed on an equity crowdfunding platform and, through a difference-in-differences (*Diff-in-Diff*) analysis, finds a positive impact of two large investments on the subsequent percentage of money raised. We further argue large investments signal project quality and arouse rational herding behavior based on two rational reasoning: (i) the shorter the distance to the target funding after the investment, and (ii) the endorsement shown by the entrepreneur's large financial commitment. This result is observed in the two treatments of the natural experiment, with an increase in subsequent investment in relative terms of 27.7% and 25.6% for each treatment, vis-a-vis the control group, once the campaign had raised 22% and 6% respectively. The originality of this chapter lies in obtaining data from one natural experiment, following a quasi-experimental approach, as well as in being able to quantify the impact of the large investment on subsequent relative investment. This study contributes to a growing body of research on crowdfunding and fundraising through digital environments, as well as provides practical implications for entrepreneurs seeking funds in these financial settings.

Keywords: herding, equity crowdfunding, behavioral finance, natural experiments.

5.1. Introduction

Considering the difficulties entrepreneurs have in accessing external financing sources as well as their cash constraints to afford on their own the investment required for their projects (Cosh et al., 2009), crowdfunding has been gaining momentum as a novel fundraising strategy leveraging the broad audience of independent individuals to be reached through the Internet (Belleflamme et al., 2014). Its expanding popularity, as well as its growing complementarity with other forms of external financing, such as venture capital firms or business angels investors, suggest the need to further focus research on those strategic actions that contribute to fundraising success from a practitioner's angle. This is rooted in its unique role in mitigating the financing gap faced by entrepreneurs, especially in the case of highly innovative and risky projects, as well as in its connection to driving innovation (Mollick and Robb, 2016; Stanko and Henard, 2017). Indeed, crowdfunding has helped to overcome difficulties in accessing credit during the 2008 financial crisis, which was marked by credit rationing (Capra et al., 2014).

Financial environments are characterized by a sizable degree of uncertainty. In crowdfunding, where transactions are mediated by digital platforms that act as information systems between entrepreneurs and potential project backers guaranteeing their communication within the open call for funding, uncertainty levels are even more pronounced (Bretschneider and Leimeister, 2017). This is why the promotion of trust between both parties is a necessary condition for the construction of a relational model based on legitimacy that ultimately results in successful fundraising (Moysidou, 2020). In all this, it is essential to gain insights into how social information shapes the investment readiness of prospective backers, arguably through a process of active observational learning that results in rational herding instead of a mere imitation of the group's actions. Herding has been studied in different financial settings including the cryptocurrency market (Vidal-Tomás et al., 2019) or the REIT market (Zhou and Anderson, 2013).

The classic principal-agent problem can be mirrored in terms of crowdfunding. Information asymmetries flow into both moral hazard, when the entrepreneur would act intentionally for her/his own benefit to the detriment of the backers, or adverse selection, whereby high-quality projects would avoid this alternative fundraising vehicle and opt for traditional channels (Agrawal et al., 2014). Here, the mentioned trust-building by entrepreneurs would help mitigate the moral hazard, while the highest average global success rate would convince high-quality projects to opt for crowdfunding, thus overcoming the adverse selection by which only projects of doubtful expected success would opt for crowdfunding.

All in all, in a financial environment where uncertainty dominates, due to information asymmetries between entrepreneurs and potential backers, the latter with incomplete private information (Comeig et al., 2020), the study of how others' behavior, who are considered to be more informed, triggers herding behavior remains crucial, largely due to the implications this has in terms of fundraising success. In particular, the present study analyzes whether a sizeable

contribution by entrepreneurs could trigger a process of active observational learning and herding behavior that leads to the success of the campaign through a greater investment volume. It does so through data obtained from a natural experiment observed in an equity crowdfunding platform.

The value and originality of this chapter lie in the fact that it deals with data obtained from a natural experiment and in the methodological treatment of the data itself, through a difference-in-differences (*Diff-in-Diff*) approach to assess the impact of a large investment on subsequent investment behavior. Investment dynamics of the campaign in which the natural experiment took place are compared with data from the historical constellation of other campaigns on the platform, creating a control group with which to apply the *Diff-in-Diff* approach. The empirical analysis is preceded by the construction of a theoretical model of observational learning, as well as the development of the methodological approach, and is followed by a discussion, practical implications, conclusions, limitations, and further research.

