VNIVERSITAT DE VALÈNCIA

Departamento de Dirección de Empresas

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BEYOND ECONOMIC PROFITABILITY, SUSTAINABLE FINANCING THROUGH CROWDFUNDING

TESIS DOCTORAL

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Mayo 2021

Agradecimientos

La vida es un camino repleto de proyectos. Esta tesis significa un proyecto de gran relevancia personal. Es el reflejo de las conversaciones mantenidas con personas académicas, profesionales, amistades e incluso familiares.

En primer lugar me gustaría agradecer a mi director de tesis, Domingo E. Ribeiro Soriano, por sus orientaciones durante estos años, brindándome la oportunidad de formar parte de su equipo de investigación, compartiendo ideas, conceptos, valores y experiencias.

A mis padres, por su cariño, generosidad y paciencia. Por transmitirme una cultura de esfuerzo, sacrificio y recompensa. Sin vosotros este trabajo no habría sido posible. A mi hermano por su bondad y ayuda.

A la familia Climent-Boix, que es el génesis de esta tesis, con su empresa familiar, las conversaciones de los sábados en la casa de la yaya y posteriormente en el Club Náutico de Gandía.

A la familia Martínez-Rico, por todo el cariño y porque el ejemplo de los abuelos se ha reflejado en los valores de honestidad, sinceridad y lealtad en cada uno de mis tíos, y que espero transmitir también.

Al colegio Esclavas del Sagrado Corazón de Jesús de Benirredrá, donde crecí, aprendí y encontré tanto mis propios recursos como a las personas que me han acompañado todos estos años.

A mis compañeras Alicia Mas, Andrea Rey, María Rodríguez, María Orero y Helena Mogorrón, que han sido un apoyo fundamental en la realización de esta tesis. A Norat Roig por su orientación. A Adam King por su incansables consejos y sugerencias.

A María Guijarro, Agustín Carrilero, y a todos mis compañeros de ESIC por creer en mí y darme el espacio que necesitaba para continuar con mi desarrollo personal y profesional.

A aquellas personas que me han enseñado el valor de la amistad y la lealtad, en especial a Sandra quién es un motor y que ilumina el camino con su bondad.

A Álvaro por acompañarme en la última etapa de la tesis doctoral, siendo un ejemplo de esfuerzo y ambición.

A mis abuelos y abuelas, que siempre me hicieron sentir la niña de sus ojos.

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RESUMEN

Esta investigación se ha llevado a cabo con el objetivo de determinar la relación entre el crowdfunding y la sostenibilidad. El crowdfunding es una herramienta de financiación que surge de la economía colaborativa, y emplea una plataforma online para poner en común inversores que ofrecen recursos económicos y emprendedores, empresas o individuos que demandan dichos recursos. Con el fin de analizar dicha relación se realiza una revisión de la literatura previa en el tema y se observa que a través de la innovación se crean proyectos sostenibles que son financiados a través de crowdfunding. Estos proyectos significan una solución sostenible que incide en el pensamiento fuera de la caja, y que en última instancia contribuye a una mejora de la productividad, innovación social y soluciones altamente creativas. Sin embargo no todas las innovaciones se trasladan a la sociedad en forma de creación de nuevas empresas. Pues existen unos filtros al conocimiento que impiden la comercialización de las ideas.

Debido a que la dificultad de acceder a los recursos económicos se establece como una barrera a la comercialización de ideas, estudiamos si el crowdfunding tiene un efecto derrame de conocimiento a la sociedad, a través de la teoría "*knowledge spillover theory of entrepreneurship*". Por ello en el segundo artículo de esta tesis doctoral investigamos si el crowdfunding de recompensa o *reward-based crowdfunding*, puede mitigar los filtros al conocimiento. En esta modalidad de crowdfunding, el inversor actúa con un doble rol ya que es proveedor de financiación y a su vez es consumidor del bien en el que está invirtiendo, al ser ésta su recompensa económica.

Se concluye en el segundo artículo de la tesis doctoral que los inversores aportan valor a los proyectos a través de la inversión que se realiza, y también al proveer de conocimiento táctico a través de las ideas y el *feedback* que aportan a los emprendedores durante las campañas de crowdfunding de recompensa. En este punto nos planteamos si en otras modalidades de crowdfunding, la motivación de los inversores es el retorno económico que obtienen, o si la motivación intrínseca también índice en la decisión de éstos.

Para estudiarlo, escogemos la modalidad de *crowdlending* o *peer-to-peer lending*, que en la literatura anterior se había considerado que la motivación de los inversores estaba ligada esencialmente a la recompensa económica. En este tercer artículo de la tesis

analizamos la motivación de los inversores, intrínseca y extrínseca, en base al porcentaje de su patrimonio invertido. La motivación extrínseca se mide a través de la importancia otorgada a la compensación económica y al riesgo percibido. La motivación intrínseca se mide mediante la importancia otorgada a la responsabilidad social corporativa de los proyectos financiados. Los resultados indican que existen dos grupos de inversores que deciden invertir un bajo porcentaje de su patrimonio. Un primer grupo que se guía por la motivación extrínseca, y otro segundo grupo que valoran la responsabilidad social corporativa y por tanto la motivación intrínseca incide, pero en combinación con otras condiciones como son la edad o el riesgo percibido, ya que se emplea una metodología que permite estudiar las combinaciones de condiciones que conducen al bajo nivel de inversión. Por tanto se concluye que la motivación de los inversores es tanto intrínseca como extrínseca.

ABSTRACT

The aim of this doctoral thesis is to explore and understand the relationship between crowdfunding and sustainability. Crowdfunding is a financing tool within the collaborative economy. It uses online platforms to bring together investors, who provide financial resources, and entrepreneurs, companies or individuals, who solicit these resources. To explore and understand this relationship, the literature on this subject is first reviewed. This review shows that, thanks to innovation, sustainable projects can be created and financed through crowdfunding. Based on out-of-the-box thinking, these projects offer sustainable solutions to society's most serious problems. Ultimately, these highly creative solutions can help enhance productivity and social innovation. However, not all innovations are transferred to society in the form of start-ups, given that knowledge filters prevent the commercialisation of some ideas. The knowledge spillover theory of entrepreneurship is used to examine whether crowdfunding has a knowledge spillover effect on society.

The second article investigates whether reward-based crowdfunding can mitigate knowledge spillovers. In reward-based crowdfunding, investors act as both providers of funding and consumers of the goods they invest in through economic rewards. The conclusion from the second article is that investors add value to projects not only through their investment but also through the tactical knowledge that they provide to entrepreneurs in the form of ideas and feedback during reward-based crowdfunding campaigns. This conclusion raises the question of whether the motivation of investors in other types of crowdfunding is primarily extrinsic (i.e., financial returns) or whether intrinsic motivation also plays a role in their decisions.

The third article aims to answer this question by examining peer-to-peer lending. The literature generally implies that, in this form of lending, the motivation of investors is closely linked to the financial rewards they receive. This article examines the intrinsic and extrinsic motivations of investors based on the percentage of equity invested. Extrinsic motivation is measured by the importance attached to financial compensation and perceived risk, whereas intrinsic motivation is measured by the importance attached to the corporate social responsibility of the funded projects. The results indicate that there are two groups of investors who choose to invest a low percentage of their equity. Investors in the first group are driven by extrinsic motivation, whereas investors in the second group value corporate

social responsibility. Therefore intrinsic motivation plays a role. However, this intrinsic motivation is combined with other conditions such as age and perceived risk. The method used in this study enables analysis of the combinations of conditions that lead to low levels of investment. The conclusion from this study is that investor motivation is both intrinsic and extrinsic.

RESUM

Aquesta investigació s'ha dut a terme amb l'objectiu de determinar la relació entre el micromecenatge i la sostenibilitat. El micromecenatge és una eina de finançament que sorgeix de l'economia col·laborativa, i empra una plataforma en línia per a posar en comú inversors que ofereixen recursos econòmics i emprenedors, empreses o individus que demanden aquests recursos. Amb la finalitat d'analitzar aquesta relació es realitza, en el primer article que compon aquesta Tesi, una revisió de la literatura prèvia en el tema i s'observa que a través de la innovació es creen projectes sostenibles que són finançats a través de micromecenatge. Aquests projectes signifiquen una solució sostenible que incideix en el pensament fora de la caixa, i que en última instància contribueix a una millora de la productivitat, innovació social i solucions altament creatives. No obstant això no totes les innovacions es traslladen a la societat en forma de creació de noves empreses ja que existeixen uns filtres al coneixement que impedeixen la comercialització de les idees.

Pel fet que la dificultat d'accedir als recursos econòmics s'estableix com una barrera a la comercialització d'idees, estudiem si el micromecenatge té un efecte vessament de coneixement a la societat, a través de la teoria "knowledge spillover theory of entrepreneurship". Per això, en el segon article d'aquesta tesi doctoral, investiguem si el micromecenatge de recompensa o reward-based crowfunding, pot mitigar els filtres al coneixement. En aquesta modalitat de micromecenatge, l'inversor actua amb un doble rol ja que és proveïdor de finançament i al seu torn és consumidor del bé en el qual està invertint en ser aquesta la seua recompensa econòmica.

Es conclou en el segon article de la tesi doctoral que els inversors aporten valor als projectes a través de la inversió que es realitza, i també en proveir de coneixement tàctic a través de les idees i el feedback que aporten als emprenedors durant les campanyes de micromecenatge de recompensa. En aquest punt ens plantegem si en altres modalitats de micromecenatge, la motivació dels inversors és el retorn econòmic que obtenen, o si la motivació intrínseca també incideix en la decisió d'aquests.

Per a estudiar-lo, triem la modalitat de crowdlending o peer-to-peer lending, on en la literatura anterior s'havia considerat que la motivació dels inversors estava lligada essencialment a la recompensa econòmica. En aquest tercer article de la tesi analitzem la

motivació dels inversors, intrínseca i extrínseca, sobre la base del percentatge del seu patrimoni invertit. La motivació extrínseca es mesura a través de la importància atorgada a la compensació econòmica i al risc percebut. La motivació intrínseca es mesura mitjançant la importància atorgada a la responsabilitat social corporativa dels projectes finançats. Els resultats indiquen que existeixen dos grups d'inversors que decideixen invertir un baix percentatge del seu patrimoni. Un primer grup que es guia per la motivació extrínseca, i un altre segon grup que valoren la responsabilitat social corporativa i on, per tant, la motivació intrínseca incideix, però en combinació amb altres condicions com són l'edat o el risc percebut, ja que s'empra una metodologia que permet estudiar les combinacions de condicions que condueixen al baix nivell d'inversió. Per tant es conclou que la motivació dels inversors és tant intrínseca com extrínseca.

CAPÍTULO I

INTRODUCCIÓN

Introducción

El crowdfunding es una herramienta que permite obtener financiación a través de una plataforma online, poniendo en común a dos agentes del mercado: los demandantes de recursos económicos y los ofertantes de los mismos, es decir emprendedores e inversores (Martínez-Climent, Zorio-Grima & Ribeiro-Soriano, 2018).

Mediante la utilización de este modelo se crea una comunidad o "crowd" de inversores que valoran los diferentes proyectos que la plataforma intermediaria previamente ha filtrado según sus criterios, y se financian proyectos tanto de nueva creación como aquellos que permiten ampliaciones de negocios, alianzas o adaptación a las demandas de su grupo de interés (Huang, 2020). El crowdfunding es un fenómeno relativamente nuevo, que se fundamenta en modelos anteriores de micro financiación o cooperativas (Harrison, 2013; Kedmenec y Strašek, 2017; López Maciel, Pertusa Palacios y Gonzalez Rosas, 2017), dando lugar a diversos tipos de crowdfunding, clasificándose por una orientación económica a puramente social. El primer tipo de crowdfunding se denomina *peer-to-peer lending* o *crowdlending* y consiste en financiar unos préstamos con un tipo de interés asociado que deberá pagar el emprendedor, y una tasa de retorno a la inversión que será pagada al inversor. La plataforma al actuar como mediador obtendrá una prima o comisión por poner en común a ambas partes. Se estima que el crowdlending tiene una orientación económica porque el emprendedor recibe financiación y el inversor una retribución económica por la operación.

El segundo tipo de crowdfunding es el *equity crowdfunding* y en este caso se realiza una *open call* o convocatoria abierta, en la que el inversor obtiene acciones de la empresa en la que invierte a cambio de su aportación financiera (De Crescenzo, Ribeiro-Soriano y Covin, 2020). Su orientación también se considera económica.

El tercer tipo de crowdfunding es el *reward-based crowdfunding* o basado en recompensa, retribuye la inversión con un producto, servicio o regalo en permuta de su financiación. Además ofrece la posibilidad de que la empresa financiada testee el mercado o desarrolle nuevos productos, convirtiendo a sus inversores en consumidores de los bienes o servicios que provee. La orientación de esta tipología no es ni puramente económica ni puramente social, resultando un híbrido modelo de interés.

El último tipo de crowdfunding es el de donación, cuyo objetivo es obtener fondos para contribuir a causas sociales. No se espera ninguna retribución económica sino un desarrollo sostenible o una mejora de las condiciones sociales o medioambientales de la situación que abraza el proyecto.

La inversión en crowdfunding puede ayudar a ajustar la brecha de financiación, reduciendo los costes y riesgos y mejorando las oportunidades de cumplir con los objetivos del grupo de interés (San-Jose y Retolaza, 2016). Además minimiza las barreras geográficas al emplear la tecnología, y contribuye al desarrollo de ideas y diseminación de conocimiento.

El crowdfunding surge en una situación donde la exclusión financiera es uno de los problemas fundamentales al que se enfrentan empresas, emprendedores e individuos. Además, en la actualidad las economías desarrolladas persiguen el constante objetivo de desarrollo económico sostenible, lo que se consigue mediante la innovación. Sin embargo, no todas las innovaciones se transfieren a la sociedad, dado que existen filtros al conocimiento. El emprendimiento, además de ser un mecanismo en la creación de empleo y riqueza, es también una herramienta para la transferencia de conocimiento, ya que las ideas se materializan en la creación de nuevas empresas a través de la innovación (Cuervo, Ribeiro & Roig, 2007).

Objetivos

El objetivo de esta Tesis es investigar el crowdfunding como un instrumento que contribuye a la sostenibilidad. Para ello se estudia primero la literatura anterior en crowdfunding y sostenibilidad, luego se analiza el conocimiento como fuente que se produce y disemina en dicho sistema y en la sociedad, y por último se analizan las motivaciones extrínsecas e intrínsecas de los inversores. Se ha escogido analizar el efecto derrame de conocimiento en el crowfunding de recompensa ya que la naturaleza de este instrumento da pie al intercambio de ideas ya que a menudo los emprendedores testean el producto o servicio entre los inversores que financian sus proyectos. Posteriormente, se analizan las motivaciones de los inversores en la tipología de *crowdlending* dado que es considerado el

tipo de crowdfunding con orientación más económica, y por tanto cabría esperar que las motivaciones de los *crowdlenders* fueran extrínsecas. Sin embargo, como se comentará más adelante la motivación intrínseca también se observa en el proceso de toma de decisión y ello es debido a que la responsabilidad social corporativa tiene un calado creciente de forma transversal a las organizaciones.

Estructura

Esta tesis se estructura en tres artículos. Cada uno aborda un subtema distinto, teniendo en común el carácter sostenible del modelo de crowdfunding. A continuación se presentan los tres artículos.

El primer artículo titulado **"Sustainable Financing through Crowdfunding"** se ha publicado en la revista Sustainability, indexada en el Social Sciences Citation Index. En él se analizan teóricamente los términos de sostenibilidad y crowdfunding, con el fin de investigar la relación que existe entre el crowdfunding y la orientación sostenible de los proyectos. Se investigan las publicaciones de la Web of Science, observando la tendencia de las publicaciones científicas respecto al número de publicaciones, el tipo de publicación, los países con mayor índice de productividad en el tema, las revistas con mayor productividad y los artículos más citados en el ámbito. Se advierte un creciente interés en la academia y la sociedad en general en la financiación de proyectos sostenibles a través de crowdfunding, además los resultados constatan que la orientación sostenible puede cambiar el sistema financiero y medioambiental en que nos encontramos.

El segundo artículo **"The knowledge spillover effect of crowdfunding"** se ha publicado en Knowledge Management Research & Practice, indexada en el Social Sciences Citation Index. La importancia de la producción del conocimiento proviene en el efecto directo y el derrame que genera, o efecto indirecto. Sin embargo existe una dificultad de acceso a recursos económicos, que se ha identificado como una barrera que impide la comercialización del conocimiento. Este problema puede mitigarse con la utilización de una fuente de financiación alternativa como es el crowdfunding. Por tanto, el CF puede favorecer

la comercialización de ideas cuyo efecto derrame de conocimiento se revierta en la sociedad. Dicho efecto indirecto, tiene unas consecuencias positivas en el entorno externo. Aunque el objetivo principal de los inversores no sea la diseminación de conocimiento sino la obtención de una ganancia económica, en el crowdfunding de recompensa se genera una interacción donde ideas y conocimiento son transferidos de los inversores a los emprendedores y en última instancia genera un proyecto fuerte y adaptado a las demandas de consumidores, y de ello se beneficia la sociedad.

Finalmente el tercer artículo se titula **"The motivations of crowdlending investors in Spain"** y está aceptado en la revista International Journal of Entrepreneurial Behavior & Research, indexada también en Social Sciences Citation Index. El propósito reside en hallar evidencia sobre la motivación de los inversores en *crowdlending*, reflejada en el porcentaje de patrimonio invertido. La motivación extrínseca y intrínseca se diferencia en el interés final del inversor. Si éste busca su propio interés como la retribución económica, estará guiado por la motivación extrínseca. Si por el contrario le interesa el grupo de interés y la responsabilidad social corporativa, se estará guiando por la motivación intrínseca. La creciente atención hacia la RSC por parte de empresas, individuos, y gobiernos entre otros, está generando proyectos que contribuyen al desarrollo sostenible y enriquecen la relación de las empresas y la sociedad. En este artículo se concluye que la motivación de los inversores es una combinación de factores extrínsecos e intrínsecos, que el riesgo percibido es un factor fundamental y que aquellos que únicamente están influidos por la retribución económica en crowlending invierten bajo porcentaje de su patrimonio en los proyectos. Aquellos influidos por la RSC en su decisión de invertir, invierten un limitado porcentaje de su patrimonio cuando perciben una gestión de riesgos inadecuada.

