Technovation 145 (2025) 103255

Contents lists available at ScienceDirect

Technovation

journal homepage: www.elsevier.com/locate/technovation

Crowdfunding for entrepreneurial orientation in emerging markets: The moderating role of digital transformation

Shufeng Xiao [a,1], Omar AL-Tabbaa [b,*], Byung Il Park [c,**]

[a] Division of Business Administration, Sookmyung Women's University, 100, Cheongpa-ro 47-gil, Yongsan-gu, Seoul, 04310, South Korea
[b] Leeds University Business School, University of Leeds, Maurice Keyworth Building, Woodhouse, Leeds, LS2 9JT, UK
[c] College of Business, Hankuk University of Foreign Studies, 270, Imun-dong, Dongdaemun-gu, Seoul, 130-791, South Korea

ARTICLE INFO

Keywords:
Equity crowdfunding
Reward-based crowdfunding
Lending crowdfunding
Donation-based crowdfunding
Digital transformation
Entrepreneurial orientation
China

ABSTRACT

This study examines the intricate relationship between crowdfunding models and the entrepreneurial orientation (EO) of new ventures in emerging markets, with a particular focus on the moderating role of digital transformation. Grounded in Agency Theory and Resource Dependence Theory, we analyze data from 239 new venture firms in China to offer novel insights into how crowdfunding models—equity, reward, donation, and lending—shape entrepreneurial behaviors. Our findings reveal that equity-, reward-, and donation-based crowdfunding positively influence EO, fostering greater innovativeness, proactiveness, and risk-taking. Conversely, lending-based crowdfunding constrains entrepreneurial activities due to the repayment pressures it imposes. Digital transformation emerges as a pivotal factor, amplifying the benefits of equity- and reward-based crowdfunding while mitigating the negative impact of lending-based crowdfunding on EO. Surprisingly, digital transformation exerts limited influence on donation-based crowdfunding, underscoring its unique dynamics. This research advances our understanding of entrepreneurial financing by highlighting how crowdfunding, when strategically aligned with digital technologies, can serve as a catalyst for entrepreneurial growth in emerging economies. It offers significant implications for theory and practice, particularly for ventures navigating resource-scarce environments and leveraging digital tools to achieve competitive advantage.

1. Introduction

Entrepreneurship has long been viewed as a prime mover of innovation and transformative change, usually involving risk beyond what is commonly encountered in operating a business (Scuotto et al., 2024). Entrepreneurial orientation (EO) is a firm-level strategic orientation that "captures a firm's specific entrepreneurial methods and practices" (Park and Xiao, 2020: 62) as well as firm behaviors that are entrepreneurial in nature (Anderson et al., 2009). A firm is deemed entrepreneurially oriented when it is innovative, proactive, and risk-taking, organizational attributes that are considered indispensable for exploring and exploiting new opportunities (Al-Tabbaa et al., 2022). Therefore, to exert a considerable, long-term positive influence on society and the economy, small businesses (e.g., venture firms or start-up businesses) must act in an entrepreneurial manner (Soluk et al., 2021). Embarking on entrepreneurial ventures brings formidable challenges, especially in emerging markets, but those markets abound with opportunities for businesses aiming for growth and expansion (Govindarajan and Ramamurti, 2011).

Research on EO in emerging markets has repeatedly claimed that firms with high EO in those markets will possess high capabilities for sensing new opportunities (Anwar et al., 2022). For instance, Chen and Yang (2009) empirically document that venture firms' innovativeness greatly increases their likelihood of recognizing opportunities in emerging markets. Additionally, Stevenson and Jarillo (2007) argue that risk-taking firms tend to invest heavily when pursuing opportunities, particularly if the operational environment is uncertain but the opportunities are great, which are typical characteristics of emerging economies. Similarly, firms with a proactive mindset can anticipate market shifts and capitalize on emerging trends, thus staying ahead of the curve

This article is part of a special issue entitled: Technologies & Crowdfunding published in Technovation.

* Corresponding author.
** Corresponding author.
E-mail addresses: bizsxiao@sookmyung.ac.kr (S. Xiao), O.F.O.AlTabbaa@leeds.ac.uk (O. AL-Tabbaa), leedspark@hufs.ac.kr (B.I. Park).
[1] First author.

https://doi.org/10.1016/j.technovation.2025.103255
Received 29 June 2024; Received in revised form 18 March 2025; Accepted 11 May 2025
Available online 17 May 2025

in rapidly evolving environments (Randhawa et al., 2021). Firms with both proactive and risk-taking attributes have a propensity to make bold decisions without hesitation and embark on risky new projects when employing proactive strategies to exploit opportunities (Stevenson and Jarillo, 2007). These insights, accordingly, indicate that firms are unlikely to grow in emerging markets if they lack the entrepreneurial spirit and fail to identify new opportunities by proactively raising capital from external sources (Guo et al., 2017). In this situation, crowdfunding provides an opportunity for entrepreneurs to raise the capital necessary for firms' growth.