5.2. Theoretical model

5.2.1. Uncertainty and information asymmetries in crowdfunding

Crowd-based fundraising vehicles, such as crowdlending, reward-based crowdfunding, or equity crowdfunding, are characterized by the crowd's difficulty to evaluate the projects' potential and their probability of success (Crosetto and Regner, 2018). Inferring the unobservable quality of the projects is highly complex and costly for the crowd since the acquisition of private information is subject to the entrepreneur's information disclosure willingness. This way, existing information asymmetries result in high levels of uncertainty and these can end in market failure (Akerlof, 1970; Stiglitz, 2002).

Let us therefore begin by envisioning a behavioral model in which, aware of the existing information asymmetries, the signaling theory (Spence, 1973) is employed to conceive an interactive communication process to send credible signals with which to ultimately lead to a reinforcing pattern of investments and subsequent herding behavior once observational learning has effectively taken place. In Figure 6, two clearly differentiated economic agents can be observed: on one side, entrepreneurs, considered insiders who have privileged information about their project; and, on the other, the crowd, which only has the information sent by the former in the form of costly-to-produce, and in some cases even costly-to-acquire, signals. In this financial setting, the generation of signals is considered in the first stage of the analysis, and observational learning and subsequent herding behavior, i.e., the crowd following other investors' behavior, deemed informed, is then triggered in a second stage.

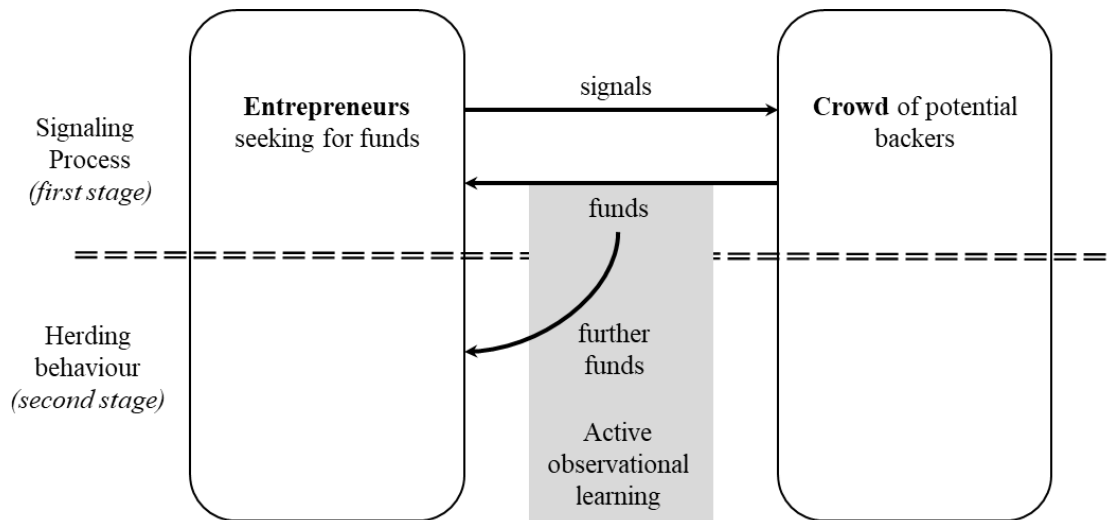


Figure 6. Signaling (first stage) and observational learning (second stage)

This theoretical model further argues that the process of active observational learning results in rational herding which, unlike irrational herding consisting of mere passive mimicking of others' behavior, derives from a process of conscious and reasoned observational learning (Zhang and Liu, 2012). In this sense, it is argued that in a process shaped by rational herding behavior, potential backers make unbiased inferences from the observed decisions of those who preceded them (Comeig et al., 2020). In practice, when updating the beliefs about the price (market value) of a future project, others' actions are taken into account as to define such beliefs (McAleer and Radalj, 2013; Tian et al., 2021). Given the crowd's limited capacity for information processing, they often approach complexity with choice strategies that require minimal cognitive resources, adopting simple heuristics that allow them to reduce the volume of information to be retrieved and processed (Simon, 1955; Anderson, 2003; Agrawal, 2014; Ferretti et al., 2021).