Metodología

Se ha realizado un análisis bibliométrico sobre las publicaciones de los artículos científicos de la Web of Science, para identificar la relación entre crowdfunding y sostenibilidad. Para ello se han analizado las publicaciones de dicha base de datos, y se estudia el número de citas que han recibido los documentos, así como los documentos

publicados. Este estudio permite identificar los avances en el tema y el grado del interés académico, así como las futuras líneas de investigación.

En el segundo artículo se analiza los datos de 53 emprendedores que participaron en dos plataformas de crowdfunding de recompensa en España. Se emplea un análisis cualitativo comparativo fsQCA para identificar las diferentes vías para obtener el resultado, dependiendo de las condiciones de presencia o ausencia. El fsQCA examina las condiciones causales que son necesarias o suficientes para obtener el resultado (Mendel & Korjani, 2013; Nieto-Aleman et al., 2019). Las relaciones no simétricas entre las observaciones se analizan, y permite estudiar relaciones causales. Algo relativamente complejo en las ciencias sociales. Por tanto este método es innovador ya que presenta diferentes configuraciones de condiciones no relacionadas que llevan a un objetivo concreto (Kraus et al., 2018). El objetivo del estudio era estudiar el efecto indirecto del crowdfunding de recompensa. Las condiciones que se analizaron fueron la utilidad de los comentarios de los inversores sobre el proyecto de financiación colectiva, el reconocimiento de los inversores en el trabajo bien hecho por parte de los emprendedores, el reconocimiento de los errores de los emprendedores por parte de los empresarios, la contribución de ideas y conocimiento de forma activa de los inversores a los proyectos de financiación colectiva, la percepción de los inversores sobre si su contribución representa una oportunidad para compartir recursos y ayudar a otros, y por último la percepción sobre el grado de fallo del producto o servicio.

En el tercer artículo de analiza una muestra de 209 inversores de una plataforma de crowdlending en la que se estudia el nivel de patrimonio invertido en relación con las condiciones de rentabilidad como característica relevante en la toma de decisión del inversor, la percepción del riesgo, la RSC como característica relevante del proyecto, la importancia otorgada al informe que elabora la plataforma sobre la RSC de cada proyecto y la edad del inversor. También se emplea el fsQCA para hallar las diferentes combinaciones de las condiciones que conducen al resultado que se está analizando.

CAPÍTULO II

LA FINANCIACIÓN SOSTENIBLE A TRAVÉS DE CROWDFUNDING

CAPÍTULO II

La financiación sostenible a través de crowdfunding

Artículo

Sustainable Financing through Crowdfunding

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Publicación: Sustainability

Año 2019, Volumen 11, Número 3.

Impact Factor: 2.576 (2019)

sustainability

Sustainable Financing through Crowdfunding

Abstract

The phenomenon of crowdfunding has been widely studied, while the sustainability of crowdfunded ventures is attracting growing interest from academia and society. In light of this interest, we conducted bibliometric analysis to study the relationship between crowdfunding and crowdfunded ventures' sustainability orientation. We analysed the number of publications, type of publications, and most productive countries, journals, and authors. We also analysed the most cited articles and examined their approach to sustainability and crowdfunding. The results suggested that a sustainability orientation could bring about change in the current financial and environmental system.

Introduction

In 1985, Queen, U2, Madonna, Elton John, The Who, Paul McCartney, Bob Dylan, Eric Clapton, and a host of others performed as part of *Live Aid* to help fight poverty and hunger in Africa. Thanks to the powerful mix of performance, technology, and public goodwill, *Live Aid* raised $127 million for famine relief in Africa. More than 30 years have passed since the *Live Aid* concert (2018). Since then, the world has evolved significantly as a result of global technological change. This has affected the world in numerous ways, including the way that companies, individuals, and non-governmental organisations (NGOs) are funded.

Sustainability is a cross-cutting concept with a broad range of implications. Specifically, sustainability relates to social and environmental development (Calic & Mosakowski, 2016). Business practices are important because they affect all involved stakeholders. Some firms promote sustainable innovation in their products, processes, services, and business models. These actions are no less important than the firm's competitiveness and market orientation (Schiederig, Tietze & Herstatt, 2012). Moreover, firms have numerous reasons to promote sustainability. These include economic and ecological motivations (Schiederig, Tietze & Herstatt, 2012).

Sustainability affects a range of areas, such as social entrepreneurship, corporate social responsibility (Gkorezis & Petridou, 2017; Gutiérrez Rodríguez, Cuesta Valiño & Vázquez Burguete, 2017; Hategan, Sirghi, Curea-Pitorac & Hategan, 2018; Kraus, Burtscher, Vallaster & Angerer, 2018; Zanger, Padhi & Wagner, 2018), social innovation (Calic & Mosakowski, 2016; Ramos, Donate & Guadamillas, 2018; Ryan & Daly, 2018), and innovation for sustainable growth (Staffas, Gustavsson & McCormick, 2013). In this paper, we analysed a specific form of financing (i.e., crowdfunding), which can contribute to sustainable development.

The motivation for this research laid in the need to clarify the nature of the relationship between crowdfunding and the sustainability orientation of crowdfunded projects. To shed light on this relationship, we conducted a literature review based on bibliometric analysis of the linkages the between the terms "crowdfunding" and "sustainability."

Theoretical Framework

CAPÍTULO II

Crowdfunding

Crowdfunding is an innovative form of financing. The protagonists are the members of the crowd, the fundraiser, and the online funding platform that manages flows between the two (Dilger, Jovanovi´c & Voigt, 2017; Hategan, Sirghi, Curea-Pitorac & Hategan, 2018) . The main feature of crowdfunding is that it renders traditional financial intermediaries unnecessary. Individuals invest directly in projects to meet the funding needs of entrepreneurs or ventures. In return for making this pledge, backers receive a reward, which may be economic or social (Vismara, 2016). The pledge is made by a relatively small number of backers over the Internet (Hörisch, 2015; Mollick, 2014; Rigtering, Eggers, Kraus & Chang, 2017).

Another feature of crowdfunding that has been highlighted by numerous authors is the interconnection between investors and entrepreneurs on the Internet. These actors contribute in different ways: providing either money or a business idea (Ordanini, Miceli, Pizzetti & Parasuraman, 2011; Vasileiadou, Huijben & Raven,2016). Accordingly, one of the reasons for the rapid growth of crowdfunding is interaction over the Internet and social networks, as well as the pitching of ventures that takes place through these channels. This has led to the emergence and development of different crowdfunding models. These different types of crowdfunding are based on earlier models, such as microfinancing and cooperatives (Harrison, 2013; Kedmenec & Strašek, 2017; López Maciel, Pertusa Palacios & Gonzalez Rosas, 2017). However, they go beyond these models because this interconnection is used to not only provide financing for ventures and entrepreneurs but also establish relationships with customers and investors, develop products, and test the market. Consumers play a key role because crowdfunding can offer a new communication channel through which firms can generate interest in fledgling products, just as they can identify target customers that demand a given product. In short, crowdfunding offers a tool to create a community, geographically develop networks between backers and creators (Agrawal, Catalini & Goldfarb, 2011; Moon & Hwang, 2018), and even generate long-term bonds between consumers, followers, and suppliers (Vasileiadou, Huijben & Raven, 2016). Hence, studies have shown that crowdfunding actually not only removes the need for financial intermediaries but also drives innovation by enabling contact between ventures and consumers (Strausz, 2017).

A host of crowdfunding studies have examined the behavior of investors who pledge their money to projects (Mollick, 2014), while other studies have focused on the outcome of the post campaign (Butticè, Colombo & Wright, 2017; Colombo, Franzoni & Rossi-Lamastra, 2015; Mollick, 2014; Mollick & Kuppuswamy, 2014; Walthoff-Borm, Vanacker & Collewaert, 2018). Scholars have also studied the specific use of these crowdfunding platforms (Belleflamme, Lambert & Schwienbacher, 2014) and even the array of business models that fall under the category of crowdfunding (Vasileiadou, Huijben & Raven, 2016) whether these are owned by customers, a third party, or community shares (Huijben & Verbong, 2013).

Crowdfunding Models

This section describes the different crowdfunding models. There is a broad spectrum of crowdfunding models. They have diverse features, and their orientation ranges from purely economic to purely social Dilger, Jovanovic & Voigt, 2017. This typology is clearly determined by the motivations of crowdfunders (Lam & Law, 2016).

•Crowdfunding based on financial return	○**Peer-to-peer lending** (or lending-based crowdfunding) ○Extrinsic motivation through monetary reward
	○**Equity-based crowdfunding** ○Extrinsic motivation through economic reward
•Crowdfunding based on non-financial return	○**Reward-based crowdfunding** ○Extrinsic motivation through material gain
	○**Donation-based crowdfunding** (or patronage) ○Intrinsic motivation of investors (social return)

Figure 1. Spectrum of crowdfunding models. Adapted from Lam and Law (2016).

Prior to this study, a bibliometric analysis of peer-to-peer lending and equity-based crowdfunding was performed (Martínez-Climent, Zorio-Grima & Ribeiro-Soriano, 2018). Peer-to-peer lending, equity-based crowdfunding, reward-based crowdfunding, and donation-based crowdfunding all share common characteristics. For example, all forms of crowdfunding depend on a large number of investors and an online platform to manage interactions between investors and creators (Belleflamme, Lambert & Schwienbacher, 2014; Burtch & Wattal, 2017; Colombo, Franzoni & Rossi-Lamastra, 2015; Davis, Hmieleski, Webb & Coombs, 2017; Mollick, 2014). Below, we briefly describe each form of crowdfunding.

Peer-to-peer lending is a form of financing that enables loans between individuals without intervention from financial intermediaries. The risk is greater than with other transactions. Accordingly, the return on investment is also higher (Ahlers, Cumming, Günther & Schweizer, 2015; Bruton, Khavul, Siegel & Wright. 2015; Burtch, Ghose & Wattal, 2013; Herzenstein, Dholakia & Andrews, 2011; Larrimore, Larrimore, Markowitz & Gorski, 2011; Pope & Sydnor, 2011).

In equity-based crowdfunding, investors, in exchange for their investment, receive shares in the business project they have pledged to (Ahlers, Cumming, Günther & Schweizer, 2015; Belleflamme, Lambert & Schwienbacher, 2014; Block, Hornuf & Moritz, 2018; Cholakova & Clarysse, 2015; Davis, Hmieleski, Webb & Coombs, 2017; Short, Ketchen, McKenny & Ireland,2017; Vismara, 2016)

When investors receive a token, product, service, or gift in exchange for their pledge to the project, this is known as reward-based crowdfunding (Allison, Davis, Short, Webb, 2015; Bi, Liu, Usman, 2017; Cholakova & Clarysse, 2015; Gerber & Hui, 2013 Kraus, Richter, Brem, Cheng & Chang, 2016).

Finally, donation-based crowdfunding aims to raise funds to contribute to social causes, such as non-governmental organisations (NGOs). Investors invest in these projects without expecting any economic return. Instead, they seek a social reward by contributing to sustainable development (Dushnitsky, Guerini, Piva & Rossi-Lamastra, 2016; Giudici, Guerini & Rossi Lamastra, 2013; Hu, Li & Shi, 2015; Saxton & Wang, 2014).

As Figure 1 shows, investors' motivation with each type of crowdfunding was different. In peer-to-peer lending and equity-based crowdfunding, investors were extrinsically motivated, and they hoped to receive an economic reward. In reward-based crowdfunding, investors hoped to receive some sort of material gain, so they were also motivated by extrinsic motivation. In donation-based crowdfunding, however, investors were driven by intrinsic motivation because the reward they hoped to receive was social. Therefore, a priori, it would seem to be more closely related to sustainability than any other form of crowdfunding. However, investors are becoming increasingly motivated by other factors, such as philanthropy (Turi, Domingo-Ferrer, Sánchez & Osmani, 2017).

2.1.2. Crowdfunding and ICT

Numerous studies have focused on the effects of information and communication technologies (ICTs) on crowdfunding. For example, Kromidha and Robson (Kromidha & Robson, 2016) affirmed that fundraisers and backers who identified with their projects within their own social networks achieved higher rates of backers or pledges. Zheng et al. (2014) suggested that social network relationships of entrepreneurs in terms of their obligations to fund other entrepreneurs, as well as the project's shared meaning between the funders and fundraisers, had crucial effects on online reward-based crowdfunding performance in both the U.S.A. and China.

Mollick (2014) reported that the amount raised through crowdfunding was strongly influenced by the entrepreneur's number of friends on social networks. From another perspective, Bechter et al. (2011) reported that two well-known platforms (Facebook and Twitter) were important for entrepreneurs who aimed to link with friends and fans who were interested in providing information and financial support.

Zheng et al. (2014) categorised social networks into two types with respect to crowdfunding. The first refered to the social network platform where the entrepreneur presented the project (e.g., Kickstarter), whereas the second referred to the entrepreneur's embeddedness in other third-party social networks (e.g., Twitter and Facebook). In both categories, ICTs, social networks, and the online community played vital roles in strengthening the entrepreneur's social capital (Preece, 2002).

Method

We conducted a bibliometric analysis of publications in the Web of Science (WoS). The goal was to review the literature on the linkages between crowdfunding and sustainability. The WoS database enables identification of scientific publications indexed in high-impact journals that have undergone a publication process designed to ensure the high standards of the research and the content contained therein (Ferreira, Fernandes & Kraus, 2019)

The aim of this paper was to gain a better understanding of the linkages between sustainability and crowdfunding. Therefore, we performed a study based on the keywords of "crowdfunding" and "sustainability" or "crowdfunding" and "sustainable." We also included the term "crowd-funding" in the search to avoid introducing bias.

To achieve our research aims, we performed a systematic literature review based on bibliometric analysis. Such analysis consists of analysing publications on a specific theme using a database that enables the measurement of citations and published documents to interpret advances in the field and the degree of academic interest these might have (Albort-Morant & Ribeiro-Soriano, 2016; Kraus, Filser, O'Dwyer & Shaw, 2014; Rey-Martí, Ribeiro-Soriano & Palacios-Marqués, 2016; Watts & Porter, 1997). We, therefore, analysed the metadata that related to the names of journals, authors, countries, type of document, and area of knowledge, and we observed the most relevant phenomena. We adopted the WoS terminology, with the term "article" specifically denoting journal articles published in WoS journals. Proceedings papers are explicitly referred to as such. This process provided insight into future lines of research (Chen, Chiang & Storey, 2012; Hirsch, 2005; Martens & Carvalho, 2017).

Results

This section presents the results of our analysis of WoS data on the relationship between "crowdfunding" and "sustainability."

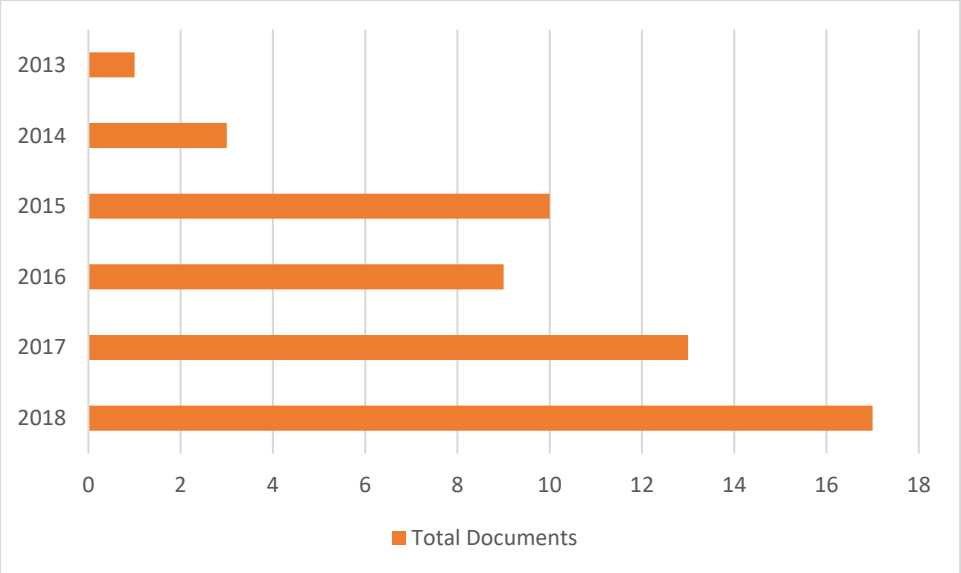

Figure 2. Publications by year.

Figure 2 shows that the number of published documents has grown since 2013. As shown by the previous figure, the phenomenon of crowdfunding has been increasingly linked to sustainability. The concern for sustainability is reflected in Figure 2. The number of crowdfunding publications has been on an upward trend, as reported in previous research (Martínez-Climent, Zorio-Grima & Ribeiro-Soriano, 2018). The number of publications on

crowdfunding and sustainability has also been increasing. The heightened attention of researchers studying or analysing this topic has managerial implications. These are discussed in the conclusions section.

Table 1. Type of document.

Type of document	Publication
Article	37
Proceedings paper	12
Review	4
Total	53

As Table 1 shows, more than 69% of the publications on this topic were scientific articles. Furthermore, 12 of the 53 documents were proceedings papers. Only four reviews were published in journals indexed in the WoS.

Proceedings papers were published at the conferences shown in Figure 3:

The 9th International Forum on Knowledge Asset Dynamics (IFKAD),

The 3rd International Symposium in Computational Economics and Finance,

The ACM SIGCHI Conference on Human Factors in Computing Systems (CHI),

The 17th International Academic MindTrek Conference on Making Sense of Converging Media,

The 32nd International Conference on Education and Research in Computer Aided Architectural Design in Europe (eCAADe),

The International Conference on Modern Management, Education Technology, and Social Science (MMETSS),

The 11th European Conference on Innovation and Entrepreneurship (ECIE),

The 5th International Conference Innovation Management, Entrepreneurship and Sustainability (IMES),

The 8th International Conference on Advances in Information Technology (IAIT),

The Portland International Conference on Management of Engineering and Technology (PICMET),

The SocInfo International Workshops and 20th International Conference on Engineering Design (ICED).