To date, however, we know little about the relationship between crowdfunding (specifically crowdfunding models) and EO. Although Calic and Shevchenko (2020) have examined the role of EO in crowdfunding business ventures and shown that signals of EO (innovativeness, proactiveness, and risk-taking) have an inverted U-shaped relationship with crowdfunding performance, they simply overlooked a potential inverse relationship (i.e., the effect of crowdfunding on EO). In a similar vein, Sahaym et al. (2021) demonstrate that EO and a manager's perception of social media affect the success of a crowdfunding campaign. That is, they also contend that EO is an antecedent of crowdfunding performance. This, in fact, represents a limitation. Scholars commonly perceive that entrepreneurially oriented firms tend to be adventurous and forward-looking (Stambaugh et al., 2017), and they contend that such behaviors in firms have generally been shown to positively enhance organizational performance (Rezaei and Ortt, 2018). However, Soluk et al. (2021) note that research on the drivers of entrepreneurship/EO in emerging countries is in its infancy (also see Chatterjee et al., 2018) and argue that EO can be the final result in the causal relationship, indicating that EO may be influenced by causal factors, including crowdfunding.

Drawing on the agency theory, which explores the link between two cooperative parties (i.e., a principal and its agents), the relationship in a crowdfunding setting can be perceived as being between shareholders (or other funders/lenders/donors) as principals and entrepreneurs as agents. For example, backers may contribute funds to venture firms in exchange for a "reward" (reward-based crowdfunding), sponsors may receive "shares" of a firm in return for their investment (equity-based crowdfunding), investors may provide a loan (lending-based crowdfunding), or patrons may donate money to a project (donation-based crowdfunding). This suggests that a *firm's choice* of a given type of crowdfunding (i.e., the participation of a certain type of shareholder) represents an antecedent that may influence its firm-level strategic orientation, which embraces the firm's strategy-making practices, managerial philosophies, and behaviors that clearly represent EO. Nevertheless, to our best knowledge, no one has studied the effect on the EO of a chosen crowdfunding model (i.e., whether based on lending, reward, equity, or donation).

Moreover, a significant theoretical gap exists in understanding how digital transformation (emerged from significant digital technologies adoption) can influence the relationship between crowdfunding models and EO. Consistent with the Resource Dependence Theory (Pfeffer and Salancik, 1978), which posits that organizations need to manage dependencies on external resources to reduce uncertainty and maintain autonomy, existing studies primarily highlight the potential benefits of these technologies in facilitating communication, expanding audience reach, and optimizing financial transactions for entrepreneurial ventures (Autio et al., 2018; Lamine et al., 2023; Nambisan, 2017; Zahra et al., 2023). However, there is a dearth of theoretical conceptualization and empirical investigations that explain the nuanced mechanisms through which digital transformation influences the effect of crowdfunding activities on the strategic orientation, innovation propensity, and risk-taking behavior inherent in firms' EO.

The progress of existing research can be summarized as follows. Previous studies have mainly emphasized the impact of EO on crowdfunding performance and analyzed EO as an antecedent to crowdfunding success. In contrast, this study examines how various crowdfunding models act as independent drivers of EO and affect firms' innovativeness, proactiveness, and risk-taking behavior. In other words, this study does not view crowdfunding as a simple means of raising funds but conceptualizes it as a strategic mechanism that influences a firm's EO and innovative thinking. Additionally, while prior studies have discussed the role of digital technology in promoting crowdfunding, this study differs in that it empirically analyzes whether digital transformation moderates the relationship between crowdfunding and EO—specifically, whether it amplifies or mitigates this effect. In this vein, we asked the following questions: *(1) How does the type of crowdfunding—specifically, equity-, lending-, reward-, or donation-based—affect EO in an emerging economy? (2) How are the relationships between crowdfunding and EO influenced by the use of digital technologies?*

To answer these questions, we draw on the Agency Theory and Resource Dependence Theory as two complementary frameworks to conceptualize and test the effects of crowdfunding models on venture EO, while examining their interplay with digital transformation in an emerging economy. Our research setting comprised small businesses that possessed their own unique technologies (e.g., venture firms and start-up businesses), which usually suffer from a shortage of internal funds and must collect funds from a large number of people, typically via online fundraising platforms. We examined our model with primary data collected from venture firms in China, and offer several contributions to theory.

First, we contribute to advancing the understanding of entrepreneurship in emerging economies by exploring how the diverse characteristics of fundraising platforms impact ventures' EO. This exploration reveals that different crowdfunding models exert varying effects on entrepreneurial inclinations and strategies among small businesses, highlighting the necessity for nuanced approaches to fostering entrepreneurial activities in emerging markets. Overall, this underscores the complex interplay between crowdfunding models and EO, emphasizing the importance of tailored strategies that consider the unique dynamics of this relationship in the emerging market context (Lee et al. (2022).

Second, we contribute to the nascent field of research on digital technologies (Soluk et al., 2021), particularly within emerging economies where their transformative potential in the context of crowdfunding remains underexplored. Our study fills this critical gap by demonstrating conceptually and empirically how firms' digital transformation can moderate the relationship between crowdfunding models and EO. This underscores the pivotal role of technological integration in enhancing firms' agility and competitiveness through crowdfunding initiatives, highlighting the strategic imperative of leveraging digital advancements in entrepreneurial ventures.