The model depicted in Figure 6 represents a single fundraising campaign, its aggregation being the set of campaigns that are mediated on a platform. The greater the number of campaigns a potential investor is confronted with, bounded rationality and information complexity increase, making it even more necessary for the crowd to rely on heuristics to support their investment decision-making (Stevenson et al., 2019). Overall, the dynamics in a crowdfunding campaign suggest two layers of analysis, i.e., which signaling process prompts a large contribution by an investor, and how herding behavior derives from such contribution and under what conditions and intensity it is unleashed. In our natural experiment, we focus on the effect of herding behavior once it has been triggered by a large contribution, and do not focus on the signals that prompted such large contribution. The financial intermediary in question is an equity crowdfunding platform, which is the most complex and with the greatest information asymmetries across the spectrum of different platforms (Hemers, 2011; Ahlers et al., 2015; Bade and Walther, 2021).

5.2.2. Information processing and heuristics: herding behavior

As it has already been argued, potential backers try to simplify the process of signal gathering as long as it becomes more and more complex, usually due to information diversity and costly acquisition, which is in line with the fact attention is limited by cognitive resource (Kahneman, 1973). This means that, in order to reduce costs in the information acquisition process, passive imitation (irrational herding) or imitation derived from an observational learning (rational) is used in decision-making, in this case, of financial nature.

Such dynamics are further exemplified by the fact that, as identified by Peng and Xiong (2006), investors pay less attention to firm-specific information than to market or industry information, therefore developing category learning behavior (Bade and Walther, 2021). Based on our previous theoretical model, however, sending signals with which the crowd justifies its reasoning on non-observable outcomes is required in a first phase, until the number of previous contributions is compelling enough to trigger a reinforcing pattern of herding behavior or, as it happens in this research, a large contribution triggers such behavior.

5.2.3. Prior research on herding effects in crowdfunding and hypotheses development

A growing body of research has confirmed that the behavior of subsequent investors is to a large extent influenced by those preceding them, therefore confirming that herding effects do matter in crowdfunding dynamics (Lee and Lee, 2012; Burtch et al., 2013; Chen and Lin, 2014; Liu et al., 2015; Chen et al., 2020; Petit and Wirtz, 2022). These studies have adopted an empirical (Xiao et al., 2021), a conceptual (Cai et al., 2021), or experimental angle (Comeig et al., 2020), although the former seem to dominate. Increasingly, researchers have opted for the methodological approach focused on field experiments as unique occasions to grasp the effect on the individual or crowd behavior of an episode tested in real life (Oberholzer-Gee, 2008; Zaggli and Block, 2019; Feng et al., 2021).

Among the different triggers that can result in rational herding behavior, large investments have been identified as a way of incentivizing further investment (Vulkan et al., 2017). In this direction, Hornuf and Schwienbacher (2016) found that large investments in the last days of the campaign have a positive effect on the subsequent investment that starts to be visible one day after the large investment. A similar result is obtained by Walther and Bade (2020), who conclude that large investments, irrespective of when they occur, make prospective investors to further decide to invest. However, despite the importance of studying the role of large investments in awakening subsequent herding behavior and fostering crowdfunding success, recent meta analyses such as Geiger and Moore (2022) and Liu et al. (2022) seem to focus more on the number of previous backers as an instigator of herding behavior. In view of the previous research, the hypothesis of this study, to be tested by means of a natural experiment, is the following.

Hypothesis: Large investments will significantly increase the subsequent relative amount of funds committed by the crowd of investors.

5.3. Data

5.3.1. Experiment and treatments

Data comes from a natural experiment observed in an equity crowdfunding platform. The platform in question remains anonymous due to data specificity. At the time of writing this research, the platform in question has brokered more than 50 campaigns involving more than 10 million euros and 80,000 individual investments. Additionally, the success rate reported by the platform is 85%. All fundraising campaigns that can be accessed on the platform are filtered according to common objective criteria in order to discard those opportunities with a high level of short-term risk. The criteria, agreed between the intermediary platform and investment professionals, address aspects such as the sector of activity, the co-investment model, or the team of entrepreneurs.