Figure 3. Conferences that have published proceedings papers on crowdfunding and sustainability.

The WoS categories in which proceedings papers have been published vary considerably. These categories are Business, Finance > Economics, Engineering, Industrial > Engineering, Electrical & Electronic > Operations Research & Management Science, Computer Science > Cybernetics > Information Systems> Computer Science > Theory & Methods > Architecture. This shows that crowdfunding has been a cross-cutting topic and that research on crowdfunding has been of interest to scholars from numerous knowledge areas.

Interestingly, in the publications classified as reviews, the areas studied were more diverse than those mentioned earlier. More specifically, the most cited review, which had 24 citations and was written by Lam and Law (2017), was indexed in the category of Green & Sustainable Science & Technology and Energy & Fuels. The other reviews were indexed in the categories of Biotechnology & Applied Microbiology; Genetics & Heredity; Green & Sustainable Science & Technology; Energy & Fuels; and Environmental Sciences. Thus, these publications definitely appeared to be related to sustainability, technology, and energy development.

The bulk of the publications were articles. Of the 53 analysed documents, 37 were articles. In turn, of these 37 articles, eight were published in WoS categories of Business and Environmental Sciences. The category with the next highest number of articles was Green Sustainable Technology and Management with six publications. The categories of Education and Educational Research, Engineering Environmental, Environmental Studies, and Information Science and Library Science were also among the areas where three articles have been published. Therefore, crowdfunding, as well as its relationship with sustainability, has been studied in these areas. Later in this paper, the articles and the fundamental features of the most relevant articles are analysed.

Table 2. Countries with the highest productivity.

Rank	Country	TP	TC	C/P	h index
1	China	7	24	3.43	1
2	USA	7	13	1.86	2
3	England	5	10	2	1

4	Germany	5	31	6.2	2
5	Italy	5	1	0.2	1
6	Australia	3	23	7.67	1
7	Belgium	3	1	0.33	1
8	Canada	2	26	13	2
9	Spain	2	6	3	2
10	India	2	6	3	2

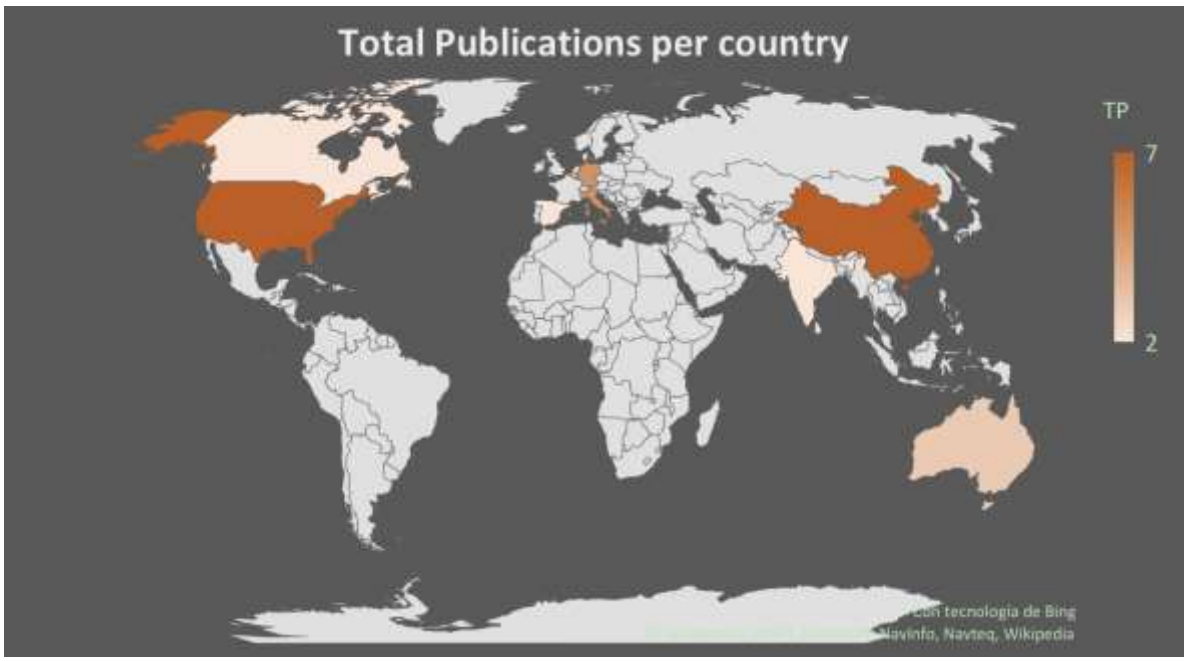

Figure 4. Publications by country.

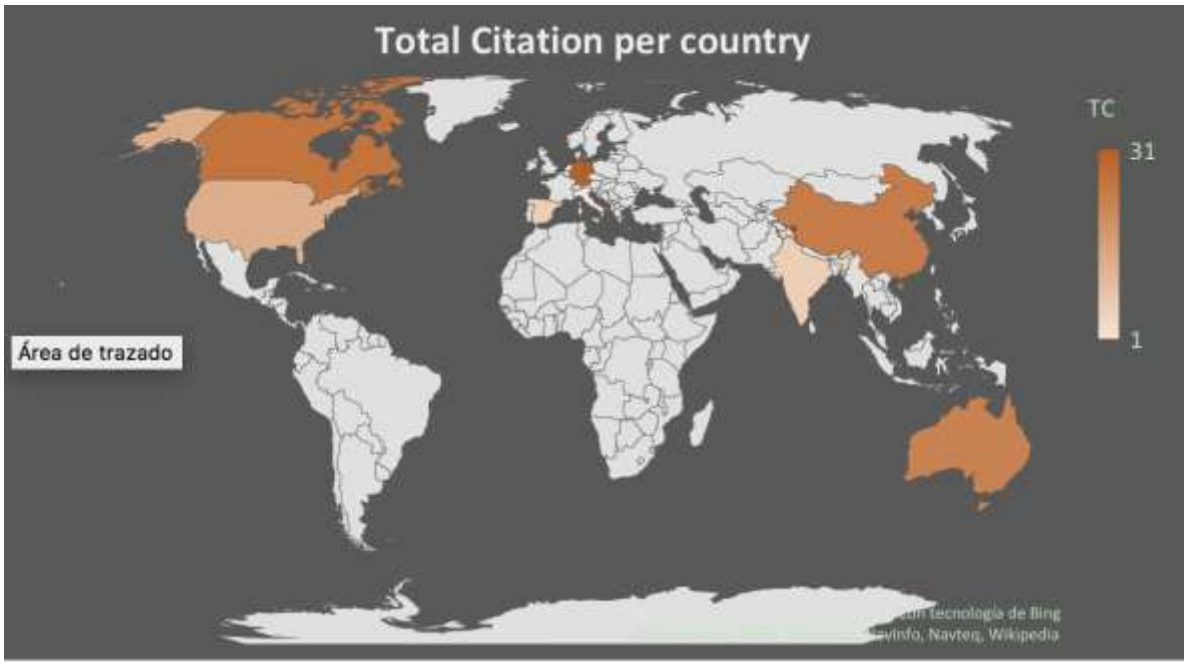

Figure 5. Total citations by country.

Table 2 shows the countries with the highest productivity. The country with most publications was China, with seven documents and 24 citations. The country with the most citations was Germany, with 31. The country with the most citations per document was Australia, with 7.67.

Figure 4,5 display the differences between the countries with the most publications (U.S.A. and Canada) and the countries with the most citations of these publications (Germany, Canada, and China).

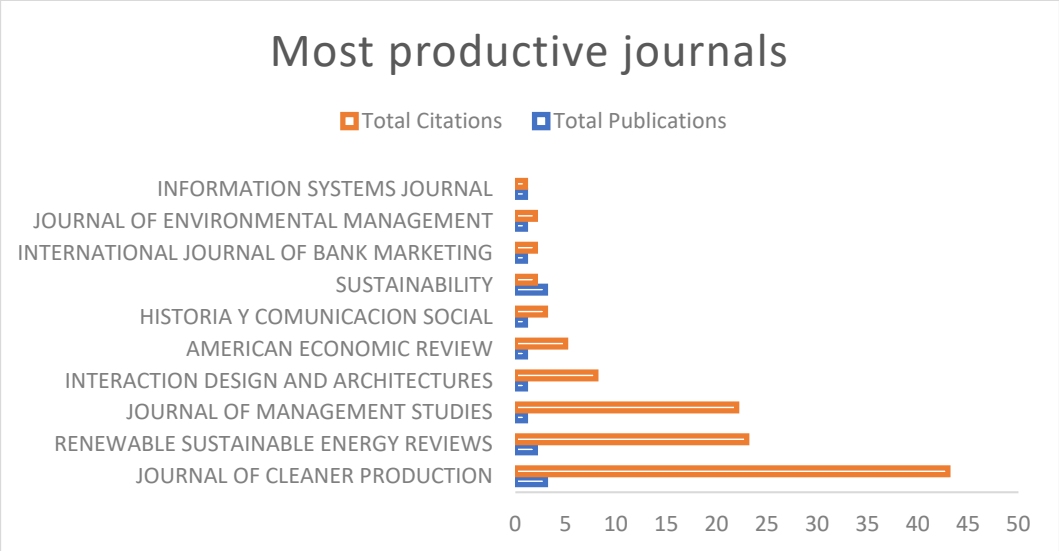

Figure 6. Most productive journals.

The most productive journals on crowdfunding and sustainability are shown in Figure 6. We selected the journals with the most cited articles on crowdfunding and sustainability. As explained earlier, the number of publications on this topic was incipient because it has been growing, although there were relatively few publications. However, despite having published relatively few documents (three), the *Journal of Cleaner Production* received 43 citations. *Renewable Sustainable Energy Reviews* also published just three documents, which received 23 citations. These two journals are included in the first quartile of the Journal Citation Reports (JCR) and are indexed in the WoS categories of Engineering, Environmental Sciences, Green & Sustainable Science & Technology, Green & Sustainable Science & Technology, and Energy & Fuels.

Notably, the journals *Interaction Design and Architectures* and *Historia y Comunicación Social*, which belong to the emerging index of the WoS, also published works on crowdfunding and sustainability. These journals are indexed in the Emerging Sources Citation Index (Education, Educational Research, Economics) and the Arts and Humanities Citation Index (Film, Radio, Television, History), receiving eight and three citations, respectively.

Table 3. Most productive authors.

Rank	Author	Country	TP-CF&S	TC-CF&S	C/P-CF&S	H INDEX-CF&S	H	TP	TC
1	Hörisch, J.	Germany	2	23	11.5	1	7	19	177
2	Calic, G.	Canada	1	22	22	1	2	4	32
3	Light, A.	England	2	9	4.5	1	7	31	208
4	Domingo-Ferrer, J.	Spain	1	3	3	1	27	222	2,931
5	Pak, B.	Belgium	2	1	0.5	1	1	19	4
6	Chen. J.	China	1	1	1	1	19	92	1,276
7	Benlian, A.	Germany	1	1	1	1	12	39	637
8	Chen, J.	China	1	1	1	1	13	84	409
9	Coutts, C.	U.S.A.	1	1	1	1	13	33	389
10	Bojei, J.	Malaysia	1	1	1	1	2	8	38

Table 3 shows the authors with the most citations of publications on crowdfunding and sustainability. No author published more than two documents on crowdfunding and sustainability, and authors with high h indices and total citations leaned toward the study of crowdfunding and sustainability. This finding was important because it showed the interest of researchers with a broad experience in this incipient topic. Hörisch had the most citations (23) in this area, with two publications on the topic of crowdfunding and sustainability. Calic had most citations per document, with 22 citations for a single document. Authors with high h indices, such as Domingo-Ferrer, who had an h index of 27 and 2931 total citations, published one document on crowdfunding and sustainability. The h index was previously used in research as a measure of productivity and impact in the academic community (Chen, Chiang & Storey, 2012; Hirsch, 2005). TP refers to the Total Publications, TC refers to Total Citation, CF&S refers to Crowdfunding & Sustainability.

Table 4. Most cited paper.

Rank	PY	TC	AF	SO	Summary	Platforms	Conclusions
1	2015	23	Hörisch	Journal of Cleaner Production	The paper explores the relationships between environmental orientation of crowdfunding projects and funding success. The paper answers how environmental orientation of crowdfunding projects influences their likelihood of successfully receiving funding.	Indiegogo	Environmental orientation of CF projects currently cannot be observed to be positively related to the success of CF projects. Projects in categories that generate a tangible outcome (e.g., books and videos) are more likely to achieve their funding goals. Non-profit projects tend to be more successful.
2	2016	22	Calic, Mosakowski	Journal of Management Studies	The authors study whether and how a sustainability orientation affects	Kickstarter	1) A sustainability orientation positively affects funding success of CF projects, and 2) this

					entrepreneurs' ability to acquire financial resources through crowdfunding.		relationship is mediated by project creativity and third-party endorsements. A sustainability orientation may matter for creativity within new ventures.
3	2016	19	Vasileiadou, Huijben, Raven	Journal of Cleaner Production	What evidence is there that crowdfunding for renewable energy projects has stabilised as a niche and has the potential to break through the energy and financial regimes?	All online crowdfunding platforms in Netherlands*	Evidence of crowdfunding for renewable electricity niches is reported, but the scale remains low. There is limited indication of stabilisation of learning processes. With respect to heterogeneity in funders' motivations, normative and gain considerations prevail. Moreover,

							reward or donation models seem to attract a primarily green crowd.
4	2015	10	Jian, Shin	Mass Communication and Society	The authors seek to identify the key motivations behind readers' donations to a pioneering crowdfunded journalism website: Spot.Us.	Spot.Us	Belief in freedom of content, altruism, and contributing to the community were the strongest self-reported motivations by donors of crowdfunded journalism. However, fun and supporting family and friends emerged as clear predictors of high levels of contributions.
5	2015	8	Light, Miskelly	Interaction Design and Architectures	The authors explore the idea of sharing culture. They examine the approach of one	Patchwork Present	The authors argue that there is a huge, hybridised space, which includes networked services that

				digital service, regarding sharing as both environmentally and socially sustaining. The paper examines definitions of sharing and explores the positioning of a crowdfunding service.		are disintermediated, thus allowing for new peer-to-peer provision. However, there is no sharing economy, and a belief in one is potentially detrimental to community activity.
6	2016	6	Gleasure, Feller	Journal of the Association for Information Systems	The authors theorise how anchor values evolve. They analyse how a group of backers on Kickstarter initially embraced the Oculus Rift project, how the	Kickstarter: The Oculus Rift project	The first major implication is to demonstrate the strong role of organisational identity on the crowdfunding process as an input and an output. The paper shows how to move beyond one-to-one

				relationship changed over time, and how and why these backers responded on hearing news of the sale of Oculus VR to Facebook.		dyadic interpersonal relationships and allows researchers to explore hidden inter-group factors that may enhance or limit the use of crowdfunding technologies.
7	2017	5	Strausz	American Economic Review	The authors characterise efficient outcomes in the presence of entrepreneurial moral hazard, consumers' private information about demand, and entrepreneurs' private information about cost structure.	Kickstarter	Crowdfunding in the presence of moral hazard and private cost information is unable to attain efficiency in general. It can be thought of as a complement rather than a substitute for traditional venture capital.

8	2017	3	Nigussie, Domingo-Ferrer, Sanchez, Osmani	Review of Managerial Science	The authors analyse the investment crowdfunding industry and propose solutions that can neutralise the fear and mistrust effects underlying its market to make it strictly co-utile.	Kickstarter	The market inefficiency arising from fear and mistrust effects, in addition to asymmetric information, limits the applicability of crowd-based financing.
9	2015	2	Marakkath, Attuel–Mendes	International Journal of Bank Marketing	This paper discusses how the regulatory environment can be a fundamental constraint or lever in defining the scope of operations of social innovation.	Kiva	There is a need for the specific legal status of crowdfunding platform social ventures, meeting their need to protect their social image while attracting funds. Relaxing the regulations

							could lead to an expansion of certain types of crowdfunding, particularly those aimed at entrepreneurship, such as equity-based crowdfunding.
10	2018	2	Moon, Hwang	Sustainability	The aim of the paper is to identify the factors that influence backers of technology projects through crowdfunding platforms, analyse connections, and establish the usefulness of crowdfunding as a viable funding alternative.	No concrete platform of reward-based crowdfunding	Social influence, effort expectancy, and perceived trust significantly affect the use intention of backers of crowdfunded appropriate technology projects.

We analysed the 10 most cited articles on crowdfunding and sustainability (Table 4). Four of these articles (Calic & Mosakowski, 2016; Strausz, 2017; Turi, Domingo-Ferrer, Sánchez & Osmani, 2017; Gleasure & Feller, 2016) focused on the Kickstarter platform. As noted by Calic, Goran, Mosakowski, and Elaine (2016), Kickstarter is unique because it does not allow philanthropic donations. This policy goes against the preconceived idea that some may have of sustainability. As we have already explained, there are different types of crowdfunding. By establishing this policy, Kickstarter ensures that its business model is not based on donations by specialising in reward-based crowdfunding.

The most cited articles were in the categories of Green & Sustainable Science & Technology; Engineering, Environmental, Environmental Sciences, Business; Management, Communication, Education & Educational Research; Computer Science, Information Systems; Information Science & Library Science; Economics, Film, Radio, Television and History.

Sustainable Crowdfunding

We studied the relationship between sustainability and crowdfunding by examining the 53 documents yielded by the bibliometric search.

The study of the relationship between entrepreneurship and sustainable development was the basis for analysing sustainability. Similarly, to analyse entrepreneurship and its relationship with sustainability and the environment, the specific context must be considered (López Maciel, Pertusa Palacios & Gonzalez Rosas, 2017). Hörisch (2015) studied the influence of the environmental orientation of crowdfunding projects on campaign success. Hörisch (2015) concluded that this influence could not be generalised because the study only showed a positive relationship between the success of crowdfunding campaigns and proposals that generate tangible products. Calic and Mosakowski (2016) interpreted the sustainability orientation of crowdfunding projects as a combination of environmental and social considerations. These projects should benefit and protect the environment while improving the lives of people.

Vasileiadou, Huijben, and Raven (2016) depicted renewable energy crowdfunding as a new business model. The authors affirmed that this sustainability orientation of crowdfunding projects could change the established financial and energy system.