Finally, we argue that the distinctive attributes of crowdfunding sources significantly influence EO's core components—innovativeness, proactiveness, and risk-taking—enabling firms to pioneer market activities and enhance competitive positioning. This perspective *challenges* conventional wisdom by suggesting that crowdfunding not only facilitates resource acquisition but also shapes firms' strategic orientations and market behaviors in dynamic and competitive environments. As such, we advance the existing discourse by contending that the specific attributes of crowdfunding can be a direct cause or motivation for the EO that enables committing resources in an arena where firms experimentally attempt exploitative and exploratory development in emerging markets. Firms capitalize on crowdfunding upon enhancing EO, and they take advantage of digital technologies to extract value from a causal link between crowdfunding and EO. Because firms actively engage with the various interests of diverse investors and with their business environment by exploring activities related to an entrepreneurial mindset, our results contribute theoretically by showing that the unique characteristics of crowdfunding types considerably affect organizational adaption to seek better opportunities and meet market needs.

2. Theoretical background and hypotheses development

2.1. Crowdfunding models: value-exchange vs lending-based

Crowdfunding is a distinctive funding mechanism rooted in the sharing economy concept (Chandna, 2022). It enables ventures to raise capital by pooling small contributions from a large number of backers (Zhao and Ryu, 2020). This democratized approach bypasses traditional financial institutions (Fehrer and Nenonen, 2020), fostering inclusivity by allowing diverse participants to support innovative ideas, social causes, or entrepreneurial ventures (Erickson et al., 2024; Josefy et al., 2017). Crowdfunding encompasses both value-exchange and lending-based models, offering flexibility to align with backers' motivations and entrepreneurs' strategic needs.

Value-exchange crowdfunding comprises equity-based, reward-based, and donation-based models. Equity-based crowdfunding provides backers with ownership shares, aligning their interests with the firm's long-term success while driving accountability and innovation (Hornuf and Schwienbacher, 2018; Butticè and Ughetto, 2021). Reward-based crowdfunding involves backers contributing funds in return for future products or services, promoting alignment with entrepreneurial vision and responsiveness (Frydrych et al., 2014; Zhao and Ryu, 2020). Meanwhile, donation-based crowdfunding is altruistic, where backers contribute *without* expecting financial returns, often supporting social or environmental missions (Boudreau et al., 2021; Josefy et al., 2017). Together, these models emphasize community engagement and mobilization of resources through varying forms of value exchange, catering to profit-driven or cause-driven motivations.

In contrast, lending-based crowdfunding is characterized by a contractual relationship where ventures borrow funds with a commitment to repay the principal and interest (Bernardino and Santos, 2021). Unlike value-exchange models, lending-based crowdfunding is primarily financial, positioning backers as creditors. While this model provides ventures with immediate access to capital, it often imposes significant repayment pressures, which can constrain long-term innovation and risk-taking—key aspects of entrepreneurial strategy (Berns et al., 2020; Stefanelli et al., 2022). This trade-off highlights the strategic implications of crowdfunding model selection, as different models align with distinct entrepreneurial objectives and constraints.

2.2. Crowdfunding and entrepreneurial orientation: an overview

The central thesis in this study is that crowdfunding serves as both an internal and external antecedent of EO. From an external perspective, crowdfunding acts as a market mechanism that facilitates interaction between firms and their external environment (Hornuf and Schwienbacher, 2018). In specific, crowdfunding enables firms to tap into external financial resources, gather customer feedback, and validate their market proposition (Cai et al., 2021). This, in turn, provides ventures the opportunity to engage with a broad audience, allowing them to respond dynamically to market conditions and seize the opportunity to attract potential backers, thus enhancing their entrepreneurial stance. In effect, the competitive nature of crowdfunding platforms intensifies this process, as firms compete with both local and global campaigns for attention and funding (Foà, 2019). Such an environment forces firms to adopt aggressive marketing and differentiation strategies, thereby strengthening proactiveness and risk-taking—two core dimensions of EO (Lumpkin and Dess, 2001). Moreover, the external validation and market feedback received through crowdfunding campaigns act as signals that push firms to refine their products and strategies, nurturing a sustained entrepreneurial orientation (Calic and Shevchenko, 2020; Camilleri and Bresciani, 2022).

On the other hand, the decision to engage in crowdfunding and manage these campaigns is driven by internal strategic choices and managerial preference (Frydrych et al., 2014). As such, the decision to pursue crowdfunding reflects a strategic commitment to innovation and entrepreneurship from a firm's leadership (Coakley et al., 2022). Given the challenges present in the external environment (as discussed earlier), the shift toward crowdfunding as a funding mechanism requires an internal orientation that embraces risk-taking and a willingness to explore nontraditional financing avenues (Butticè and Ughetto, 2021). These internal decisions are often accompanied by significant resource allocation, team coordination, and strategic planning—actions that are indicative of an entrepreneurial mindset (Al-Tabbaa et al., 2023). Furthermore, crowdfunding campaigns necessitate a culture that supports innovation and autonomy, which are essential for fostering EO (Josefy et al., 2017).

2.3. Agency theory and Resource Dependence Theory

We draw on Agency Theory and Resource Dependence Theory (RDT) as complementary frameworks to underpin the theoretical foundation of our model, as illustrated in Fig. 1.