The natural experiment, observed by the equity crowdfunding platform, consists of two treatments. In the first treatment, the campaign in question aimed to raise 230,000 euros. The large investment occurred when the campaign had already achieved 22% of the funding target and was of a 31%. This meant that, after the large investment, the campaign achieved half of the investment, i.e. 53%. In overall terms, the campaign theoretically raised a 130% of the funding target. This means that there were enough interested investors to cover 130% of the target, although only 125% of the investment could be formalized according to the Spanish law on crowdfunding (Ley 5/2015 of April 27, on the promotion of business financing).

The second treatment occurred in a campaign with a funding target of 140,000 euros. This treatment involved a large investment of 36% of the funding target, an amount slightly higher than that of the first treatment. The investment took place when 6% had already been achieved, with the degree of achievement of the fundraising campaign being 42% of the target after the large investment. As in the first treatment, the campaign ended with a theoretical volume of fundraising that exceeded 100%. Specifically, the volume was 170% although only 125% was formalized in accordance with the applicable laws.

5.3.2. Control group

For the control groups, campaigns with similar target funding were selected ($\pm 30\%$ funding target). These campaigns were already comparable in terms of risk after successfully meeting the screening standards set by the equity crowdfunding platform. For Treatment 1, the control group consisted of 14 operations which involved 1.013 observations. Mean investment for each observation was 3.577,5 with a standard deviation of 8.864. For Treatment 2, the control group consisted of 24 operations and 1.902 observations, with a mean investment of 2.964,47 and a

standard deviation of 7.259. Descriptive statistics for both control groups are summarized in Table 23.

Table 23. Descriptive analysis for the control group data

	Treatment 1	Treatment 2
Number of crowdfunding campaigns	14	24
Number of observations (investments)	1.013	1.902
Mean individual investment (standard deviation)	3.577,5 (8.864)	2.964,47 (7.259)

5.4. Method

The econometric approach to investigate whether the identified large investments significantly modified subsequent investment behavior increasing relative investment gathered vis-a-vis a control group followed a difference-in-differences (*Diff-in-Diff*) analysis. The difference-in-differences (*Diff-in-Diff*) approach aims to estimate the effect of a specific intervention or treatment. It compares the difference in outcomes before and after the intervention for groups affected by the intervention (treatment group) and for groups that are unaffected (control group). In this sense, the treated operation is the one experiencing a large investment. As mentioned in the data section, the control group was created with observations from fundraising campaigns with a $\pm 30\%$ funding target, correcting for those campaigns that had also experienced large investments. Post-treatment period is considered to take place after the large investment, i.e. after reaching the 53% of relative investment due to a one-off 31% over the funding target in Treatment 1, and reaching the 42% of relative investment after a 36% over the funding target in Treatment 2. The difference-in-differences regression (*Diff-in-Diff*) is as follows:

$$Y_{i,t} = \beta_0 + \beta_1 POST_t + \beta_2 TREAT_i + \beta_3 POST_t * TREAT_i + \varepsilon$$

where Y is the percentage raised (expressed on a per unit basis); $POST$ is the dummy variable for post-treatment period, that takes the value 1 if the percentage raised is higher than 22% for Treatment 1 and 6% for Treatment 2, and 0 otherwise; and $TREAT$ is a dummy variable for the treated operation, that takes the value 1 if the operation is the one having the large investment. The term $POST * TREAT$ is generated by interacting the two previous dummies. Thus, it is a dummy variable taking the value 1 if the outcome was observed in the treatment group and in the post-treatment period.

Accordingly, β_3 is the coefficient of interest, as it will reveal if the large investment has an impact or not. A positive coefficient will entail that the large investment makes further relative investment to increase vis-a-vis the control group whereas a negative one will mean it makes that subsequent relative investment decreases.

5.5. Results

Results of the difference-in-differences regression (*Diff-in-Diff*) are shown in Table 24. The number of observations considered was 1.067 and 2.001 for Treatment 1 and 2, respectively. For both treatments, the coefficient of interest, β_3 , is positive and statistically significant, meaning that a large investment of 31% and 36% over target funding, respectively, had a positive and significant impact on subsequent relative investment. Interestingly, results are similar for both treatments regardless of when the large investment had taken place, i.e. either when the campaign had raised 22% or only a 6%.