Jian and Shin (2015) studied the website Spot.Us, a donation platform devoted to support journalism. They reported a relationship with sustainability orientation because they defined journalism as a collective good (i.e., goods that can be enjoyed by everybody, such as clean air or a shared knowledge system, like Wikipedia). They identified the factors that encouraged donations, concluding that neither altruism nor freedom of expression is a decisive factor when deciding whether to make donations. Instead, having fun and supporting family and friends were clear predictors of high levels of contributions.

Light and Miskelly (2015) defined sustainability as the idea of sharing as an alternative to private property. By sharing, it is possible to split costs and allocate resources in a different way, giving rise to a hybrid space where the concepts of environmental, social, and economic well-being could be implemented.

Turi, Domingo-Ferrer, and Sanchez, Osmani (2017) analysed the factors that elicited satisfaction and fear in investors because information asymmetries created inefficiencies in the crowdfunding market. They linked sustainability to crowdfunding by focusing on the crowdfunding business model from the viewpoint of co-utility: "Co-utility is a new concept in which the best way of serving one's own interest is to help in one or more other peers' interest fulfillment" (Turi, Domingo-Ferrer, and Sanchez & Osmani, 2017: 418).

Marakkath and Attuel-Mendes (2015) analysed the effect of a regulatory environment on operations that sought social innovation. The sustainability focus of the article was based on the idea that social agents should pursue an economic and social mission. The authors concluded that there is a need to create legislation that regulates social operations that maintain the social image, while attracting funding to fulfil the firm's mission. They proposed the relaxing of regulations to protect certain types of crowdfunding, particularly equity-based crowdfunding.

Dilger, Jovanovic, and Voigt (2017) studied the range of energy cooperative business models and the role of crowdfunding to improve the problems raised by these business models. They developed the concept of sustainable economics because, in the context energy, there are certain relevant factors to study, such as the source of energy, technical solutions, and energy consumption by businesses. They concluded that cognitive barriers are negative aspects of applying crowdfunding. However, the cooperatives that they studied verified that

crowdfunding could play a fundamental role to overcome the challenges that energy cooperatives face.

Moon and Hwang (2018) identified a series of factors that influence appropriate technology investors. Appropriate technology aims to bring about social innovation, contributing to developing a local and cultural environment. By performing an analysis of the links between factors that contribute to appropriate technology, the authors established that crowdfunding is a useful tool to finance sustainable projects. They also proposed that reward-based crowdfunding is regularly employed to obtain financing for projects that are less viable in the current system, such as non-profit or artistic projects, whose end goal is not to provide a non-economic return (Moon & Hwang, 2018).

Walthoff–Borm, Vanacker, and Collewaert (2018) studied the result of projects financed using equity-based crowdfunding in the areas of financial performance and innovation performance. In this paper, sustainability is interpreted as the preservation of equity-based crowdfunding projects through investor projection to avoid adverse selection problems.

Conclusions

In this paper, we analysed 53 documents that explored the relationship between crowdfunding and sustainability. In one form or another, these documents examined the effect of a sustainability orientation on different crowdfunded projects. The first conclusion was that the definition of sustainability covered a range of areas, with some authors considering economic sustainability. We went further, considering manuscripts that focused on sustainability from a social and environmental perspective to address the established system leading us to climate change, the depletion of the planet's natural resources, and the preservation of the social differences that exist in society.

Accordingly, there is a latent need to seek different forms of organisation and execution. The search for solutions from a sustainable approach could encourage outside-the-box thinking that contributes to productivity, social innovation, and highly creative solutions (Calic & Mosakowski, 2016).

The bibliometric analysis showed that the year with most publications on the topic of crowdfunding and sustainability was 2018, with 17 publications. The most published type of

document over the years was the research article, with 37 documents. China had the highest research productivity, with seven publications that have received 24 citations. The country with the most citations was Germany, with 31. The country with the most citations per document was Australia, with 7.67.

The scientific journal with the most publications was *Sustainability*. This was followed by the *Journal of Cleaner Production*, which, despite having published just three documents, received 43 citations. *Renewable Sustainable Energy Reviews* also published three documents, which received 23 citations. The *Journal of Cleaner Production* and *Renewable Sustainable Energy Reviews* were positioned in the top quartile of the JCR and were indexed in the WoS categories of Engineering, Environmental Sciences; Green & Sustainable Science & Technology; Green & Sustainable Science & Technology; Energy & Fuels.

With respect to the most prolific authors, Hörisch, who published two papers on crowdfunding and sustainability, had the most citations (23) in this area. Calic received the most citations per document of any authors, with 22 citations for a single document.

Finally, the crowdfunding and sustainability articles that received most citations appear in Table 4. Four of these articles (Calic & Mosakowski, 2016; Gleasure & Feller, 2016; Strausz, 2017; Turi, Domingo-Ferrer, Sánchez & Osmani, 2017) focus on the Kickstarter platform. The fact that Kickstarter does not allow donations with philanthropic ends implies that sustainability in crowdfunding operations need not be linked to philanthropy or donations. Rather, sustainability is a cross-cutting concept that should form part of the full range of crowdfunding operations and models.

With respect to the sustainability orientation studied in the 53 documents, some authors affirmed that crowdfunding can reshape the financial and energy system (Dilger, Jovanovi´c & Voigt, 2017; Vasileiadou, Huijben & Raven, 2016). Others claimed that crowdfunding contributes to enabling everybody to enjoy collective goods (Light & Miskelly, 2015), such as journalism (Jian & Shin, 2015), because costs are shared and social, economic, and environmental well-being are promoted. Sustainability orientation was related to social innovation through appropriate technology (Moon & Hwang, 2018), even with co-utility (Turi, Domingo-Ferrer, Sánchez & Osmani, 2017). Furthermore, several articles (Marakkath & Attuel-Mendes, 2015; Walthoff-Borm, Vanacker & Collewaert, 2018) studied the effect of regulations on crowdfunding and social innovation, which is also a type of sustainability.

However, not all the results revealed a positive relationship between a sustainability orientation and crowdfunding campaign success. For example, Hörisch (2015) found that such campaigns must generate physical products to be successful.

Live Aid (2018) was just an example of the fight against inequality and the efforts to contribute to sustainable development. Thirty years on, new initiatives such as crowdfunding with a sustainability orientation have similar objectives. Consumers, investors, firms, the government, and others can reshape the reality of climate change and social inequality by taking responsible, sensible actions and decisions.

5.1. Managerial Implications and Future Research

In this paper, we examined the approaches to sustainability and crowdfunding. One key idea of crowdfunding is the bypassing of banks in the financial system to obtain funds for entrepreneurs, firms, and individuals seeking capital.

Banks are increasingly incorporating practices related to corporate social responsibility to cope with calls from society for banks to contribute to sustainable development (Mikušová, 2017). However, new forms, such as crowdfunding, are prevailing, and sustainable practices financed by crowdfunding that bypass the established system are being embraced (Shields, Welsh & Shelleman, 2018).

Thus, the establishment of crowdfunding as part of the system can lead to bypassing the banks and the incorporation of sustainability concerns in the form of commitment to the environment and society, which will promote the distribution of capital (Morozova, Popkova & Litvinova, 2018). Today, we are witnessing change. The concentration of capital is increasing in multinational companies, which is leading to greater differentiation between social classes and the concentration of wealth. Nevertheless, crowdfunding can contribute to sustainability. It is necessary to establish controls to minimise the risks borne by investors and entrepreneurs (Lo, Huarng & Rey-Martí, 2019). Projects will thereby be more likely to succeed, and the needs of both parties will be met.

Future research should seek evidence of the real contribution of crowdfunding to sustainability in environmental, as well as social, terms.

Acknowledgments: The authors gratefully acknowledge financial support from the Chair "Entrepreneurship: Being student to entrepreneur"—Grupo Maicerías Españolas-Arroz

DACSA, Cátedra de la Universitat de València “Excelencia y Desarrollo en Emprendimiento: de Estudiante a Empresario”—Grupo Maicerías Españolas-Arroz DACSA.

Conflicts of Interest: The authors declare no conflict of interest.

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CAPÍTULO III

EL EFECTO DERRAME DEL CONOCIMIENTO EN CROWDFUNDING

CAPÍTULO III

El Efecto Derrame del Conocimiento en Crowdfunding

Artículo

The Knowledge Spillover Effect of Crowdfunding

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Publicación: Knowledge Management Research & Practice

Año 2020. Volumen 19, Número 1.

Impact factor: 1.583 (2019)

The Knowledge Spillover Effect of Crowdfunding

Abstract

Knowledge exerts a positive indirect effect on the external environment. However, not all innovations are transferred to companies and society to allow such an effect to occur. Given the existence of knowledge filters that prevent the commercialisation of products, entrepreneurship is considered a mechanism for knowledge transfer because ideas are embodied in business creation. The difficulty of attracting funding has been identified as a barrier to commercialising knowledge. This barrier can be lowered using alternative sources of financing such as crowdfunding. Therefore, crowdfunding can help bring to market those ideas whose knowledge spillover has a knock-on effect on society. This article focuses on the role of reward-based crowdfunding in knowledge transfer, innovation and knowledge spillovers. Based on fuzzy-set qualitative comparative analysis of data on 53 entrepreneurs, the empirical results show that the role of investors in reward-based crowdfunding is crucial to enhance entrepreneurs' ideas and enable the indirect effect of knowledge on society.

Keywords: reward-based crowdfunding; knowledge spillover; innovation; society; knowledge spillover theory of entrepreneurship

Introduction

The importance of knowledge production and generation stems from both their direct effects and the spillover that is created. Unlike spillages of liquid, which normally cause waste, spillages of learning and ideas often create positive effects on the external environment. Investment in human capital builds knowledge, which then indirectly affects a host of sectors. For example, in an open innovation process, research and development (R&D) or some other knowledge creation process generates not only positive economic effects but also social benefits (Arena, Bengo, Calderini & Chiodo, 2018; González-Moreno, Díaz-García & Sáez-Martínez, 2018; He, Guaita-Martínez & Botella-Carrubi, 2019; Roper, Vahter & Love, 2013). Bloom, Schankerman, and Van Reenen (2013) empirically studied the social returns of companies with R&D policies, concluding that the social returns exceed the private returns. Ogawa, Sterken, and Tokutsu (2019) extended Bloom et al.'s (2013) research, finding that marginal social returns are higher than marginal private returns in R&D-intensive countries.

In developed economies, the incentive to innovate has become a key way of contributing to economic development (Lehmann & Menter, 2018). However, not all innovations are transferred to enterprises and society to allow this contribution to take place. According to the knowledge spillover theory of entrepreneurship, certain knowledge filters prevent the commercialisation of products (Jarchow & Röhm, 2019). Accordingly, entrepreneurship is considered a mechanism for knowledge transfer because ideas are embodied in business creation (Qian, 2018). External agents are often separate from the generators of knowledge, but they still influence the commercialisation of knowledge (Acs, Braunerhjelm, Audretsch & Carlsson, 2009; Jarchow & Röhm, 2019).

Knowledge filters are the barriers that prevent knowledge from being transformed into an activity that drives economic growth (Ghio, Guerini, Lehmann, & Rossi-Lamastra, 2015; Jarchow & Röhm, 2019). The knowledge spillover theory of entrepreneurship suggests that entrepreneurship achieves economic growth by encouraging diversity, competition and innovation amongst companies (Audretsch, 2007). Entrepreneurship further drives economic growth by promoting employment and learning (Block, Thurik, & Zhou, 2013). One key point of governments is to create economic growth. Creating a strong entrepreneurship ecosystem through private sector engagement, proper legislation and promoting clusters and incubators

lead to sustainable venture creation stimulation and thus to development (Isenberg, 2010; Boutillier, Carré & Levratto, 2016).

Clayton, Feldman, and Lowe (2018, p. 105) identified five differentiable elements in the literature on ecosystems that can help explain the different components of entrepreneurship and the different dimensions that affect it. These differentiable elements are "university technology transfer and licensing offices; physical space (incubators, accelerators, and co-working spaces); professional services providers; networking, connecting, and assisting organisations; and finance providers (including venture capital, angel investors, public financing, and crowdfunding)". The entrepreneurial ecosystem has been also defined as the combination of policy, finance, culture, supports, human capital, and markets (Liguori, Bendickson, Solomon & McDowell, 2019).

Two related problems that commonly impede the commercialisation of ideas through entrepreneurship are the scarcity of financial resources and difficulties attracting private and public funding (Ahmad, Halim, Ramayah, Popa & Papa, 2018; Dezi, Leone, Schiavone, & Simoni, 2019). These problems, which are discussed in the literature, can be mitigated using alternative sources of finance such as crowdfunding. Crowdfunding can help with the commercialisation of ideas whose knowledge spillover benefits society.

Crowdfunding lets entrepreneurs finance their projects through a crowd of investors who, in exchange for their investment, receive a reward that is either monetary or non-monetary depending on the type of crowdfunding. Reward-based crowdfunding gives investors a material asset. Crucially, the primary objective of crowdfunding investors might not be the dissemination of knowledge but the obtention of a reward in the form of payment in kind or some kind of monetary gain (Bi, Liu, & Usman, 2017; Steigenberger, 2017). However, investors and entrepreneurs nonetheless exchange ideas, experiences and advice. This form of networking generates indirect knowledge that positively affects entrepreneurs' crowdfunding projects and generates the transfer of knowledge to society. Therefore, using crowdfunding as a financing tool has an indirect effect, namely knowledge spillover. Moreover, because crowdfunding is a novel business model where digital technologies provide the main channel for the dissemination of knowledge, the role of digitalisation is highly relevant. It is also of interest to study the effect of this digitalisation on knowledge spillovers and the proximity of investors (Ghio et al., 2015). Therefore, this article focuses on the role of investors,

namely reward-based crowdfunders, in knowledge transfer, innovation and knowledge spillovers.

Crowdfunding has revolutionised the way ventures are funded, changing the status quo as regards use of the banking system as the established provider of finance (Felício, Rodrigues, Grove, & Greiner, 2018). In addition, crowdfunding relies on the Internet. Thus, the channel through which funding is distributed and the environment where this distribution takes place are different from in the traditional funding model. Crowdfunding offers a new way for private capital to be collected and distributed. In doing so, it contributes to the development of ideas and minimises geographical barriers in the innovation process (Cillo, Rialti, Bertoldi, & Ciampi, 2019; Nucciarelli et al., 2017).

Digitalisation affects economic activity by changing companies' business models environment (Gupta & Bose, 2019; Kraus, Roig-Tierno & Bouncken, 2019). The access to information through Internet and the organisation of firms and individuals by means of using it, makes business models and entrepreneurship different. Specifically, digital entrepreneurship is the transfer of a part of the business into digital (Kraus, Palmer, Kailer, Kallinger & Spitzer, 2019). In the digital sector, geographical clustering is now less necessary to develop products and services or to interact, communicate and access markets (Evans, 2019) because these actions have become digitally intrinsic characteristics of many sectors (Autio, Nambisan, Thomas, & Wright, 2018; Rippa & Secundo, 2019).

Obtaining financing through tools such as crowdfunding, which use technology and the Internet, has different nuances than obtaining economic resources through Business Angel for example. A clear distinction is the "in situ" experience of the Business Angel versus the online contact experienced by both parties through the platform. Geographic space should not be confused with the flow of information and ideas: in Business Angel there is an exchange of ideas intrinsic to the event; while in crowdfunding there are other tools to provide feedback. Some platforms conduct surveys just after the investor commits its capital to the project. These surveys ask the reasons to invest in the project (e.g. expected profitability, innovative idea, emotional connection, etc.) among other questions. In addition, certain platforms send questionnaires to investors and after they inform the entrepreneurs about the backers' perception.

The most innovative aspect of some CF platforms is the possibility of posting comments on CF projects, creating a closed social network promoted by the platform itself and which can only be accessed by backers and companies or entrepreneurs. Thus, an information flow is generated that leads to a further step in the contribution of CF. First of all, Crowdfunding 1.0. allows to obtain economic resources. In the most developed aspect of it, Crowdfunding 2.0. allows obtaining financing and also the exchange of ideas and knowledge, helping the entrepreneur to continue with the development of the project.

On this basis this article presents theoretical analysis of the traditional approach to knowledge spillovers. Analysis of the evolution of knowledge spillovers is also presented. The knowledge spillover theory of entrepreneurship is used to link knowledge spillovers and entrepreneurship to crowdfunding. Empirical analysis was conducted using fuzzy-set qualitative comparative analysis (fsQCA). The analysis was performed using data on 53 entrepreneurs who have participated in two reward-based crowdfunding platforms in Spain. The results show that the role of reward-based crowdfunding investors in improving entrepreneurs' ideas is crucial for knowledge to exert an indirect effect on society.

Theoretical framework: success factors in knowledge spillovers to society

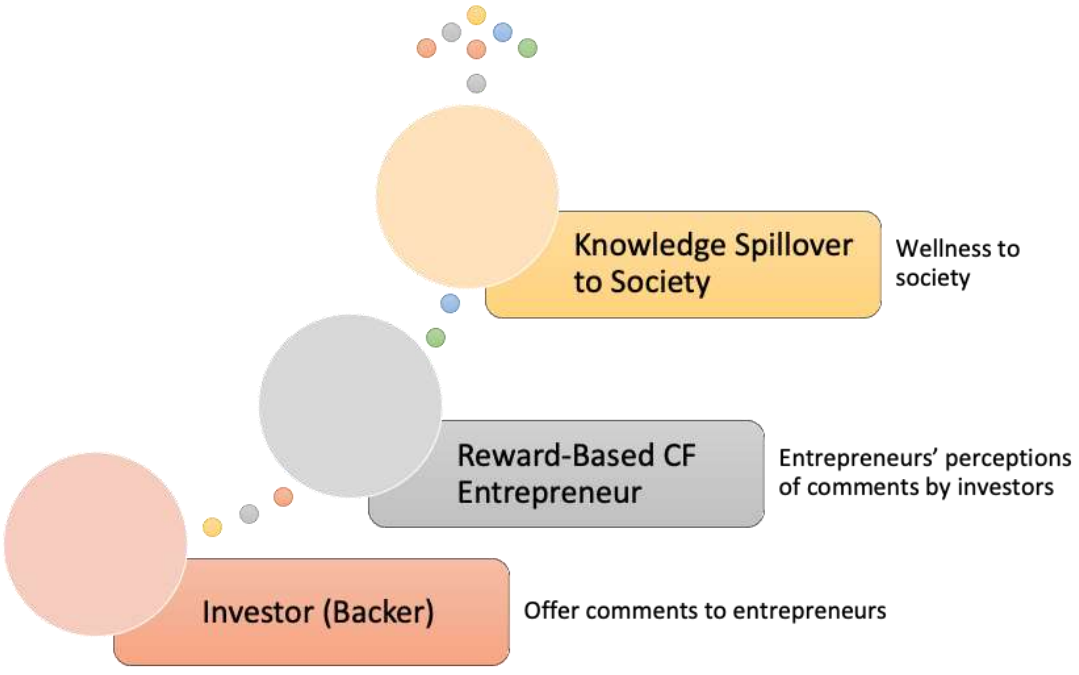

Figure 1. Model

Knowledge spillovers

Marshall (1890) noted the existence of positive external economies when companies in the same industry cluster together in the same geographical location. Three conditions are cited for this situation to occur: the local availability of inputs, the presence of qualified workers and indirect knowledge (knowledge spillovers). These externalities, which were described in 1890, have developed in accordance with the evolution of the economy and society (Giuliani, 2007; Pietrucha & Żelazny, 2019).