The Agency Theory provides a theoretical framework for understanding the complex dynamics between principals and agents in organizational contexts (Kelembagaan and Eisenhardt, 1989). It focuses on the relationship between two key actors: the principal, who delegates tasks, and the agent, who carries out the work (Anderson and Gerbing, 1988). At its core, Agency Theory highlights potential conflicts arising from this relationship (Jensen and Meckling, 1976). More specifically, the theory identifies information asymmetry, goal divergence, monitoring challenges, and power imbalance as key issues that can undermine the principal-agent relationship (Kolbjørnsrud, 2017; Zajac and Goranova, 2024). Accordingly, this framework can be particularly relevant to studying crowdfunding and its impact on EO. By examining the agency relationship between financial backers (principals) and entrepreneurs or ventures organizing crowdfunding campaigns (agents), we can explore how this innovative financing mechanism mitigates principal-agent problems and fosters entrepreneurial behavior.

At a conceptual level, crowdfunding models function as mechanisms to address information asymmetry by promoting transparency between resource providers and recipients (Kleinert et al., 2020). This transparency fosters trust and accountability, mitigating the potential for opportunistic behavior (Nguyen et al., 2021). Furthermore, the inclusion of interactive/collective feedback systems within crowdfunding platforms serves to harmonize the interests of the involved parties (Thies et al., 2018), reducing potential goal misalignment. The decentralized nature of crowdfunding can also empower ventures, as agents (Cumming et al., 2025), reducing the power imbalance that often characterizes traditional financing relationships. This shift in power dynamics can incentivize entrepreneurs to adopt more innovative and risk-taking strategies, as they are accountable to a diverse group of stakeholders. By addressing these core agency problems, crowdfunding can positively influence key dimensions of EO, including innovativeness, proactiveness, and risk-taking (Lumpkin and Dess, 1996, 2001).

While Agency Theory addresses the relational dynamics between funders and entrepreneurs, RDT argues that organizations are not self-sufficient but are embedded in an interdependent environment, where access to and control over critical resources are pivotal for survival and competitiveness (Pfeffer and Salancik, 1978). This dependence necessitates strategic actions to manage resource flows and reduce vulnerabilities associated with reliance on external entities (Kotter, 1979). In this regard, crowdfunding aligns with RDT principles by serving as a resource mobilization mechanism that enables ventures to engage directly with financial backers, bypassing traditional intermediaries (Cavallo et al., 2019). This direct interaction fosters a dynamic ecosystem of resource exchange (Srinivasan and Venkatraman, 2018), allowing organizations to strategically navigate resource dependencies. Within this framework, digital transformation can be a critical factor that moderates the relationship between crowdfunding modes and EO, especially in the *emerging economies* setting.

In such markets, where financial institutions are less developed,

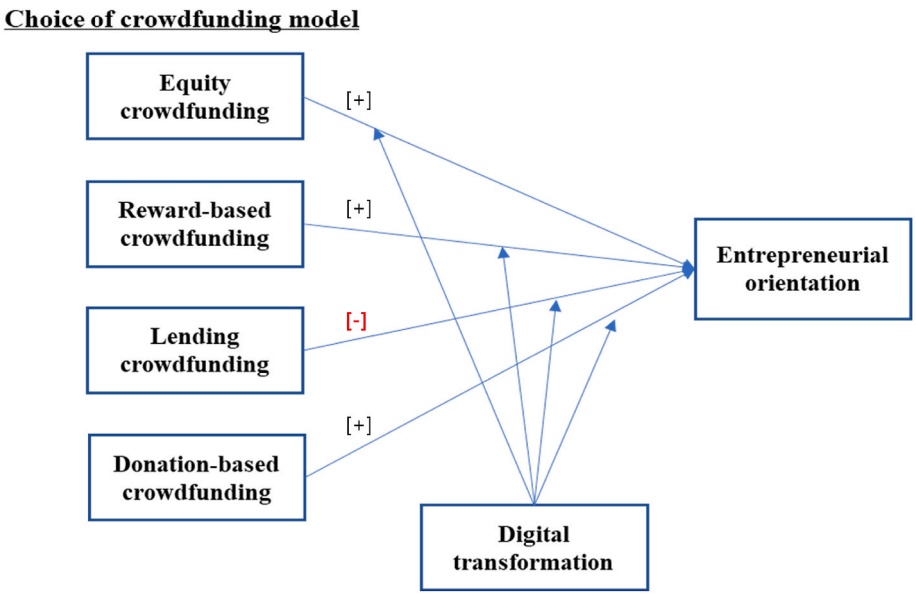

Fig. 1. Research model.

capital accessibility is uneven, and market volatility is high (Donbesuur et al., 2023), firms often struggle with greater resource dependencies (Marquis and Raynard, 2015) that limit their ability to pursue innovative and risk-intensive strategies. This is where digital transformation can be vital in reshaping resource dependency. By integrating digital tools (e.g., AI-driven investor analytics, blockchain-based financial transactions, and algorithmic risk assessments) firms can bypass traditional financial bottlenecks and establish more dynamic, decentralized, and resilient resource networks (Blohm et al., 2018; Lukkarinen et al., 2016). Also, digital transformation enhances the reach, efficiency, and transparency of crowdfunding platforms (Mankevich et al., 2025), enabling entrepreneurs to tap into a broader network of resources and stakeholders (Brown et al., 2019). This, in turn, can amplify the impact of crowdfunding on EO by reducing uncertainty and fostering a more dynamic and competitive business environment. Moreover, RDT highlights the power dynamics inherent in resource acquisition (Jiang et al., 2023). In emerging markets, digital transformation shifts these dynamics by democratizing access to resources and reducing the dominance of traditional gatekeepers (Bharadwaj et al., 2013). This shift can empower entrepreneurs to leverage crowdfunding not just as a financing tool, but as a strategic mechanism for building legitimacy, engaging with stakeholders, and driving innovation.