For Treatment 1, β_3 was 0.277 with a standard deviation of 0.126. This result was statistically significant at $p < 0.05$. Similarly, β_3 was 0.256 for Treatment 2, at $p < 0.1$. In practical terms, subsequent relative investment increased a 27.7% in Treatment 1 and 25.6% in Treatment 2 after the large investment had taken place. The level of significance of β_3 in Treatment 2 is relatively low, suggesting further validation as the result should be considered cautiously.

Table 24. Results of the difference-in-differences regression

	Percentage raised in Treatment 1	Percentage raised in Treatment 2
POST	0.612*** (0.038)	0.712*** (0.053)
TREAT	0.032 (0.119)	0.004 (0.151)
POST*TREAT	0.277** (0.126)	0.256* (0.155)
Constant	0.143*** (0.037)	0.030 (0.052)
Observations	1.067	2.001

Note: Standard errors in parentheses

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

Figures 7 and 8 show the results of the *Diff-in-Diff* graphically, distinguishing between investor behavior from the control group and that of the treated campaign. As can be seen, β_0 is the average outcome of the control group before the treatment; β_1 is how much the average outcome of the control group has changed in the post treatment period; β_2 is the difference

between the treatment and the control group before the treatment; and β_3 is how much the average outcome of the treatment group has changed in the period after the treatment.

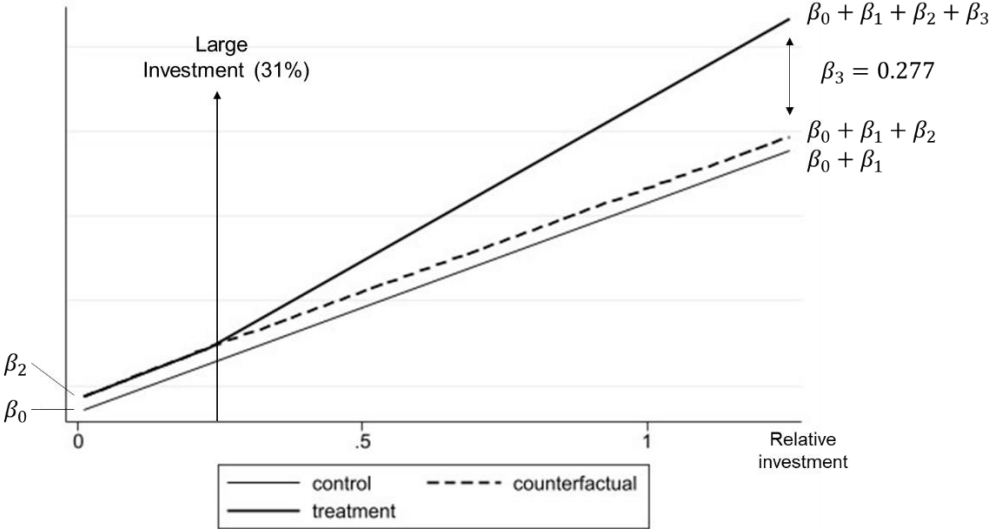


Figure 7. Campaign investment behavior (Treatment 1)

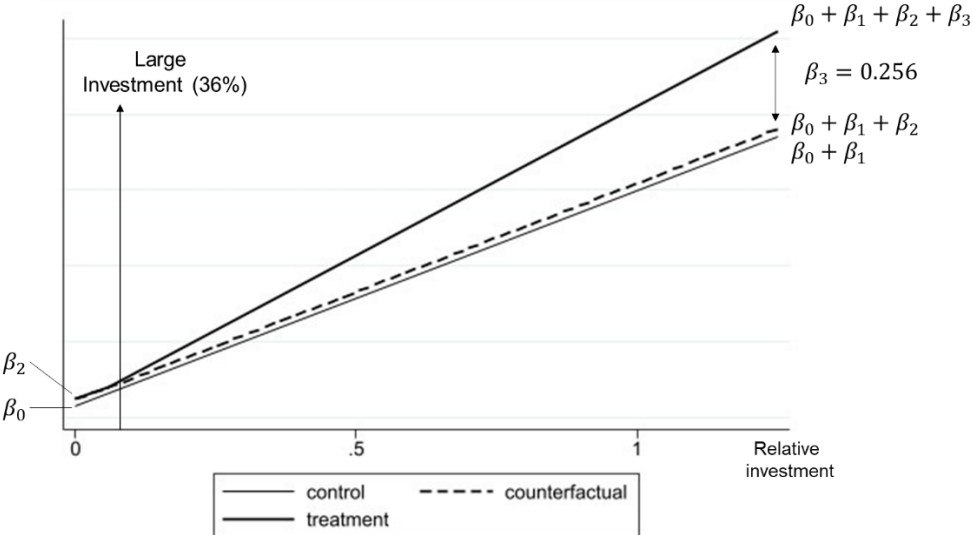


Figure 8. Campaign investment behavior (Treatment 2)