Research in this area has traditionally focused on the relationship between knowledge spillovers, geographical proximity and cluster formation (Bocquet & Mothe, 2010; Bönte, 2008; Döring & Schnellenbach, 2006; Gallié, 2009; Streb, Baten, & Yin, 2006). The reasons for this orientation include the fact that knowledge-creating institutions such as universities or research centres train graduates, who acquire and then transfer knowledge by engaging in intellectual or entrepreneurial pursuits (Ahmad & Widén, 2018). These institutions are able to do so thanks to resources such as high-quality libraries with database access, which are used to train talented graduates (Acs, Audretsch, & Lehmann, 2013). These graduates then pass on their knowledge or create knowledge by implementing the skills and aptitudes they have acquired.

Scholars have also differentiated tacit from scientific knowledge. It has been argued that scientific knowledge is easier to codify through scientific articles, patents, and so on (Fernández-Vázquez & Álvarez-Delgado, 2019; Guo-Fitoussi, Bounfour, & Rekik, 2019), whereas tacit knowledge is harder to transfer if individuals are geographically distant from one another (Kogut & Zander, 1992).

One relevant question here relates to the role of the current technological revolution in knowledge transfer. Knowledge acquisition through the Internet is a reality. Business activity and business models are evolving through digitalisation (Autio et al., 2018), as are knowledge acquisition, knowledge dissemination and the knowledge spillover effect.

The most relevant and widely studied theories in this area include the knowledge production function and endogenous growth theory. The main focus of the knowledge production function is to explain how innovation is created. On the one hand university research and R&D are knowledge producing, patent on its effect on industry (Buesa, Heijs, &

Baumert, 2010; Fritsch, 2002; Griliches, 1979; Jaffe, 1986, 1989; Madsen, 2008; Ponds, Oort, & Frenken, 2009). On the other, also firms are seen as knowledge-producing and exchanging entities due to individuals within the company are trained and knowledge revert in entrepreneurial actions (Gast, Werner & Kraus, 2017). Instead of focusing on the output of products and services (Cobb-Douglas production function; Solow, 1957), the knowledge production function focuses on innovation (Qian, 2018). Endogenous growth theory, which was advocated by Romer (1990), depicts "knowledge as a driver of long-term economic development" (Qian, 2018, p. 163). Accordingly, private companies invest in R&D to produce innovations that yield long-term benefits (Grossman & Helpman, 1994; Ha & Howitt, 2007; Martin & Sunley, 1998; Pack, 1994; Öberg & Alexander, 2019). Romer (1990) argued that knowledge spillovers occur automatically in this endogenous growth theory model. However, other researchers (Acs, Audretsch, Braunerhjelm, & Carlsson, 2012; Braunerhjelm, Acs, Audretsch, & Carlsson, 2010; Jerome, 2013; Xu, Wang, Zhou, & Zhang, 2019) later showed the existence of a knowledge filter that prevents knowledge from automatically spreading towards innovation and the commercialisation of ideas (Acs et al., 2013; Jarchow & Röhm, 2019; Johansson, Karlsson, & Stough, 2006). To pass this filter, they advocate the use of entrepreneurship as a driver of business creation that contributes to social development through its use of knowledge. The bibliometric study by Ghio et al. (2015) examined the most relevant articles on the knowledge spillover theory of entrepreneurship, summarising the major research questions in relation to the knowledge spillover theory of entrepreneurship and proposing a promising approach: entrepreneurship as an enhancer of knowledge spillovers.

The knowledge spillover theory of entrepreneurship

Research on entrepreneurship is essentially based on the study of the incentives or characteristics that lead individuals to spot and pursue opportunities to create new companies (Ferreira, Fernandes & Kraus, 2019; Audretsch & Lehmann, 2005; Gimeno, Folta, Cooper, & Woo, 1997; Krueger, Reilly, & Carsrud, 2000; Lumpkin & Dess, 1996). The knowledge spillover theory of entrepreneurship integrates exogenous dimensions such as technological, social and political factors to explain how and why entrepreneurship improves economic performance (Acs et al., 2013) and enhances quality of life and citizens' well-being. The knowledge spillover

theory of entrepreneurship is used to explain how scientists or researchers conduct studies by acquiring, disseminating and creating knowledge. Often, however, these ideas do not translate into the creation of companies that improve citizens' quality of life and contribute to economic development. As mentioned above, certain barriers to knowledge arise in the form of institutional bureaucracy, legal issues, financial constraints, or scientists' weak motivation or lack of the right personal characteristics to become entrepreneurs. Entrepreneurship can eliminate these barriers by enabling knowledge to be brought to market. Therefore, the creation of knowledge-based companies is a crucial way to commercialise ideas through knowledge spillovers and thereby generate economic and social returns (Ghio et al., 2015; Jarchow & Röhm, 2019).

Geographical considerations in knowledge spillovers

Numerous scholars (Acs et al., 2013; Dhanaraj & Parkhe, 2006; Gupta, Tesluk, & Taylor, 2007) have studied geographical proximity as a driver of the diffusion of tacit knowledge. Geographical proximity to the spillover source (Belitski & Desai, 2016) has been reported as a necessary factor for spillover benefits to occur (Lehmann & Menter, 2018). However, other studies (e.g. Autio et al., 2018) have highlighted the effects of digitalisation on economic geography by allowing new relational forms to change established patterns and geographically dispersed groups to coordinate their efforts. As business creation changes and new business models emerge (Autio et al., 2018), the importance of geographical distance may become secondary and knowledge spillover theory may evolve.

Information technology has reduced communication costs, despite massive geographical distances amongst interlocutors. This change has led to the geographical spread of innovative activities resulting from the decoupling of digital opportunities from geographical proximity (Autio et al., 2018; Maznevski & Chudoba, 2000; Yoo, Boland, Lyytinen, & Majchrzak, 2012). Notable innovative activities include financial technology (Fintech) and, specifically, crowdfunding (Clayton, Feldman, & Lowe, 2018; Giusti, Alberti, & Belfanti, 2018). Kim and Kim (2017) also noted the role of crowdfunding in reducing transaction and research costs, enabling transactions regardless of geographical distances between actors.

Crowdfunding

Emerging after the economic and financial crisis of 2008, crowdfunding is a form of finance that addresses the financial constraints faced by entrepreneurs, individuals or companies. Drawing on a crowd of investors who funnel capital through online platforms, entrepreneurs, individuals or companies can finance their projects (Clauss, Breitenecker, Kraus, Brem & Richter, 2018). Four types of crowdfunding can be defined depending on the specific type of contractual obligation established between parties. The first is peer-to-peer (P2P) lending, which consists of microloans. Investors (lenders) transfer money to entrepreneurs (borrowers), who later return the microloan plus some pre-agreed amount of interest (Lin, Prabhala, & Viswanathan, 2013; Zhang & Liu, 2012). P2P lending offers a solution to a market segment that has traditionally not been viewed as "bankable" because of a lack of personal assets to guarantee loans and a shortage of professional experience. Accordingly, this form of crowdfunding entails a high risk of loan default, which also means high returns for lenders (Gomber, Kauffman, Parker, & Weber, 2018). In the second type of crowdfunding, equity crowdfunding, entrepreneurs make an open call for investment. In return for their investment, funders receive a stake in the company or a share of future profits (Ahlers, Cumming, Günther, & Schweizer, 2015; Belleflamme, Lambert, & Schwienbacher, 2014; Angerer, Brem, Kraus & Peter, 2017; Niemand, Angerer, Thies, Kraus, & Hebenstreit, 2018; Vismara, 2019; Angerer, Niemand, Kraus & Thies, 2018). In the third type of crowdfunding, reward-based crowdfunding, entrepreneurs offer a non-monetary reward in the form of a product (Belleflamme, Omrani, & Peitz, 2015). Both investors and entrepreneurs benefit because investors are also potential end consumers (Bi, Liu, & Usman, 2017; De Luca, Margherita, & Passiante, 2019; Kraus, Richter, Brem, Cheng, & Chang, 2016; Mollick, 2014). Finally, in the last type of crowdfunding, donation crowdfunding, the purpose of the capital raised is not to generate a financial gain but to benefit a segment of the population for altruistic reasons (Chen, Dai, Yao, & Li, 2019).

Networking between companies has been studied because it helps the transfer of knowledge, especially tacit and complex knowledge (Cayton et al., 2018; Powell, 1990). In crowdfunding, a relationship is established through two-way online communication (i.e. the exchange of knowledge between the crowd of investors and the entrepreneurs), and innovative discussions are fostered, leading to networking between project funders and

creators (Dezi, Leone, Schiavone, & Simoni, 2019). Open innovation is also promoted (Clayton, Feldman, & Lowe, 2018; Ordanini, Miceli, Pizzetti, & Parasuraman, 2011) due to information flow is present in exchange comments on the projects within the platform. This specialised closed social network enables the development of the project. Following the figure 1 we analyse the following research propositions.

Research proposition 1: Investors provide useful ideas and feedback to entrepreneurs during reward-based crowdfunding campaigns.

Crowdfunding also raises interesting questions in relation to the acquisition of external knowledge by entrepreneurs who promote their projects on crowdfunding platforms. Entrepreneurs can thus interact with investors, who may be potential consumers, or companies with whom they would like to collaborate with in the future (Dezi, Leone, Schiavone, & Simoni, 2019). Therefore, interaction between agents is essential to provide information on the tastes and interests of investors and consumers. This information also helps the company create future projects that are relevant, understandable and highly innovative, raising their likelihood of success (Dejean, 2019; Kang, Jiang & Tan, 2017). Entrepreneurs need funding, whilst investors seek a return on their savings. In this situation, the experience of the community, particularly that of investors (Dejean, 2019; Mollick & Nanda, 2015), can yield benefits (Belleflamme, Lambert, & Schwienbacher, 2014). By contributing ideas, investors indirectly promote knowledge, entering into innovative discussions that result in entrepreneurial projects (Dezi, Leone, Schiavone, & Simoni, 2019; Stanko & Henard 2017), the commercialisation of ideas and, ultimately, the transfer of these ideas to society by bringing new business which cover latent necessities.

Research proposition 2: Reward-based crowdfunding entrepreneurs indirectly transfer knowledge to society.

Method

The method in this study is based on fuzzy-set qualitative comparative analysis (fsQCA; Fiss, 2011; Ragin, 2014; Schneider & Wagemann, 2012; Woodside, 2014). This method is used to identify paths to success or failure depending on the combination of the presence or absence of a set of relevant conditions (Mendel & Korjani, 2013; Nieto-Aleman, Garcia-Alvarez-

Coque, Roig-Tierno & Mas-Verdú, 2019). FsQCA examines the causal conditions that might be necessary or sufficient for an outcome of interest to occur.

FsQCA enables analysis of non-symmetric relationships between observations. This feature is useful in the social sciences, where causal relationships tend to be complex (Fiss, 2011; Roig-Tierno, Gonzalez-Cruz & Llopis-Martinez, 2017; Ryan & Berbegal-Mirabent, 2016). In building sufficiency theories, fsQCA represents an innovative method that provides different configurations of unrelated conditions that lead to a given output (Kraus, Ribeiro-Soriano, & Schüssler, 2018).

Outcome and conditions

As can be seen in table 1, the outcome in this study was knowledge spillovers to society. This outcome was defined as the indirect effect of reward-based crowdfunding investments. Six causal conditions forming three categories were considered: comments by investors to entrepreneurs, knowledge transfer from entrepreneurs to society, and project success.

Table 1. Description and codification of outcome and conditions

Type	Name	Description	Codification
Outcome	Wellness	The degree of contribution of resource-based crowdfunding campaigns to society	Fuzzy value
Condition	USEF	The utility of investors' comments on the crowdfunding project	Fuzzy value
Condition	GJOB	The extent to which investors acknowledge work well done by the entrepreneurs	Fuzzy value
Condition	ERROR	The extent to which investors acknowledge the errors of the entrepreneurs	Fuzzy value

Condition	ACT	Investors' active contribution to crowdfunding projects in the form of knowledge and ideas	Fuzzy value
Condition	OPPORT	The perceptions of investors regarding whether their contribution represents an opportunity to share resources and help others	Fuzzy value
Condition	FAIL	The degree to which the product or service fails	Fuzzy value

Calibration was carried out using fsQCA software. Calibration yields fuzzy-set values expressed in terms of three anchors: full membership (a value of 1), maximum ambiguity (a value of 0.5) and full non-membership (a value of 0). Data were collected using a 5-point Likert-type measurement scale. A score of 4 was taken to represent full membership, a score of 3 was taken to represent maximum ambiguity, and a score of 2 was taken to represent full non-membership (Woodside, Prentice, & Larsen, 2015).

The six conditions referred to entrepreneurs' perceptions of comments by investors towards the entrepreneurs' projects. The first condition (USEF) was the perceived usefulness of comments (Gera & Kaur, 2018); the second condition (GJOB) was the perception that the entrepreneurs had done a good job; the third condition (ERROR) was the perceived recognition of mistakes by the entrepreneurs (Ryu & Kim, 2016); the fourth condition (ACT) was the perceived active contribution of ideas and knowledge to the project (Rome, Petruzzelli, & Perrone, 2017); the fifth condition (OPPOR) was the perceived positive assessment of the opportunity to share resources and help others (Damian & Manea, 2019; Hornuf & Schwienbacher, 2018); the sixth and final condition (FAIL) was the extent to which the product or service was perceived as a failure (Bonini & Capizzi, 2019).

Results

As mentioned earlier, fsQCA is used to identify causal relationships in the form of configurations that lead to a given outcome (in this case, the contribution of crowdfunding campaigns to citizens' well-being). The proposed model can be expressed as follows:

Wellness in society = f (USEF, GJOB, ERROR, ACT, OPPOR, ~FAIL)

Note here that "~FAIL" refers to the *absence* of perceived failure. The conditions that lead to success in the promotion of citizens' well-being are enumerated below.

Analysis of necessary conditions

The conditions and outcome were explained in the previous section. This section presents the results of the fsQCA. Table 2 shows the consistency and coverage scores for each condition. Four conditions were deemed necessary for the outcome to occur. Conditions with consistency scores of more than 0.90 (Ragin, 2008; Schneider & Wagemann, 2012) were considered necessary. The combination of the perceived usefulness of comments and the perceived positive assessment of opportunities had a high consistency score (0.987). The coverage of this combination was also high (0.896).

Perceptions that the entrepreneurs had done a good job, the perceived recognition of mistakes by the entrepreneurs, and the perceived active contribution of ideas and knowledge to the project were also necessary conditions, with consistency scores of 0.932, 0.933 and 0.930, respectively. Their coverage was also high (0.904, 0.894 and 0.916, respectively). The perceived failure of the product or service was not considered necessary because its consistency score (0.301) was less than 0.9. Understandably, the absence of perceived failure (i.e. ~FAIL) had a high consistency score of 0.715. This result was to be expected because the condition FAIL referred to the degree of failure of the product or service.

These results confirm that an indirect social effect of knowledge in reward-based crowdfunding requires investors' comments on the crowdfunding project to be useful and for investors to perceive that their contribution represents an opportunity to share resources and help others. Investors also need to comment on mistakes by the entrepreneurs and acknowledge work that the entrepreneurs have done well, cooperating actively through suggestions and recommendations.

Therefore, these results confirm research propositions 1 and 2. Investors provide ideas and comments that entrepreneurs perceive as useful (research proposition 1). Furthermore, for this knowledge to affect society, investors must perceive the investment as effective at favouring different segments of the population (research proposition 2).

Table 2. Analysis of necessary conditions

	Presence	
	Cons.Nec	Cov.Nec
USEF+OPPOR	0.987	0.896
GJOB	0.932	0.904
~GJOB	0.107	0.917
ERROR	0.933	0.894
~ERROR	0.094	0.906
ACT	0.930	0.916
~ACT	0.113	0.853
FAIL	0.301	0.962
~FAIL	0.715	0.857

Note: Cons.Nec = consistency; Cov.Nec = coverage.

Analysis of sufficient conditions

Sufficient conditions lead to the outcome, whereas necessary conditions must be present for the outcome to occur (Ragin, 2014). Ragin (2008) and Woodside's (2012) solution coverage criterion of 0.8 was used. The frequency threshold of 1 for success was used. The solution consistency was 0.948, and the solution coverage was 0.57. These values may be deemed acceptable according to the literature (Ragin, 2008; Woodside, 2012). Table 3 shows the combinations (configurations) of conditions that lead to success according to the parsimonious and intermediate solutions given by the fsQCA software. The most important solution suggests that knowledge has an indirect effect on society when investors actively contribute useful ideas and comments and acknowledge mistakes and good work by entrepreneurs. There should be no perceived failure: The project should be perceived as successful.