Therefore, by reframing resource dependency in the digital era, RDT provides a powerful lens for understanding how entrepreneurs in *emerging markets* can leverage digital transformation to overcome structural financial constraints and cultivate more sustainable, innovation-driven growth trajectories. Rather than being passive recipients of external capital, firms can actively shape their constrained resource environments through digital tools, reinforcing their strategic independence and entrepreneurial agility.

Together, Agency Theory and RDT provide a robust conceptual foundation for understanding how crowdfunding impacts EO. While Agency Theory elucidates how crowdfunding addresses relational challenges, RDT highlights the strategic significance of resource access and dependency management, especially in emerging market conditions. Next, we explore in detail how the four crowdfunding models influence the development of EO dimensions—innovativeness, proactiveness, and risk-taking—in business ventures.

2.4. Equity crowdfunding and entrepreneurial orientation

Equity crowdfunding is a method of raising capital for a venture/start-up firm by soliciting small investments from a large number of people (Mamonov et al., 2017), typically via online platforms. In this crowdfunding type, investors receive equity or ownership stakes in the firm in exchange for their investment (Buttice et al., 2020). This approach enables entrepreneurs and early-stage firms to access funding from a broad pool of investors, including retail investors, without the need for traditional sources of financing, such as venture capital firms or angel investors (Cumming et al., 2019). This accessibility is particularly crucial in the context of emerging markets, where traditional funding mechanisms may be less developed or more challenging to navigate.

Emerging markets often present unique entrepreneurial challenges, including limited access to financial resources, less developed infrastructure, and regulatory hurdles (Marquis and Raynard, 2015). However, these markets also offer substantial opportunities for innovation and growth, driven by unmet needs and rapidly expanding economies (Bao et al., 2020). Accordingly, we propose that equity crowdfunding can play a transformative role in these contexts by democratizing access to capital and fostering EO within venturing firms.

In essence, equity crowdfunding aligns the interests of investors and entrepreneurs more closely than other types of crowdfunding, such as reward-based or donation-based models. In equity crowdfunding, investors become stakeholders in the venture's success, sharing both the risks and the rewards (Frydrych et al., 2014). Consistent with Agency Theory, this alignment of interests encourages investors to seek out ventures with strong potential for innovation and growth, as their returns are directly tied to the venture's success (Lehner et al., 2015). This alignment is particularly significant in the context of emerging markets, where innovation can be a key driver of economic progress. As a result, entrepreneurs raising funds through equity crowdfunding are incentivized to focus on innovative ideas that address local challenges and create significant value for investors.

Moreover, equity crowdfunding often attracts investors who not only provide financial support but also bring to the table valuable expertise and industry connections (Mochkabadi and Volkmann, 2020). Unlike other forms of crowdfunding, in which backers may be primarily consumers or supporters of a cause, equity crowdfunding investors typically have a vested interest in the success of the venture and are willing to offer strategic guidance and mentorship to entrepreneurs (Kleinert et al., 2020). In emerging markets, where access to such expertise may be limited, the value of these nonfinancial contributions is magnified. This access to expertise can significantly enhance the proactiveness potential of entrepreneurial firms, providing them with insights and resources to

overcome challenges and capitalize on opportunities (Eldridge et al., 2021).

Additionally, equity crowdfunding investors have a long-term stake in the success of the venture, as they hold equity positions tied to the company's performance (Nitani et al., 2019; Troise et al., 2022). This long-term support provides entrepreneurs with the stability and resources needed to pursue proactive projects that may have longer gestation periods or higher risk profiles (Schwienbacher, 2018). In emerging markets, where economic conditions may be volatile, the long-term commitment of equity crowdfunding investors is particularly valuable. Unlike other types of crowdfunding, in which backers may have more transient or one-time interactions with the venture, equity crowdfunding investors are often committed to supporting the growth and development of the firm over the long term, fostering a conducive environment for long-term and risky innovation endeavors (Caputo et al., 2022; Yáñez-Valdés and Guerrero, 2024). Taking these arguments together, we propose the following hypothesis:

Hypothesis 1. Equity crowdfunding promotes the EO of business ventures

2.5. Reward-based crowdfunding and entrepreneurial orientation

Reward-based crowdfunding differs from the other crowdfunding models, being a kind of venture firm financing in which entrepreneurs solicit financial support from individuals in return for a new product or a unique service (Roma et al., 2018). It consists of individuals funding a project or business with the expectation of obtaining a reciprocal nonfinancial reward (e.g., consumer technology products) at a later stage (Calic and Shevchenko, 2020). This method of crowdfunding gathers supporters before a product launch and enables firms to launch with orders already on the books and cash-flow secured. Thus, it has become enormously popular among entrepreneurs who wish to fund their ideas while retaining full ownership and control (Gutiérrez-Urtiaga and Sáez-Lacave, 2018).