5.6. Discussion

Both treatments of this natural experiment show how large investments, of 31% and 36% over the funding target, at different stages of the campaign, i.e., when it has achieved 22% and when it has achieved only 6%, can modify the behavior of subsequent investors, with a significant difference in the relative investment gathered after such large investment for both treatments.

The impact implied an increase of 27.7% of subsequent relative investment after the large investment for Treatment 1 and of 25.6% for Treatment 2.

Furthermore, we argue that this result is based on the fact that large investments trigger an observational learning process whereby informed rational herding behavior is awakening. Accordingly, potential backers decide to invest once they observe (i) the shorter distance to the funding target, which reduces the risk of incurring an opportunity cost from the failure of an all-or-nothing crowdfunding campaign and (ii) the financial commitment of the backer making the large investment, which demonstrates the quality of the project and a higher expected probability of success. In view of these results, the use of self-pledge by entrepreneurs is suggested as a way of awakening rational herding behavior. Furthermore, anchor investors with large financial investments are seen as a suitable way of triggering observational learning.

5.7. Conclusions, implications for entrepreneurial fundraising and limitations

This research aims at quantifying the impact of a large investment on subsequent investment behavior. Its originality lies in obtaining unique data from a natural experiment including two treatments, which differ in when the large investment takes place. Interestingly, it demonstrates how a 31% and a 36% investment makes subsequent relative investment to increase, quantifying such increase in a 27.7% and a 25.6%, respectively. We argue this occurs due to the awakening of herding behavior based on information inferred from the large investment by subsequent investors. This behavior might be considered rational due to the fact (i) it reduces distance to target funding, therefore reducing the chances that the project will fail and investors will incur in an opportunity cost for the time the money had been withheld and (ii) it shows a considerable financial commitment from an investor they perceive as more well-informed to have carried out this financial operation. This suggests the possibility of entrepreneur self-pledging their own project to awaken a reinforcing cycle of investments coming from herding behavior with which to ensure campaign success and overfunding. In the theoretical angle, it helps to further conceptualize herding behavior effects. The limitations of the study lie in the fact that results from the two treatments of the natural experiment should be considered with caution and that further experimental validation is needed to extrapolate findings.

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**Conclusiones, implicaciones teórico-
prácticas, limitaciones y futuras líneas de
investigación**

Conclusiones

Esta sección resume las principales conclusiones de la tesis. Por lo que respecta al capítulo 1, el objetivo específico de analizar el papel de la facilidad de acceso al crédito, como factor institucional, en la creación de nuevas empresas, tanto en entornos socioeconómicos avanzados como en vías de desarrollo, conduce a dos patrones configuracionales que explican la creación de empresas en países con entornos institucionales formales e informales. El primero explica la creación de empresas a través de la ausencia de un estado de derecho sólido, la ausencia de facilidades burocráticas para crear una nueva empresa y la presencia de crédito fácil; el segundo lo hace a través de la presencia de un gobierno eficaz, la calidad de la regulación, un estado de derecho sólido, las facilidades burocráticas y las de acceso al crédito. La facilidad de acceso al crédito se identifica como una condición fundamental, lo que justifica la relevancia de la investigación que se desarrolla en los subsiguientes capítulos. Además, este factor institucional favorece el emprendimiento tanto en entornos institucionales formales como en los informales, coadyuvando a la creación de empresas a pesar de la debilidad del estado de derecho y las complejidades burocráticas existentes. Las contribuciones de este capítulo a la teoría se sitúan sobre todo en el ámbito de los estudios sobre la creación de empresas. Desde el punto de vista práctico, esta investigación contribuye a la promoción del desarrollo económico por parte de gobiernos y organismos supranacionales, al informar acerca de aquellos marcos institucionales que conducen a la creación de empresas.