Table 3. Analysis of sufficient conditions for the outcome *wellness in society*

Condition	Configuration 1
USEF	●
GJOB	●
ERROR	●
ACT	●
OPPOR	●
FAIL	○
Raw coverage	0.570
Unique coverage	0.570
Consistency	0.948
Solution coverage	0.570
Solution consistency	0.948

Notes: Black circles indicate the presence of the condition; White circles indicate the absence of the condition; Large circles indicate core conditions (i.e. conditions that appear in both the parsimonious solution and the intermediate solution); Small circles indicate peripheral conditions (i.e. conditions that appear in the intermediate solution but not in the parsimonious solution); Blank spaces indicate conditions that may be present or absent (i.e. not relevant).

Conclusions

Knowledge spillovers to society through reward-based crowdfunding require the dissemination of knowledge by investors. Through their experience and perceptions of the projects presented on reward-based crowdfunding platforms, investors contribute ideas, comments and suggestions to improve the products and services developed by entrepreneurs.

Through two-way online communication, project creators and the crowd exchange distinct points of view about these projects. If the financial target of the crowdfunding campaign is achieved, the entrepreneurs can implement these comments (Dezi, Leone, Schiavone, & Simoni, 2019). Although CF is a relatively new phenomenon, it has experienced a technical development that lead to a new era of Crowdfunding 2.0. in which the entrepreneur raise financing and also acquire knowledge, helping the entrepreneur to develop the project.

This exchange of ideas strengthens crowdfunding projects. Thus, crowdfunding investors improve projects in two ways: by making a financial investment and by providing tacit knowledge. When projects reach the market, society wins. For this knowledge to benefit society, investors must actively contribute ideas and knowledge. Their comments should also be relevant and constructive. Investors should perceive their financial and time investment as an opportunity to share economic and intellectual resources. Initially, this investment helps entrepreneurs directly, but it also has knock-on effects on citizens' well-being. The latter idea may be related to investors' intrinsic motivation in favour of individuals' social responsibility to support society.

This article considers the barriers or filters to knowledge. Based on the knowledge spillover theory of entrepreneurship, the creation of companies to commercialise knowledge is proposed because ideas are embodied in newly created firms (Qian, 2018). Knowledge creation has positive consequences for the economy as well as social benefits (Roper, Vahter, & Love, 2013). Crowdfunding is considered as an innovative way of using the Internet to bring together supply and demand in the realm of finance. However, crowdfunding is also an innovative process that generates knowledge, producing economic growth, employment and learning (Block, Thurik, & Zhou, 2013).

According to Albert Einstein, "intellectual growth should commence at birth and cease only at death". Fortunately, new business models and digitalisation make knowledge acquisition possible and reduce the barriers to this knowledge. Crowdfunding is a tool to democratise finance (Chen, 2018; Kim & Hann, 2019; Stevenson, Kuratko & Eutsler, 2019). However, it can also democratise knowledge for investors and entrepreneurs, which then results in knowledge to benefit society.

Future research could examine the training that entrepreneurs receive through the platforms that act as intermediaries between investors and project creators. The utility of

investors' suggestions could also be considered. Another potential line of research is the question of whether this generation of knowledge is bidirectional. Thus, it would be of interest to study whether there is feedback in this networking and whether investors also learn from the experience of investing in these crowdfunding projects. In addition, the theory has traditionally focused on the relationship between knowledge spillovers, geographical proximity and the formation of clusters. This article proposes a different view given that, through digitalisation, crowdfunding can eliminate geographical barriers to knowledge spillovers and cluster formation. It would be of interest to empirically analyse whether digitalisation enables the creation of online clusters and whether the creation of these clusters results in the indirect effect of knowledge.

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CAPÍTULO IV

LA MOTIVACIÓN DE LOS INVERSORES DE CROWDLENDING EN ESPAÑA

CAPÍTULO IV

La Motivación de los Inversores de Crowdlending en España

Artículo

The Motivations of Crowdlending Investors in Spain

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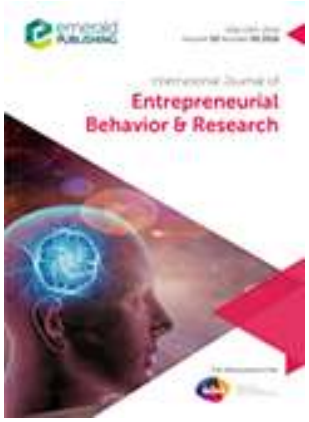
Publicación: International Journal of Entrepreneurial Behavior & Research

Año: 2021, Volumen 27 Número 2.

Impact Factor: 3.529 (2019)



THE MOTIVATIONS OF CROWDLENDING INVESTORS IN SPAIN

Abstract

Purpose: The inability to secure funding is a common problem for entrepreneurs. Crowdlending can help overcome this problem. But what motivates crowdlenders? The aim of this paper is to provide empirical evidence of two forms of investor motivation (intrinsic and extrinsic) in crowdlending in Spain by exploring the elements that affect the low percentage of equity invested.

Design/methodology/approach: The study is based on fuzzy-set qualitative comparative analysis (fsQCA) of 206 investors in projects posted on the crowdlending platform Colectual. FsQCA enables the identification of causal configurations that lead to a low percentage of equity invested in crowdlending. The extrinsic motivation conditions are economic return and perceived risk. For intrinsic motivation, the conditions are the CSR characteristics of the project and CSR reporting by the platform. The age of the investor is also considered to study whether behaviour differs across age groups.

Findings: When investors attach high importance to economic returns (extrinsic motivation), the percentage of wealth allocated to their investment is low. In relation to intrinsic motivation, investors who attach little importance to CSR invest a low percentage of their wealth. The same is true of those who feel that Colectual's risk management is weak and those aged approximately 26 years old.

Originality/value: Investors' motivation is shown to be both intrinsic and extrinsic. Until now, there has been little evidence of the motivation of crowdlending investors. Methodologically, this study is also valuable. The use of fsQCA reveals the combinations of conditions that lead to the outcome (i.e. the reasons for low investment in crowdlending).

Moreover, the analysis provides insight into the situation in Spain and the reasons why crowdfunding is less developed in Spain than in other European countries.

Managerial implications: Understanding the motivations of investors can give platforms insight into the expectations of one of its main stakeholders: the backers themselves. The study also sheds light on business models where CSR is the core element. This paper thus describes a new paradigm to which other platforms can relate. It can prove useful as an incentive to integrate stakeholder concerns in other business models to create not only economic but also social value.

Keywords: crowdlending; peer-to-peer lending; crowdfunding; investor motivations; extrinsic motivation; intrinsic motivation; Spain; CSR; fsQCA

Paper type: Research paper

1. Introduction

Financial exclusion is one of the main problems entrepreneurs face in their ventures. Likewise, companies often require financing to expand partnerships, implement process improvements or adapt to stakeholder demands (Huang, 2020).

Two-sided markets are those that interact with two distinct roles, lender and borrower, through one or more online platforms (Liu, Qiao, Wang & Li, 2019; Koh & Fichman, 2014; Rochet & Tirole, 2006). Crowdfunding (CF) enables entrepreneurs and companies to access financing by connecting the supply and demand of capital from different social profiles (Solesvik, 2016).

But what elements influence the motivation of investors to finance crowdfunding projects? According to the literature, investors' motivations follow a different pattern depending on the type of crowdfunding (Zhang & Chen, 2019; Pierrakis, 2019; Miller, Scahill & Warren, 2019; Daskalakis, & Yue, 2017; Hervé, Manthé, Sannajust & Schwienbacher, 2016; Bretschneider, Knaub & Wieck, 2014).

Motivation can be framed within cognitive evaluation theory (Deci & Ryan, 1985). According to this theory, the decisive factors in motivation can be classified into extrinsic versus intrinsic and self-oriented versus others-oriented motivation (Pierrakis, 2019; Ryu & Kim, 2018). Extrinsic motivation seeks an outcome that is external to the behaviour itself. Intrinsic motivation relates to an individual's own interest (Ryan & Deci, 2000). Intrinsic motivation is also linked to investors' positive attitudes towards corporate social responsibility (CSR) and a concern for different stakeholders (Pucheta-Martínez & López-Zamora, 2018). Self-orientation refers to the direct relationship between a stakeholder and the focal task. Orientation towards others is related to the emotional connection with achieving a goal (Ryu & Kim, 2018; De Dreu, 2006).

The motivations of investors in reward-based crowdfunding and equity crowdfunding have been studied but scarcely in relation to crowdlending (Pierrakis, 2019). This article investigates the factors that influence the percentage of equity invested in crowdlending projects. The conditions analysed in this study are the effect of CSR on decision making, economic return and perceived risk and the age of Spanish crowdlending investors.

The fundamental motivation of investors in reward-based crowdfunding relates to trust in project developers and an interest in obtaining rewards (Cholakova & Clarysse, 2015). Therefore, this type of crowdfunding is more closely linked to the intrinsic motivation of investors, who seek to create an emotional connection with entrepreneurs and make a project possible, leading to a reward. Obtaining an economic reward (extrinsic motivation) per se is not important (Wuillaume, Jacquemin & Janssen, 2019). With respect to equity crowdfunding, investors' motivation is directly related to economic remuneration and therefore extrinsic motivation (Pierrakis, 2019). Investors' concerns are high profitability and problems of asymmetry (Wuillaume, Jacquemin & Janssen, 2019; Janssen, 2019; Miller, Scahill, & Warren, 2019; Niemand, Angerer, Thies, Kraus & Hebenstreit, 2018; Ahlers, Cumming, Günther & Schweizer, 2015). Donation crowdfunding is linked to intrinsic motivation, given the altruistic nature of this form of crowdfunding (Ryu & Kim, 2018). Finally, peer-to-peer lending (or crowdlending) has received less attention from scholars of investor motivation (Pierrakis, 2019).

Investment crowdfunding can help narrow the funding gap. It can reduce costs and risks and improve the chances of meeting stakeholders' interests (San-Jose & Retolaza, 2016). It also expands CSR options, making projects more participatory and encouraging greater public understanding of CSR (Spanos, 2018).

Studies have confirmed the relationship between CSR and meeting basic psychological needs (Kim, Woo, Uysal & Kwon, 2018; Kim, 2019), specifically the intrinsic motivation of employees (Nazir & Islam, 2019). Companies that meet CSR criteria contribute to sustainable development by nurturing their relationship with society, their green practices and their stakeholder management approach (Papagiannis, Kok & Michaelides, 2018).

This study focuses on Spain, which is a unique crowdfunding region in relative and absolute terms. In recent years, there has been substantial growth given the potential of this form of financing. However, there has still been less growth than in other European countries such as the United Kingdom or France (Ramos & González, 2019). This lower growth is due to the risk perceived by investors, who are still reluctant to use non-traditional forms of financing, even if this means lower returns or a smaller distribution of capital among different population segments.

The Spanish crowdlending platform, Colectual, prepares CSR reports for each project that requests them. Investors can thus choose which projects to invest in based not only on economic criteria but also on social responsibility criteria. Since 2016, Colectual has had a Good Governance and Corporate Social Responsibility Policy that 'together with the Statutes, its Code of Ethics and its Internal Code of Conduct, form the foundations of the ethical and responsible strategy on which Colectual's way of acting and the members that integrate it with its different stakeholders is based' (Colectual Website).

This article offers theoretical analysis of corporate social responsibility and its relationship with crowdfunding, framing crowdfunding in the Spanish context. It also addresses the motivations of crowdfunding investors. Fuzzy-set qualitative comparative analysis (fsQCA) is used to analyse 209 investors on Colectual. According to the recent literature, the absence of extrinsic motivation (profitability and risk management) should lead to the absence of a high percentage of equity invested (i.e. a low percentage of equity invested). Intrinsic motivation (CSR characteristic of the project and the platform's CSR evaluation) has not been investigated in relation to the percentage of equity invested in crowdlending. This study also considers the investor's age as a possible factor in this relationship.

2. Theoretical framework

The crowdfunding is a broad concept which embraces different typologies (equity crowdfunding, donation crowdfunding, reward crowdfunding and crowdlending), as can be seen in figure 1. In the theoretical framework, we analyse the corporate social responsibility and the relationship between corporate social responsibility and crowdfunding. Then, the situation in Spain is studied. The last part of the theory is the study of the investor's motivation specifically in crowdlending: extrinsic and intrinsic motivation are examined, and also the age of the investors to know if it is decisive in the decision-making.

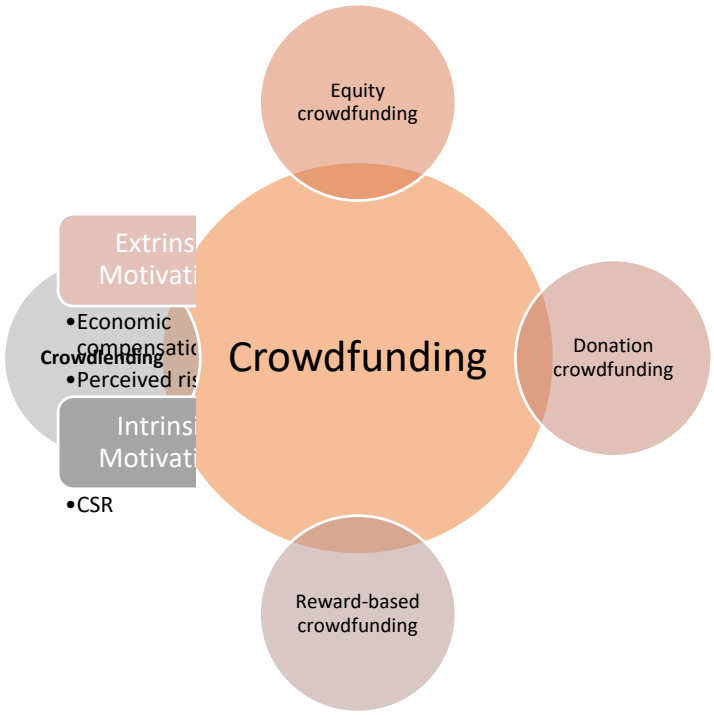


Figure 1. Summary of research framework of the paper.

2.1. Corporate social responsibility (CSR)

Corporate social responsibility (CSR) refers to the policies and actions of companies to address their social or environmental impact. CSR goes beyond legal requirements. It relies on progressive programs (McWilliams & Siegel, 2001; Berman, Wicks, Kotha & Jones, 1999). By applying these policies, companies show their commitment to long-term resource sustainability (Marom, 2017).

The three dimensions of CSR in the triple bottom line framework are the economic, social and environmental dimensions (Aguinis & Glavas, 2019; Aguinis, 2011). In the triple bottom line framework, all three dimensions are equally relevant. Before this framework was proposed, the economic dimension always took priority. Other studies, however, have cited four dimensions of corporate social environmental performance: economic, legal, ethical and discretionary responsibilities (Orlitzky, Schmidt & Rynes, 2003; Aupperle, 1984; Carroll, 1979).

In CSR theories, there are four approaches. The first is the instrumental approach. Companies are conceived as tools to produce wealth. Therefore, only social actions that enable

economic growth are deemed acceptable. CSR is understood as a means to an end (Gandullia & Piserà, 2019; Jauernig & Valentinov, 2019). The second is the political approach. Companies have social power. Therefore, they have certain rights and responsibilities and require social cooperation (Jauernig & Valentinov, 2019; Garriga & Melé, 2004). The third is the integrative approach. Companies must address social demands because they depend on society for growth and development (Pang, Lwin, Ng, Ong, Chau & Yeow, 2018; Herciu, 2016). The fourth is the ethical approach. Companies are governed by ethical values. Therefore, they must accept their responsibilities towards society and their ethical obligations above and beyond any other consideration (O'Mara-Shimek, Guillén & Bañón Gomis, 2015; Garriga & Melé, 2004).

The theory offers several models that are used to explain the relationship between economic profitability and the responsibility that the company has with its stakeholders (Marom, 2017; Margolis & Walsh, 2003). The two predominant branches of the literature that explain the theory of stakeholders are strategic and moral. The strategic branch is based on active management of the interests of stakeholders. The moral branch focuses on identifying the philosophical or moral principles that shape the actions of companies (Buysse & Verbeke, 2003).

Stakeholders are people or groups that have a legitimate interest in a company. This interest has intrinsic value for the company (Donaldson & Preston, 1995). Therefore, the stakeholder management approach is part of CSR theory. Companies must achieve a balance between the diverse interests of stakeholders. They must not only take into account the interests of its shareholders but also include the different stakeholder groups in management decision making (Mishra & Suar, 2010; Garriga & Melé, 2004; Emshoff & Freeman, 1978). In addition, other authors also consider that effective stakeholder management has instrumental value for companies by enabling them to maximise economic performance through social actions (Berman, Wicks, Kotha & Jones, 1999).

According to the ethical theory of CSR, stakeholder normative theory introduces moral theory. Under the principles of justice, mutual benefit and cooperation between stakeholders and the company (Garriga & Melé, 2004; Freeman, 1984), companies create a competitive advantage by maintaining relationships of mutual trust with stakeholders (Jones & Wicks, 1999; Preston & Donaldson, 1999). Under the stakeholder descriptive management approach, various elements make up a company's stakeholders. Stakeholders are differentiated

according to the value they provide for the company. Strategies are designed to meet the needs of stakeholders in relation to their importance (Valančienė & Jegelevičiūtė, 2014; Carroll & Buchholtz, 2011; Donaldson & Preston, 1995).

2.2. Crowdfunding and its relationship with corporate social responsibility

The principle of democratisation of capital refers to how crowdfunding platforms ethically relate to their stakeholders (Hernando, 2016). Under this precept, the excess capital belonging to a handful of investors is divided into small, often emerging projects in exchange for remuneration, economic or otherwise (Palladino, 2019). The modus operandi of certified platforms is to provide information to investors to reduce the risk of information asymmetries. They present reports and failed projects in a transparent manner. They also produce CSR reports so that investors can deliberately invest in projects that are socially and environmentally responsible (De Luca, Margherita & Passiante, 2019).

This approach is consistent with intrinsic motivation. Even in crowdfunding, investors can decide on their priority: financial remuneration or social and environmental considerations. Corporate social responsibility in crowdfunding can take two forms.

The first is driven by the platform. The platform selects projects that pass a social and environmental filter. It also applies CSR in its relationships with stakeholders.

The second is for each project to decide to apply CSR to its business model, complying with ethical requirements.

For there to be a real commitment and not just greenwashing (Laufer, 2003), implementation must be holistic. It must therefore occur on multiple levels to cover all procedures and practices within the company.