Agency theory addresses conflicts between principals (e.g., backers) and agents (e.g., entrepreneurs) by promoting goal alignment and reducing information asymmetry (Jensen and Meckling, 1976). Reward-based crowdfunding naturally operationalizes these principles by fostering transparency and direct engagement between the two parties, thereby minimizing the risk of agency conflicts. Specifically, this participatory funding model incentivizes trust between backers and entrepreneurs through shared objectives, such as the successful delivery of innovative products or services (Zheng et al., 2017). This trust diminishes the need for extensive monitoring or contractual safeguards commonly associated with traditional funding arrangements (Calic and Shevchenko, 2020). Moreover, reward-based crowdfunding addresses two primary agency problems. First, adverse selection is mitigated as entrepreneurs signal their competence and commitment through detailed project plans and prototypes, encouraging innovative and proactive behavior to attract and retain backers (Zhao and Ryu, 2020). Second, moral hazard is reduced as the community aspect of crowdfunding fosters ongoing accountability. Entrepreneurs maintain regular updates and demonstrate progress to backers, reinforcing transparency and responsiveness, which are critical for proactiveness and adaptability (Steigenberger, 2017).

Moreover, reward-based crowdfunding platforms often attract backers with prosocial motivations, who are drawn to support entrepreneurs exhibiting high levels of societal-oriented innovation (Kuppuswamy and Bayus, 2017). Agency theory highlights how shared social and economic goals between principals and agents align incentives, reduce conflicts, and promote collaborative innovation (Parker et al., 2018; Wessel et al., 2021). Therefore, entrepreneurs, motivated by these shared goals, prioritize market-disruptive ideas that resonate with their community of supporters (Seigner et al., 2022), thereby enhancing their innovativeness.

In emerging markets, where market intelligence and customer feedback mechanisms are often underdeveloped, the community feedback inherent in reward-based crowdfunding serves as a valuable proxy for market signals (Amankwah-Amoah et al., 2023). Through this engagement, entrepreneurs receive real-time insights and actionable feedback, inspiring proactive strategies and innovative solutions to navigate market changes and uncertainties (Corrêa et al., 2022). In addition, in such markets, the lack of robust traditional funding mechanisms often leads to high agency costs in securing capital (Nasr and Al-Tabbaa, 2023). Reward-based crowdfunding addresses this challenge by distributing financial risk across numerous small investors rather than relying on large institutions or equity dilution (Frydrych et al., 2014). This distribution of risk lowers the cost of capital while empowering entrepreneurs to make bold, risk-intensive decisions that are critical in volatile and dynamic markets. From an agency theory perspective, the decentralized nature of crowdfunding reduces principal-agent conflicts by democratizing financial decision-making (Chen et al., 2021). Freed from stringent oversight by institutional investors, entrepreneurs are more likely to pursue high-risk, high-reward ventures, thus seizing opportunities often overlooked by risk-averse competitors (Zhao and Ryu, 2020). Taking these arguments together, we propose that:

Hypothesis 2. Reward-based crowdfunding promotes the EO of business ventures.

2.6. Donation-based crowdfunding and entrepreneurial orientation

In this model, backers contribute funds out of altruism or a shared society-related interest in the project's mission without expecting financial returns (Boudreau et al., 2021; Dai and Zhang, 2019). While the primary goal of donation-based crowdfunding is to raise capital, this model of entrepreneurial funding is likely to enhance ventures' EO by positively influencing its three dimensions: innovativeness, proactiveness, and risk-taking. This is particularly relevant in the context of emerging markets, where traditional funding avenues are often limited and entrepreneurs face unique challenges.

First, donation-based crowdfunding encourages innovativeness by empowering entrepreneurs to pursue creative solutions to address societal needs (Testa et al., 2022; Wehnert and Beckmann, 2021). Unlike traditional investors or lenders, backers in this model are less likely to impose restrictive conditions, providing entrepreneurs with greater autonomy and flexibility in project design (Lipusch et al., 2020). From an agency perspective, this autonomy mitigates adverse selection by enabling entrepreneurs to signal their competence and commitment through detailed campaigns that highlight novel approaches (Zhao and Ryu, 2020). In emerging markets, where socioeconomic challenges often necessitate unique solutions, the diversity of backers aligns incentives by creating a shared mission for societal improvement (Bagheri et al., 2019; Jiang et al., 2021). Furthermore, the transparent and interactive nature of donation-based crowdfunding strengthens the collective mindset between principals and agents, thus reducing information asymmetry, as entrepreneurs openly communicate their vision, share updates, and refine their ideas based on backers' insights (Thies et al., 2016). This continuous engagement fosters accountability and drives iterative innovation, encouraging entrepreneurs to experiment and adapt in response to market dynamics and stakeholder input.