El capítulo 2, tras explorar la dimensión de género mediante el análisis de los factores de éxito para la creación de empresas por necesidad por parte de las mujeres, concluye cinco patrones configuracionales: el primero explica el emprendimiento por necesidad de las mujeres a través de la presencia de habilidades emprendedoras, la ausencia de emprendedores conocidos y la ausencia de intenciones emprendedoras; el segundo, a través de la presencia de habilidades emprendedoras con la ausencia de miedo al fracaso y la ausencia de emprendedores conocidos; el tercero, a través del hecho de no conocer a otros emprendedores pero tener intenciones emprendedoras y expectativas de contratación; el cuarto, a través de la presencia de habilidades emprendedoras, miedo al fracaso, conocimiento de otros emprendedores y expectativas emprendedoras; y, el quinto, a través de la presencia de habilidades emprendedoras, intenciones y expectativas de contratación. La principal contribución de este capítulo es la identificación de las habilidades empresariales como un factor clave para la creación de empresas por parte de las mujeres, aun cuando esta acción está motivada por la necesidad. Esto apunta a la importancia de promover políticas formativas en entornos socioeconómicos precarios, para así promover el emprendimiento como vehículo con el que combatir la pobreza. Sin embargo, este capítulo no solo contribuye a este nicho específico de la fundamentación teórica sobre creación de empresas, sino que también es informativo a nivel normativo.

El capítulo 3, tras analizar la capacidad de la divulgación de ciertos elementos de información a la hora de señalar la calidad de un proyecto empresarial que busca financiación por micromecenazgo por recompensas y lograr sobrefinanciación, concluye que el poder de las

imágenes, la interacción continua de los emprendedores con la multitud y la brevedad de los textos son señalizadores eficaces. La principal contribución consiste en identificar estrategias de éxito para este tipo de micromecenazgo. Además de contribuir a la literatura en este sentido, esta investigación está especialmente dirigida a los emprendedores en fase inicial que quieran utilizar el micromecenazgo basado en recompensas no solo como una forma de recaudar fondos para empezar a comercializar su idea de negocio, sino también como una forma de recoger opiniones y participar en una comunidad dinámica de innovación.

A su vez, el capítulo 4, sobre el despertar del comportamiento de rebaño racional a través de la divulgación de información por parte del inversor líder en micromecenazgo sindicado, concluye que incluso cuando el currículum del inversor líder no es detallado o el inversor líder tiene poca experiencia en la inversión empresarial, se puede lograr el éxito o la sobrefinanciación, si el inversor líder es una corporación. En el caso de los inversores líderes individuales, se puede lograr la sobrefinanciación cuando se muestra un currículum detallado, incluso cuando el inversor líder realiza una pequeña inversión relativa. Además, el número de años de experiencia en inversión empresarial es clave cuando el inversor líder ha realizado pocas inversiones previas. Por último, la inversión en términos absolutos es crucial cuando la experiencia en inversión empresarial es escasa, mientras que dicha experiencia debe ser amplia siempre que el currículum del inversor líder no sea detallado. Estos últimos patrones no están vinculados a la identidad de un inversor líder específico. La principal contribución de este capítulo se basa en explorar el papel singular de los inversores líderes a la hora de lograr la sobrefinanciación, lo que es relevante tanto para seguir desarrollando la teoría del comportamiento de rebaño como para informar a los recaudadores de fondos sobre cómo mejorar sus campañas.

Por último, el capítulo 5 concluye el impacto positivo de una gran inversión en micromecenazgo por acciones con respecto a los volúmenes de inversión subsiguientes. Así pues, tras explorar un experimento natural, se observa como inversiones del 31% y el 36% en una campaña de micromecenazgo por acciones cuando ya se había recaudado un 22% y un 6%, respectivamente, estimulan un aumento del 27.7% y del 25.6% en la inversión relativa posterior, en comparación con un grupo de control. La principal contribución de este capítulo consiste en identificar la naturaleza del resultado y cuantificarlo con datos procedentes de un experimento natural. Así pues, se contribuye a la literatura sobre el comportamiento de rebaño racional desde una perspectiva experimental. En el aspecto práctico, se identifican las grandes contribuciones como formas efectivas de desencadenar un comportamiento de rebaño racional.