The application of platform-driven CSR in crowdfunding leads to the positive impact of CSR policies on stakeholders, in addition to social engagement of the crowd and stakeholder empowerment and engagement (Mastrangelo, Cruz-Ros & Miquel-Romero, 2019; Spanos, 2018; Althoff & Leskovec 2015; Mollick 2014).

2.3. Crowdfunding in Spain

Crowdfunding in Spain grew by 162% between 2015 and 2016. This growth slowed in 2017 compared to other regions (Ziegler, Shneor, Wenzlaff, Odorovic, Johanson, Hao & Ryll, 2019). In 2017, Spain ranked ninth in the EU in terms of funding raised through crowdfunding, behind the UK, France, Germany, the Netherlands, Italy, Finland, Sweden and Georgia. In 2018, platforms endorsed by the National Securities Market Commission (*Comisión Nacional del Mercado de Valores*, CNMV) raised more than 159 million euros. This public institution officially registers participatory financing platforms (PFPs) that meet the requirements set out in the applicable regulations. In the Spanish secondary market (i.e. the market that is not regulated by the CNMV), crowdfunding platforms raised close to 500 million euros (Ramos & González, 2019).

There are several reasons why Spain is less developed than other countries. For instance, a lack of trust is a characteristic of Spanish culture. The perception is that national regulations are strict (about 43% consider that excessive regulation hinders crowdfunding transactions). Furthermore, 38% perceive a high risk of fraud, and 40% perceive a notable increase in default (Ziegler et al., 2019).

In 2017, P2P consumer lending was the biggest type of crowdfunding, growing from EUR 697m in 2016 to EUR 1392m in 2017 (an increase of 99.8%). In 2017, it represented 41% of the crowdfunding market, with the exception of the UK (Ziegler et al., 2019).

Therefore, the risk perceived by Spanish investors (Daskalakis & Yue, 2017) and the barriers to foreign investment due to Spanish regulations, which impose strict data requirements to obtain accreditation, hinder growth when compared to other countries. In the United Kingdom, there is more financing through crowdfunding than in all other European countries combined (Ramos & González, 2019).

Some European countries regulate crowdfunding platforms under their own laws (e.g. in Spain, Law 5/2015 of 27 April on the promotion of business financing). Other countries remain unregulated. Therefore, the European Commission has proposed the creation of a common legal framework to address the differences between countries within the European Union. The main problems are ‘1) The under-development and small scale of the market, due

to market fragmentation and barriers to cross-border activity, preventing a boost to alternative funding for small firms; 2) The lack of investor trust in the reliability of crowdfunding platforms, preventing them from engaging in cross-border crowdfunding activities in particular' (European Crowdfunding Service Providers, ECSP, for Business, 2018, pp. 19–28).

2.4. Investors' motivation for investing in crowdlending

The role of investors in the crowdfunding business model is fundamental. They finance business, cultural and social projects. As discussed earlier, remuneration depends on the type of crowdfunding. The motivations of backers or investors presumably also vary depending on the crowdfunding model. Deci (1971) reports that when money is used as a form of economic retribution, intrinsic motivation is lost. Intrinsic motivation is fostered through positive feedback, not material rewards (Kim et al., 2018). The implication is that in equity crowdfunding and crowdlending, there is no intrinsic motivation. Individuals are not motivated by having fun or emotional connections, but by economic returns.

This article explores whether P2P lending investors are motivated by a combination of extrinsic and intrinsic motivation, not just by monetary concerns, as proposed above. Extrinsic motivation can be measured through perceived risk and return. In contrast, intrinsic motivation can be measured by an investor's perception of CSR as reported by the platform or the importance that investors assign to a project's CSR in their decision making.

2.4.1. Extrinsic motivation of investors

When investments offer a return in the form of money, shares or dividends, the motivation is extrinsic (Ryu & Kim, 2018). An investor's goal is to obtain a tangible asset or some element that is external to the person (Zhang, & Chen, 2019). The investor obtains an economic return by investing capital in crowdfunding projects.

Economic compensation

By investing in crowdlending, investors obtain a return on capital. This return is important in their decision making. Usually, when risk is higher, so is the return (Zhang, Kou & Peng, 2019; Serrano-Cinca & Gutiérrez-Nieto, 2016). The economic return is measured by the project's profitability. If investors claim that profitability is relevant in their decisions, they are driven by extrinsic motivation. To see if individuals are driven by extrinsic motivation, this article examines the effect of profitability on the percentage of equity invested. If they are influenced only by profitability, they should invest a low percentage of equity because their interest is purely economic.

Proposition 1. Investors who value profitability in their decision making invest a low percentage of equity.

Perceived risk

Perceived risk restricts investment in crowdfunding (European Commission, 2018). According to risk theory, individuals rely on soft or hard information for their decision making (Moore, 1970). Perceived risk is the amount of risk that an individual perceives when making capital investments (Kim, 2019; Gomber, Kauffman, Parker & Weber, 2018). In crowdfunding, lower perceived risk means the investor will be more confident to invest (Daskalakis & Yue, 2017). Platforms implement risk control to decrease default risk and thereby minimise perceived risk (Liu et al., 2019). Colectual produces project risk management reports to inform investors about the investment process.

Proposition 2. Investors who perceive high risk invest a low percentage of their equity.

2.4.2. Intrinsic motivation of investors

According to cognitive evaluation theory, individuals are intrinsically motivated when driven by basic psychological needs. Competence affirmation and self-determination alignment influence intrinsic motivation (Allison, Davis, Short & Webb, 2015). Intrinsically

motivated backers invest to help others, support social causes or become part of the community (Ryu & Kim, 2018). There is evidence that crowdlending represents a form of social innovation (San-Jose & Retolaza, 2016).

The platform's CSR evaluation

The platform evaluates the CSR of each project that requests such an evaluation. If investors value the work of the platform in carrying out these evaluations, they are being driven by the intrinsic motivation of contributing to a sustainable model (Martínez-Climent, Costa-Climent & Oghazi, 2019). This perception, based on the platform's evaluation, influences investors' investment decisions. Similarly, investors feel that they are helping entrepreneurs. Therefore, they are not solely driven by economic gain. Accordingly, individuals who do not value the platform's evaluations of the CSR of the crowdlending project will invest a low percentage of their equity in these projects.

Proposition 3. Investors who place a low value on the platform's evaluation of the project's CSR invest a low percentage of equity.

Corporate social responsibility

When investors consider a project's CSR in their investment decisions, they are not being driven solely by extrinsic motivation (measured in economic terms), but by morality, fairness or emotion. They will therefore invest more of their assets than if only profitability is considered. Accordingly, individuals who do not consider CSR important will invest a low percentage of their equity because they are not being driven by intrinsic motivation.

Proposition 4. Investors who do not value the CSR of a project invest a low percentage of their equity.

2.4.3. Age

Age has been studied as a characteristic of individuals who fund crowdfunding projects (Huang, 2020; Perez & Aegean, 2019). It is estimated that the relationship between age and ownership of risky assets follows an inverted-U shape and that very young or very old individuals invest less equity than investors aged somewhere in between (Joo Kitano, 2017). Previous studies on angel investors indicate that this lower investment by young or old investors may be because they lack capital or are close to retirement, respectively (Hervé, Manthé, Sannajust & Schwienbacher, 2016). Other scholars refer to life-cycle theory, arguing that as investors get older, so too does their need to supplement their income with investment to maximise their portfolio. Crowdlending can be likened to pension funds, where 36% of pension fund investors are aged under 45, and 46% are aged between 45 and 60 (Hernando, 2016).

Proposition 5. Young investors will invest a low percentage of equity.

3. Method

3.1. Fuzzy-set qualitative comparative analysis (fsQCA)

Fuzzy-set qualitative comparative analysis (fsQCA) is used to identify paths or combinations of conditions that are necessary or sufficient for an outcome to occur (Garcia-Alvarez-Coque, Mas-Verdú & Roig-Tierno, 2020). This technique is based on equifinality, such that different combinations of conditions can lead to the same outcome. Under a Boolean logic approach (Ragin, 1987) two types of factors are created: the outcome and the causal conditions that lead to the outcome (explanatory factors). The outcome in this study is the percentage of equity invested through the platform. The causal conditions are the extrinsic and intrinsic motivation of the investors.

3.2. Sample and data

The sample consists of 209 investors on the Colectual platform. Colectual is a crowdlending platform based in Valencia (Spain). Created in 2015 to provide an ethical approach to investment, it collaborates with small and medium-sized enterprises to enable a new form of funding that enhances relations between investors and companies (Colectual, 2019). In 2016, it registered with the CNMV. Since then, it has experienced progressive growth, attracting projects whose cumulative funding goals had reached 88.4 million euros by 2019. Of the 103 projects financed through Colectual, 36 were launched in 2019. In 2019, projects hosted on Colectual raised 2.7 million euros in financing, taking the all-time total to 6.2 million euros. The annual percentage rate (APR) of interest ranges from 2.25% to 7.50%, depending on the purpose of the loan, financial rating or repayment term, amongst other factors. In 2019, four projects had more than 90-day delays on their payments (Report of Colectual, 2019).

Colectual is an ethical platform. It implements CSR practices with its stakeholders. Similarly, it carries out risk management of its crowdlending projects to help investors. It evaluates the CSR of projects that request this evaluation, issuing a public report that investors can consult before investing. It also collects questionnaire data from investors and employees to support the development of the business model.

Colectual conducted a survey between December 2018 and January 2019. The responses to this survey provide the data for the present study. Investors are aged between 18 and 73. Of these, 173 are men (84%) and 33 are women (16%). In total, 41% (84) reside in the Region of Valencia, 21% (45) in Madrid, 15% (31) in Catalonia, and the remaining 23% in other parts of Spain.

Calibration and model

The outcome is the percentage of equity pledged by an investor on the platform. This measure offers a proxy for the success of crowdlending. The literature was studied to identify the conditions capable of influencing the performance of a crowdlending campaign. Five antecedent conditions were identified: profitability, risk management, CSR of the project, the platform's evaluation of CSR, and the investor's age. Table 1 shows the questionnaire items used to collect data on these conditions.

Table 1. Outcome and conditions

Type	Name	Questionnaire item
Outcome	EQUITY	Percentage of personal equity invested in the platform
Condition	PROF	Profitability is a relevant feature for investing in a project
Condition	RISK	Risk management by the platform is adequate
Condition	CSR	CSR is a key feature for investing in a project
Condition	BUSS	The CSR assessment by the platform is relevant for the investor's decision making
Condition	AGE	The investor is close to retirement

FsQCA was used to explore whether the conditions affect the percentage of equity invested in the platform. The calibration system proposed by Ragin in 2009 was used to transform the values of the conditions. This system is based on identifying the thresholds for full membership (≥ 0.95), full non-membership (≤ 0.05) and the cross-over point (0.5). To calibrate the outcome (percentage of equity invested), the breakpoints for full membership (90th percentile), cross-over point (50th percentile) and full non-membership (10th percentile) were the values 2, 2.1, and 1, respectively. For the rest of the conditions, percentiles were used as fuzzy values. Table 2 presents the thresholds for the calibration.

Table 2. Calibration of outcome and conditions

	Thresholds	Descriptive statistics

	Full membership	Cross-over point	Full non-membership	Mean	Median (50th percentile)	Standard deviation	90th percentile	10th percentile	
EQUITY	2.1	2	1.29	1	1	0.60	2	1	
BUSS	10	7	4.96	6	7	2.22	10	4	
CSR	5.8	4	2.28	4	5	1.19	5	2	
RISK	9	7	5.00	7	7	1.60	9	5	
PROF	3.2	1	1.16	0	0	0.91	3	1	
AGE	16	4	2	4	4	1	6	2	
	1.52	6	3.26	2	2.97	1.56			

4. Results

FsQCA enables the identification of causal configurations that lead to a high percentage of equity invested in crowdlending. The proposed model is as follows:

MODEL: ~fzEQUITY =f(fzBUSS, fzCSR, fzRISK, fzPROF, fzAGE)

In MODEL A, the symbol (~) indicates the absence of the outcome/condition. The results of the fsQCA for the factors that lead to a low level of equity invested in crowdlending (outcome) are presented below.

4.1. Analysis of necessary conditions

A necessary condition must be present for the outcome to occur, although this condition does not automatically mean that the outcome will occur (Ragin, 2009).

No condition is necessary per se, as shown by Table 3. The consistency is less than 0.90 in all cases. This finding supports the review carried out in the theory section, where no factor was found to be necessary for successful crowding. These results seem to indicate that profitability is not the only motivation for crowdlending investors. In the presence of the outcome (high percentage of invested capital), the presence of profitability has a value of 0.41, whereas the absence of profitability has a value of 0.77. Therefore, the economic return is not an important condition for those who invest a high percentage of equity through the platform. Similarly, the CSR value for the presence of the outcome is 0.74 (< 0.90), which also means that it is not a necessary condition for investors to pledge a high percentage of equity. However, its value is higher than profitability (0.41).

In Table 3, the values of CSR (0.72) and ~PROF (0.62) for the absence of the outcome (low percentage of equity invested) are not what would be expected based on the literature. These results seem to indicate that CSR would have a positive impact on the decision to invest a low percentage of equity. The analysis of sufficient conditions presented below focuses on the absence of the outcome to explain the configurations that indicate why investors allocate a low percentage of their equity to crowdlending investments.

Table 3. Analysis of necessary conditions

	Presence		Absence	
	Cons.Nec	Cov.Nec	Cons.Nec	Cov.Nec
BUSS	0.6423	0.3111	0.5417	0.7731
~BUSS	0.5316	0.2824	0.5173	0.8098

CSR	0.7406	0.2769	0.7185	0.7913
~CSR	0.4420	0.3477	0.3434	0.7960
RISK	0.6235	0.3018	0.5486	0.7823
~RISK	0.5502	0.2926	0.5103	0.7998
PROF	0.4092	0.2662	0.4445	0.8518
~PROF	0.7722	0.3206	0.6171	0.7548
AGE	0.5454	0.2741	0.5489	0.8128
~AGE	0.6276	0.3207	0.5098	0.7677

Cons.Nec = consistency of the necessary condition; Cov.Nec = coverage of the necessary condition

4.2. Analysis of sufficient conditions

FsQCA enables analysis of causally related conditions. Three solutions are given by fsQCA: complex, parsimonious and intermediate (Nieto-Aleman, Garcia-Alvarez-Coque, Roig-Tierno & Mas-Verdú, 2019; Kraus, Ribeiro-Soriano & Schüssler, 2018). The parsimonious and intermediate solutions are shown in Table 4.

Configurations consist of the combination of conditions that lead to the outcome (Ragin, 2009). The principle of equifinality is based on complex theory. According to this principle, the outcome can be explained in terms of combinations of causal conditions that are grouped together to form sufficient configurations for the achievement of the outcome (Pappas, Kourouthanassis, Giannakos & Chrissikopoulos, 2016; Woodside, 2014; Fiss, 2011).

Table 4. Analysis of sufficient conditions

		Low level of equity invested				
Configuration No.	1	2	3	4	5	6
Profitability is an important feature to invest in a project	●					
The CSR assessment by the platform is important in investor decision making		●	⍰	●	●	
The investor is close to retirement		●	⍰			●
CSR is a key feature for investing in a project			⍰	⍰	●	●
Risk management by the platform is adequate			⍰	●	⍰	
Raw coverage	0.4445	0.3415	0.1099	0.1947	0.2149	0.4217

Unique coverage	0.1377	0.0015	0.0052	0.0242	0.0319	0.1014
Consistency	0.8518	0.8163	0.8947	0.7869	0.8093	0.8158
Solution coverage	0.76229					
Solution consistency	0.810733					

Note: Based on Fiss's (2011) notation, the symbol '⍰' means absence of the condition and '●' means presence of the condition. Blank cells indicate that the presence or absence of the condition does not matter.

The analysis of sufficient conditions is presented in Table 4. The consistency cut-off is 0.7927, which is greater than 0.75 (Kraus, Ribeiro-Soriano & Schüssler, 2018). Based on Schneider et al.'s (2010) criteria, the model is good, because the solution consistency is greater than 0.75 (0.81). Ragin (2009) and Woodside (2014) advocate a threshold of 0.8. Solution coverage measures the extent to which the six configurations explain a low percentage of equity invested. Table 4 shows six configurations that explain low equity investment by investors.

In Configuration 1, the presence of profitability leads to the outcome of a low percentage of assets invested. This configuration has a consistency of 0.8518.

In Configuration 2, the present conditions are age and the CSR evaluation by the platform. If the investor is close to 62 years old and the investor considers Colectual's CSR assessment important, the amount of invested assets is low. The consistency of the configuration is 0.8163.

In Configuration 3, the absence of the platform's CSR evaluation, the age of investors, the importance attributed to CSR and acceptable perceived risk leads to the outcome. A small percentage of assets is invested by investors close to 26 years old who consider the platform's

CSR assessment of the project to be unimportant do not consider CSR important in their investment process and perceive that Colectual's risk management is not adequate. The consistency for this configuration is 0.8947.

Configuration 4 consists of the presence of CSR assessment by the platform and acceptable perceived risk, as well as the absence of importance given to CSR. A small percentage of assets is invested by individuals who consider Colectual's evaluation of the CSR of each project to be relevant, do not take CSR into account in their decision-making process and consider risk management to be adequate. The consistency is 0.7869.

In Configuration 5, the presence of CSR assessment by the platform and the importance assigned to the CSR of the project, combined with the absence of acceptable perceived risk, leads to the outcome. A low percentage of assets is invested by those who consider the CSR assessment by Colectual to be relevant, consider CSR to be an important feature in their decision making, and consider that risk is not managed correctly. The consistency of the configuration is 0.8093.

In Configuration 6, the presence of the age of the investor and the CSR of the projects leads to the outcome. A small percentage of assets is invested by people aged close to 62 who consider CSR important in their decision-making process. The consistency is 0.8158.

Table 5 shows the results for each proposition, indicating whether the proposition is supported by the results.