Second, donation-based crowdfunding can enhance entrepreneurial proactivity by aligning incentives and reducing agency issues. While Agency Theory highlights how delegation can create information asymmetry and goal misalignment between backers (principals) and entrepreneurs (agents), this crowdfunding can mitigate these challenges by fostering shared ownership and trust (Snyder, 2023; Berns et al., 2020). By requiring entrepreneurs to transparently share their vision and progress, it reduces information asymmetry and empowers backers to make informed decisions based on the project's potential impact (Dai

and Zhang, 2019). This transparency and alignment of goals encourage entrepreneurs to adopt proactive behavior, leveraging the flexibility and creativity enabled by this funding model to develop a forward-thinking mindset about society's problems (Lipusch et al., 2020).

Finally, donation-based crowdfunding encourages entrepreneurs to embrace risk-taking by offering a relatively low-risk platform to test and validate ideas (Li et al., 2023). Unlike other funding sources, which often demand significant upfront investments or financial accountability for generating returns, donation-based crowdfunding allows entrepreneurs to assess market interest and demand before fully committing to their ventures (Boudreau et al., 2021). Consistent with Agency Theory, this approach reduces moral hazard by fostering transparency as entrepreneurs share progress updates and solicit feedback from backers (Steigenberger, 2017). In emerging markets, where financial resources are limited and the cost of failure is high, this model is particularly beneficial. By launching a donation-based crowdfunding campaign, entrepreneurs willingly face the possibility of failure or rejection, signaling their readiness to take calculated risks. Successful campaigns, in turn, provide validation, empowering entrepreneurs to pursue ambitious ventures with greater confidence (Bagheri et al., 2019). This cycle of risk-taking, validation, and learning promotes resilience and cultivates a culture of experimentation within the entrepreneurial ecosystem (Amankwah-Amoah et al., 2023). Based on these insights, we propose the following:

Hypothesis 3. Donation-based crowdfunding promotes the EO of business ventures.

2.7. Lending crowdfunding and entrepreneurial orientation

As a distinct form of crowdfunding, lending crowdfunding entails entrepreneurs or venture businesses raising capital by borrowing funds from numerous individuals, often via online platforms (Moysidou and Hausberg, 2020; Ribeiro-Navarrete et al., 2021). In this model, investors (lenders) offer capital to borrowers (entrepreneurs or individuals) with the expectation of repayment with interest within a defined timeframe (Stefanelli et al., 2022). Due to the nature of this funding mechanism, we posit that embracing the lending approach may have adverse implications for the three dimensions of EO, particularly in the context of emerging markets.

First, lending crowdfunding, which involves debt-based financing, inherently introduces a different set of incentives compared to equity crowdfunding. Entrepreneurs seeking funds through lending crowdfunding platforms are typically required to repay the borrowed amount with interest, which may lead them to put greater emphasis on ensuring the financial viability and stability of the venture than on pursuing innovative endeavors (Jancenelle et al., 2018). Thus, the pressure to prioritize projects with predictable cash flows and lower risk profiles to ensure timely loan repayment could cause entrepreneurs to opt for incremental improvements or safer, more conventional business models rather than pursuing disruptive innovations (cf. Di Pietro and Butticè, 2020). Agency Theory explains this as a form of goal misalignment: entrepreneurs, motivated by stability to fulfill loan obligations, may deviate from more disruptive projects that carry higher risks. Furthermore, the due diligence process associated with lending crowdfunding platforms may favor ventures with proven track records or tangible assets, potentially disadvantaging early-stage ventures or those operating in nascent industries where innovation is paramount (Moysidou and Hausberg, 2020). This bias toward established ventures may deter entrepreneurs from exploring revolutionary ideas or pursuing radical innovations that could redefine markets or create entirely new ones (Luo et al., 2022). In emerging markets, where economic volatility and institutional voids are prevalent, the risk aversion induced by lending crowdfunding can be particularly detrimental, stifling the potential for groundbreaking innovations that could address local challenges or leverage unique market opportunities.

Second, lending crowdfunding's fixed repayment schedules may constrain entrepreneurial proactivity. These financial commitments, often rigid, limit entrepreneurs' ability to allocate resources flexibly in response to changing market opportunities (Berns et al., 2020). According to Agency Theory, this principal-agent structure creates a preference for stability, as entrepreneurs are less likely to undertake initiatives that might destabilize the cash flow needed for repayments (Neckebrouck et al., 2021). Entrepreneurs may thus focus on short-term stability at the expense of long-term growth or strategic pivots (Frese and Gielnik, 2023). In dynamic emerging markets, this financial rigidity could stifle proactivity, preventing entrepreneurs from acting on unexpected opportunities that might require additional investment (Callegari and Feder, 2022). This limitation can restrict their ability to respond effectively to market shifts, which is essential in fast-evolving environments (Moysidou and Hausberg, 2020).

Finally, the repayment obligations in lending crowdfunding foster a risk-averse dynamic, as Agency Theory explains. Since entrepreneurs must repay lenders regardless of venture success, they may shy away from high-risk, high-reward opportunities to avoid potential default (Bernardino and Santos, 2021). Furthermore, debt financing may limit the willingness of entrepreneurs to explore risky new projects, as lenders typically prioritize the preservation of capital and repayment of principal (Bruton et al., 2015). Unlike equity investors, who share in both the risks and rewards of a venture, lenders in lending crowdfunding campaigns are primarily concerned with the timely repayment of loans, which may discourage entrepreneurs from taking calculated risks or pursuing ventures with uncertain outcomes. In emerging markets, where conditions may be highly unpredictable, the risk-averse stance induced by lending crowdfunding may hinder the pursuit of bold, high-impact ventures that have the potential to drive significant economic and social progress.