Implicaciones teórico-prácticas

Las implicaciones teóricas de esta tesis contribuyen a la literatura sobre la creación de empresas desde la perspectiva institucional y la de género, además de a la creciente área de estudio sobre los factores de éxito y sobrefinanciación en el micromecenazgo que tiene sus raíces en la teoría de la señalización y la del comportamiento de rebaño. Las implicaciones prácticas informan a los gobiernos, a las agencias supranacionales, a los reguladores y a los emprendedores, tanto en sus

inicios como en etapa de madurez. Específicamente, estas implicaciones se concretan de la siguiente forma:

1. En los entornos institucionales, tanto formales como informales, se constata la necesidad de garantizar el acceso al crédito para promover el emprendimiento. En este sentido, resulta de vital importancia promover marcos normativos, por parte de los órganos legisladores, que simplifiquen los procesos de captación de fondos y fomenten el desarrollo de un ecosistema de inversión y financiación que asegure el flujo de fondos hacia los emprendedores.
2. A la hora de favorecer la creación de empresas por parte de mujeres en entornos de necesidad, el desarrollo de habilidades empresariales adopta un papel central, a pesar de la naturaleza forzada y basada en la subsistencia económica de este tipo de emprendimiento. Estas habilidades no solo pueden generarse desde los cauces educativos formales, sino que también pueden impulsarse entre los propios emprendedores, a través de organizaciones de carácter informal.
3. Para que el diseño de campañas de micromecenazgo por recompensa permita señalar la calidad del proyecto emprendedor y conseguir sobrefinanciación, las imágenes, los textos cortos y la interacción continua con potenciales financiadores a través de actualizaciones son elementos clave. Así pues, se ha identificado como un mayor número de imágenes y una menor longitud de los textos favorece el éxito de las campañas de micromecenazgo. Además, se recomienda el uso de actualizaciones con las que informar a los potenciales inversores o financiadores acerca del estado concreto de la campaña y alentar la captación de fondos.
4. La divulgación de información sobre el inversor líder en procesos de financiación por operaciones de micromecenazgo sindicado debe tenerse en cuenta como desencadenante de comportamiento de rebaño racional con el que conseguir el éxito o la sobrefinanciación de la campaña y, por ende, debe estar precedida de una cautelosa planificación. Concretamente, la divulgación de información sobre el inversor líder debe centrarse en su experiencia, tanto en número de inversiones como en años de experiencia.
5. Las grandes inversiones tienen el potencial de desencadenar un comportamiento de rebaño racional derivado de un proceso de aprendizaje observacional que contribuya a la sobrefinanciación de la campaña. Concretamente se ha identificado como la presencia de grandes inversores de en torno al 31-36% del objetivo de financiación modifican el comportamiento subsiguiente de los inversores, alentando la inversión.

Limitaciones y futuras líneas de investigación

Esta tesis no está exenta de limitaciones, muchas de las cuales dan lugar a futuras líneas de investigación. Entre las limitaciones destacan el enfoque metodológico configuracional, que aun cuando se adecua a los objetivos específicos de esta tesis se podría complementar con técnicas econométricas clásicas, además del carácter específico de las muestras de los capítulos tres,

cuatro y cinco, que deberían ampliarse e incluir otros tipos de micromecenazgo. Las futuras líneas de investigación podrían centrarse en (i) explotar las diferencias intra-país en los entornos institucionales, así como analizar más a fondo el proceso de transición desde los entornos institucionales informales hacia los formales para evolucionar del emprendimiento por necesidad al emprendimiento por oportunidad, con implicaciones en materia de creación de empleo y desarrollo económico; (ii) centrarse en comparar las diferencias, si las hubiere, entre el papel de las características y circunstancias personales de las mujeres y los hombres a la hora de ser determinantes en la decisión de emprender por necesidad y por oportunidad para regiones distintas en términos socioeconómicos y culturales; (iii) ampliar los tipos de micromecenazgo considerados, incluyendo el micromecenazgo basado en préstamos y el basado en donaciones; (iv) considerar plataformas ubicadas en diferentes entornos geográficos y dirigidas a diferentes públicos objetivos; (v) perfeccionar la recogida de información considerada en los estudios de señalización y comportamiento de rebaño racional, haciendo uso de procesos de minería de textos, análisis de sentimiento y técnicas experimentales; y, (vi) ampliar la muestra de los estudios realizados.