Table 5. Results for each proposition

Proposition	Results
Proposition 1. Investors who value profitability in their decision making invest a low percentage of equity.	Supported by Configuration 1 (presence of profitability).
Proposition 2. Investors who perceive high risk invest a low percentage of their equity	Supported by Configuration 3 (absence of risk management, CSR reporting, older investors and CSR feature) and Configuration 5 (presence of CSR reporting and CSR features of the project AND absence of risk management). Not supported by Configuration 4 (presence of risk management and CSR reporting AND absence of CSR features).
Proposition 3. Investors who place a low value on the platform's evaluation of the project's CSR invest a low percentage of equity.	Supported by Configuration 3 (absence of CSR reporting, older investors, CSR features of the project and risk management). Proposition 3 is not supported by Configurations 2 (presence of CSR reporting and older investors), 4 (presence of CSR reporting and risk management AND absence of CSR features), or 5 (presence of CSR reporting and CSR features AND absence of risk management).

Proposition 4. Investors who do not value the CSR of the project invest a low percentage of their equity.	Supported by Configurations 3 (absence of CSR reporting, older investors, CSR features of the project and risk management) and 4 (presence of CSR reporting and risk management AND absence of CSR feature). Not supported by Configurations 5 (presence of CSR reporting and CSR features AND absence of risk management) or 6 (presence of older investors and CSR features).
Proposition 5. Young investors will invest a low percentage of equity.	Supported by Configuration 3 (absence of CSR reporting, older investors, CSR features of the project and risk management). Not supported by Configurations 2 (presence of CSR reporting and older investors) or 6 (presence of older investors and CSR features).

5. Conclusions

This article explores the factors that influence the percentage of investors' equity invested in crowdlending projects. The analysis focuses on the conditions that lead to a low percentage of invested equity. The analysis examines the effect of CSR, economic returns, perceived risk and the age of investors on crowdlending decision making in Spain.

The results show two groups of investors who invest a low percentage of equity. Investors in the first group value profitability in their decision making (they are led by extrinsic motivation). Investors in the second group, who invest a low percentage of equity, are led by intrinsic motivation (i.e. CSR, which positively or negatively affects the decision to invest depending on other factors such as risk or investor age).

Individuals for whom the most relevant feature in their decision making is profitability invest a low percentage of their wealth in crowdlending. This finding is in line with those of previous studies. Investor who are extrinsically motivated invest less of their capital in crowdlending (Allison, Davis, Short & Webb, 2015).

When combined with other configurations of conditions, the fact that individuals value CSR leads to investment of a low percentage of their equity in crowdlending. The first configuration indicates that they are aged close to 62 years. The second configuration indicates that they also value the CSR reports by the platform but perceive risk management to be inadequate.

In addition, some investors pledge a low percentage of equity and do not consider the projects' CSR to be an important factor in their decision making. These investors are close to 26 years old, are not interested in the platform's CSR reports on the projects and do not take CSR into account in their decision-making process. Furthermore, they do not perceive adequate risk management by the platform. Finally, in relation to CSR, some individuals invest little in crowdlending, although they consider risk management to be adequate. They consider Colectual's evaluation of the CSR of each project to be important, but they do not take CSR into account in their decision-making process.

The results raise the question of whether crowdlending investors' motivation is extrinsic or intrinsic. Investor motivation was measured in terms of the percentage of equity invested. If investors are motivated, they will invest a higher percentage than if they are not. If they are motivated by extrinsic motivation, they will seek to obtain a financial return as a priority. If, on the contrary, they are intrinsically motivated, they will invest because they perceive the projects as interesting and will obtain satisfaction from offering their support. In this case, motivation is related to the importance that investors attach to CSR (Allison, Davis, Short & Webb, 2015; Gagné & Deci, 2005).

The results do not show a clear trend regarding whether investors' motivation is purely extrinsic or intrinsic. The decision to invest is not motivated by a single factor. This paper examines the configurations of elements that lead investors to invest a small percentage of their equity. However, the analysis shows an extrinsically motivated segment and an intrinsically motivated segment. Therefore, this article provides evidence to counter the argument that P2P lending (or crowdlending) is dominated by investors who only seek financial

reward. Some investors also attach importance to CSR. There is therefore an incentive for platforms to focus on their responsibility towards society and their stakeholders.

The studies discussed earlier have shown the growing trend in companies' acceptance and integration of CSR. The present analysis shows that some investors already consider CSR-related factors in their investment decisions. Others, however, are reluctant to invest large amounts of equity in combination with CSR concerns.

A crowdlending platform's CSR essentially means taking stakeholders into account in the business model. By considering the interests of different stakeholders in their decision making, crowdlending platforms apply stakeholder management. This approach generates instrumental value for these companies because meeting social demands enables them to maximise profits (Mishra & Suar, 2010; Garriga & Melé, 2004; Berman, Wicks, Kotha & Jones, 1999; Emshoff & Freeman, 1978).

Moreover, the risk perceived by investors is sometimes high. However, the risk on the Colectual platform is low, as reflected by the fact that only four projects in the last year have had delays on their payments to investors.

Despite this low risk, the amount of capital invested in crowdlending continues to lag behind traditional investments. A plausible explanation for this inconsistency is that there is a lack of investor confidence in crowdfunding practices in general. This idea is reflected in the EU report by the European Crowdfunding Service Providers (ECSP) for Business (2018). For example, in Spain, there is a lack of investor confidence in crowdfunding practices, as reflected by the lack of trust in the Spanish culture and the perceptions of strict crowdfunding regulations compared to those of other countries (Daskalakis & Yue, 2017; Ziegler et al., 2019).

The practical implications of this analysis include insight into business models where CSR is a core element. This model presents a new paradigm to which other platforms can relate. It is useful as an incentive to incorporate stakeholder interests into other business models to create not only economic but also social value. This study also describes the investor niches that should be promoted or strengthened by platforms that provide details of and reports on projects' CSR.

In relation to the theoretical implications, this article contributes to the debate on the motivations of investors in crowdfunding, focusing specifically on crowdlending. It provides

evidence that intrinsic motivation plays a key role in investment decision making. As previously mentioned, extrinsic motivation (proxied by economic remuneration) is related to a low percentage of equity invested in crowdlending.

The article also has certain limitations. First, although it is based on the key literature, the method of measuring intrinsic and extrinsic motivation could initiate a debate on this topic. In addition, the analysis centres on a platform that only operates in Spain. Finally, the results do not differentiate between male and female investors. These limitations could be of interest for future qualitative and quantitative research on the motivation of investors in this emerging form of financing.

More studies of the extrinsic or intrinsic motivation of investors are required. Comparing the results between different types of crowdfunding platforms would shed light on the full range of crowdfunding options. Also, analysing the motivation of project promoters could show whether the goals of project founders include receiving feedback and adding social and environmental value, or whether they simply aim to receive funding.

Finally, in the wake of the COVID-19 pandemic, the effect of this crisis on crowdfunding platforms is worth investigating. A decrease in investment in projects is likely given the drop in consumption and investment due to consumer uncertainty and fear. In addition, the technological revolution of recent years may accelerate after the crisis. This acceleration could lead to a radical change in consumption and investment habits and the development of new financing models such as crowdfunding and online commerce.

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CAPÍTULO V

CONCLUSIONES

Conclusiones

El objetivo del trabajo ha sido examinar la relación entre el crowdfunding y la sostenibilidad. Para ello se ha investigado si el crowdfunding es un modelo sostenible en el que se promueven los efectos de *derrame de conocimiento* (knowledge spillover) y donde la motivación de los inversores es tanto intrínseca como extrínseca.

Primero se ha estudiado teóricamente el crowdfunding en general y su orientación a la sostenibilidad. Luego se analiza si existe *derrame de conocimiento* en plataformas de crowdfunding basadas en recompensa (reward-based crowdfunding), dada la naturaleza de este tipo de CF, la relación entre los inversores y emprendedores es más estrecha y existe una comunicación bidireccional ya que se intercambian distintos puntos de vista que fortalecen los proyectos y en última instancia beneficia a la sociedad al realizar una inversión financiera y además generar conocimiento tácito. Por último se analiza si en el crowdlending (o peer-to-peer lending) existe una motivación intrínseca o extrínseca por parte de los inversores. Se han contrastado los argumentos que afirman que la motivación en crowdlending es esencialmente extrínseca porque el inversor pretende obtener una retribución económica, y a través de los resultados obtenidos se observan evidencias de la existencia de un componente intrínseco reflejado en la importancia otorgada a la responsabilidad social corporativa en la toma de decisión de los inversores.

El crowdfunding contribuye a la sostenibilidad económica, social y medioambiental. Por una parte se financian proyectos que demandan recursos económicos, además se reparte el capital de una multitud en la creación de proyectos, lo que implica una democratización de la financiación. Respecto a la sostenibilidad ambiental, existen modelos de crowdfunding ligados a proyectos sostenibles con los recursos naturales y el medio ambiente.

En el caso del artículo **"Sustainable Financing through Crowdfunding"** se destaca que el crowdfunding puede contribuir a remodelar el sistema financiero y energético, dado que propone una alternativa a las fuentes de financiación tradicionales como los bancos y potencia un perfil de proyectos y plataformas con orientación al entorno medioambiental (Calic y Mosakowski, 2016), y también a la energía renovable (Vasileiadou, Huijben y Raven, 2016). Además se apuesta por la idea de que el crowdfunding sirve para financiar bienes colectivos,

ya que se comparten los costes y se promueve un bienestar social, económico y medioambiental (Ligh y Miskelly, 2015). La idea del crowdfunding y la orientación a la sostenibilidad se relaciona con la innovación social a través de la tecnología apropiada, y con el concepto de la co-utilidad que sostiene que el cumplimiento del interés colectivo es la mejor manera de satisfacer el interés individual (Turi, Domingo-Ferrer, Sánchez y Osmani, 2016).

En este sentido, se advierte que al emerger nuevos sistemas de financiación se descentraliza la demanda de los sistemas tradicionales como los bancos, y éstos están incorporando prácticas relacionadas con la responsabilidad social corporativa para adaptarse al nuevo entorno y a las demandas sociales que requieren una contribución al desarrollo sostenible. La incorporación de las preocupaciones sociales y medioambientales como parte del sistema de crowdfunding lleva a un progreso en el compromiso con los stakeholders.

Por otro lado la concentración de capital en multinacionales y grandes empresas, está significando una diferenciación cada vez mayor entre las clases sociales y una concentración de riqueza en manos de un número relativamente pequeño de empresas. Para paliar las desigualdades características del sistema actual, el crowdfunding actúa como redistribuidor del capital. Este nuevo modelo de negocio presenta una solución innovadora para resolver y dar voz a problemas sociales y medioambientales hasta el momento silenciados. Los servicios convencionales se encuentran obsoletos, por lo que el CF es una alternativa a la problemática actual. Paralelamente a la distribución económica, se plantea si el crowdfunding es una herramienta que sirve a su vez para democratizar el conocimiento o únicamente los recursos financieros.

En el artículo **"The knowledge spillover effect of crowdfunding"** se concluye que para que el reward-based crowdfunding genere un derrame de conocimiento a la sociedad, se requiere que los inversores diseminen el conocimiento en la plataforma. A través de la experiencia previa, los inversores aportan ideas, comentarios y sugerencias que mejoran los productos y servicios que han sido desarrollados por los emprendedores. En esta comunicación bidireccional los emprendedores y la multitud (*crowd*) intercambian puntos de vista. Este nuevo modelo de crowdfunding se conoce como la era 2.0. ya que permite tanto la obtención de fondos como la adquisición de conocimiento tácito, que fortalece las ideas empresariales. Estos nuevos modelos digitales facilitan la adquisición de conocimiento, reduciendo las

barreras a dicho conocimiento. Y cabe señalar que el crowdfunding se considera una forma innovadora de emplear internet ya que aúna la demanda y la oferta financiera, y en consecuencia genera crecimiento económico y empleo, y a su vez genera conocimiento y aprendizaje. La oportunidad de compartir tanto los recursos económicos como intelectuales beneficia directamente al emprendedor, y a su vez se estima que dicha sinergia creada por la interacción genera a su vez un beneficio social ya que cuando los proyectos alcanzan el mercado satisfacen las necesidades de las personas y la sociedad obtiene provecho de ello. Los inversores que se sienten incentivados por la idea de respaldar la responsabilidad social de los individuos y de la sociedad en general, se están guiando por una motivación intrínseca.

Tal y como se concluye en el artículo anteriormente citado, existe una motivación intrínseca en ciertos inversores de reward-based crowdfunding. Análogamente, se investiga en el artículo "The motivations of crowdlending investors in Spain" si la motivación de los inversores en la modalidad de crowdlending es únicamente extrínseca, o si por el contrario también intercede en la toma de decisiones una motivación intrínseca. Los resultados del estudio muestran dos grupos de inversores que deciden invertir una baja cantidad de su patrimonio en crowdlending: los inversores que valoran la rentabilidad, y los que valoran bien de forma positiva o negativa la responsabilidad social corporativa de los proyectos. En el primer caso los inversores están guiándose por la motivación extrínseca, mientras que en el segundo por la motivación intrínseca. El hecho de que los inversores que se mueven por la retribución económica o motivación extrínseca inviertan una cantidad reducida de su patrimonio, resulta significativo. Y muestra evidencias de que el crowdlending no está dominado por inversores que únicamente buscan la obtención de una rentabilidad financiera.

Por otro lado los inversores que valoran como negativa la responsabilidad social de los proyectos e invierten una cantidad reducida de su patrimonio, ratifican que el crowdlending no es un modelo puramente económico y resulta por tanto un aliciente para que las plataformas se focalicen en desarrollar la responsabilidad con su grupo de interés o *stakeholders* y con el conjunto de la sociedad.

Para aquellos inversores que valoraban positivamente la RSC como característica de los proyectos e invertían reducida cantidad de su patrimonio, se daba la casuística que percibían también una gestión del riesgo inadecuada. El riesgo en el caso analizado era reducido ya que la plataforma realiza un filtro previo, sin embargo la percepción de algunos inversores continúa

siendo que el riesgo es elevado lo que es una barrera al desarrollo del crowdfunding y al establecimiento del modelo.

Limitaciones y futuras líneas de investigación

El presente trabajo no está exento de limitaciones, siendo dichas limitaciones, oportunidades para trabajos futuros.

En primer lugar, la restricción de tiempo característica de cualquier doctorado ha fomentado la elección de dos tipos de crowdfunding para analizar aspectos que promueven el desarrollo sostenible: el crowdlending y el crowdfunding basado en recomensa. No hemos analizado las otras dos modalidades de crowdfunding: equity CF y el de donación.

En segundo lugar, se han estudiado plataformas que operan en el territorio nacional español, por tanto se debe cuestionar la aplicabilidad de los resultados obtenidos en otras regiones.

En tercer lugar, la muestra es relativamente pequeña. Habría resultado interesante realizar un análisis de todas las plataformas que operan en la región española para comparar el estudio con otros países. Para paliar esta limitación se ha empleado una metodología difusa que se permite hallar combinaciones de condiciones que aportan resultados relevantes para estudiar el fenómeno del crowdfunding.

Como líneas de investigación futuras, se destaca que las plataformas de crowdfunding siguen evolucionando, incluso como hemos observado se genera una interacción de experiencias y conocimiento. Conforme la evolución del CF ocurra, nuevas investigaciones asociadas surgirán como por ejemplo pueda ser el efecto de la creación de cursos de formación para inversores y creadores de proyectos, profesionalizando el *feedback*.

Además en un futuro existirán más evidencias sobre la contribución del crowdfunding en el desarrollo de proyectos sostenibles social y medioambientalmente. Otra futura línea de investigación es realizar un seguimiento de los proyectos que han sido financiados por CF y estudiar el seguimiento de las propuestas aportadas a la plataforma, comparando los primeros casos sostenibles financiados con la segunda generación.

Otra futura línea de investigación es analizar los diferentes tipos de crowdfunding y compararlos para arrojar luz sobre las diferentes opciones que ofrecen los modelos, y las motivaciones de los inversores y los emprendedores, creando una imagen del conjunto.

Los modelos de negocio que incorporan la RSC como elemento fundamental, y que han sido analizados durante este trabajo, presentan un nuevo paradigma en los que otras plataformas puedan tomar como ejemplo. Otro aspecto a considerar es si bien en un futuro la tendencia se ha orientado hacia la incorporación de los intereses y preocupaciones del grupo de interés de las organizaciones o *stakeholders*, o si por el contrario la tendencia ha vuelto al punto de partida donde el grueso del peso reside en la creación de valor económico, y no tanto en el social resultaría de elevado interés para el conjunto de los actores.

También resulta de interés estudiar los efectos de la crisis de la pandemia producida por la COVID-19, en la que una bajada de la inversión en los proyectos debido a la disminución del consumo y la inversión ha producido incertidumbre y miedo.

La evolución de la tecnología en los últimos años ha significado una revolución técnica que está llevando a un cambio en los hábitos de consumo e inversión y el desarrollo de nuevos modelos financieros tales como el crowdfunding. Otra posible investigación futura es analizar la diferencia en la inversión en proyectos de crowdfunding en el momento previo a la crisis, durante la crisis y las consecuencias después de la depresión. Es probable que dicha evolución suponga un cambio radical en la forma de desarrollar y financiar las empresas.

Haciendo balance este proyecto, Algo que ha marcado un precedente en mi persona ha sido tomar la decisión de embarcarme en la realización de un doctorado. He sentido admiración por ciertas personas al conocer que me estaba dedicando a la investigación. Pero si algo he proyectado en este trabajo ha sido la importancia de la motivación intrínseca en el transcurso de la vida. Buscar el entendimiento de lo que nos rodea, es una curiosidad que satisfacemos individualmente con el estudio, pero esto debe tener un "para qué", un paso más allá que beneficie al colectivo. La necesidad de combinar el progreso económico con el humanismo me ha movido a lo largo de estos años tal y como expuso Jose Luis Sampedro (1991) "Muy colmado de ciencia está Occidente, pero muy pobre de sabiduría. Es decir, del arte de vivir, más abarcante que la ciencia porque, contando con ella, incluye además el misterio. Ahora no se procura alcanzar la iluminación, sino sentir el latigazo del deslumbramiento. Se busca el estrépito, lo aparatoso, los focos publicitarios; no el silencio, lo

auténtico, ni el resplandor tranquilo de la lámpara. […] Los países de la periferia conservan, aun en su atraso técnico, más sabiduría y eso es una esperanza para todos, porque cada día es más urgente compensar el desajuste esencial de esta civilización: el de tener muchos medios sin saber ponerlos al servicio de la vida".

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