Considering these limitations, we propose our next hypothesis:

Hypothesis 4. Lending crowdfunding negatively affects the EO of business ventures.

2.8. The moderating effect of digital transformation

Firms' digital transformation entails the strategic integration of digital technologies across core functions (Amjad et al., 2024), with the goal of enhancing operational efficiencies, elevating customer engagement, and fostering innovation, which is crucial to staying competitive (Gong and Ribiere, 2021). Building on this, our model proposes that digital transformation moderates the impact of crowdfunding models in different ways. On one hand, we suggest that digital transformation strengthens the positive effects of value-exchange crowdfunding models (comprising equity-based, reward-based, and donation-based crowdfunding—where backers either receive financial returns, rewards, or create social value) on ventures' EO dimensions. On the other hand, digital transformation *weakens* the negative effects of lending-based crowdfunding on these dimensions. We draw on the RDT to support these two propositions.

2.8.1. The moderation effect on value-exchange crowdfunding models

We start putting rationale focusing on the innovation dimension. RDT suggests that organizations strategically seek external resources to reduce uncertainty and bolster competitive positioning (Drees and Heugens, 2013). Digital transformation enables ventures to manage this uncertainty while amplifying their capacity for innovation by embedding them in data-rich digital ecosystems. As such, according to RDT, controlling access to information reduces reliance on external data sources (Drees and Heugens, 2013), creating a stable environment where innovation can thrive. Digital tools, such as AI-driven insights and real-time analytics on platforms like Indiegogo, allow ventures in value-exchange crowdfunding models (equity, reward, or donation-based) to independently gather and interpret data on backer

behaviors and market trends (Gras et al., 2017; Maleh et al., 2024). This autonomy fosters innovation by enabling ventures to make instantaneous adjustments to campaigns and product features, directly accessing insights to adapt to *emerging market* demands and conditions (Korzynski et al., 2021). Digital transformation further strengthens this innovative capacity through advanced tools that refine firms' exploring potential for new demands. Equity-based crowdfunding ventures, for instance, leverage digital tools not only to secure funding but also to acquire critical insights from investor behaviors that guide innovation (Cicchiello et al., 2021). Predictive analytics powered by AI enables these ventures to anticipate trends and refine innovations accordingly (Joel and Oguanobi, 2024). Additionally, customer relationship management platforms equipped with advanced data analytics create dynamic, responsive feedback loops with investors, fostering ongoing refinement of offerings and alignment with investor expectations (Leone et al., 2023). By establishing these direct, data-driven channels with investors, digital transformation minimizes external uncertainty, empowering firms to drive innovation continuously in response to emerging insights and trends.

On the other hand, we propose that digital transformation moderates the effect of the three crowdfunding models on venture *risk-taking* attitude by reducing organizational dependencies and enhancing autonomy and strategic control. In line with RDT, reliance on traditional financial intermediaries like banks and venture capitalists can create power imbalances that restrict ventures' flexibility and autonomy (cf. Barringer and Harrison, 2000). By leveraging digital platforms (Huo et al., 2024), ventures can circumvent these centralized intermediaries, allowing them to diversify funding sources by directly accessing a distributed network of backers (Cosma et al., 2022). This decentralized approach aligns with RDT's view that reducing dependency on powerful single actors empowers ventures (Pfeffer and Salancik, 2015) to pursue ambitious, growth-oriented projects that embody a risk-taking mind-set (Ulrich and Barney, 1984) without the constraints typically imposed by traditional investors. By enabling direct relationships with investors and reducing dependency on financial institutions, these digital technologies position ventures to take calculated risks aligned with their entrepreneurial vision. Furthermore, digital technologies can strengthen venture external risk management (Rodríguez-Espíndola et al., 2022), a critical RDT principle, by increasing transparency and improving information access, which mitigates the perceived risks for ventures. For example, blockchain-based platforms like Kickstarter's partnership with the blockchain network Celo aim to enhance transparency by allowing contributors to track the use of funds and the project's progress securely, giving backers greater confidence and reducing the perceived risk of supporting projects (Rawhouser et al., 2022). This increased transparency and access to live data empower ventures to manage potential risks more effectively, fostering a stable environment that supports ambitious projects.

Finally, digital transformation moderates the relationship between value-exchange crowdfunding models and venture *proactiveness* by enhancing strategic positioning within collaborative ecosystems and accelerating responsiveness. RDT suggests that organizations strengthen their position by forming inter-organizational relationships that expand access to essential resources and information, reducing dependency and increasing stability (Chatterjee and Ravichandran, 2013). Digital tools and platforms facilitate this by enabling ventures to connect directly with investors, industry experts, and mentors, forming strategic alliances that extend beyond traditional funding (Fehrer and Nenonen, 2020). This connectivity fosters proactiveness by allowing ventures to establish resource-sharing relationships proactively, providing access to diverse knowledge, market insights, and emerging trends (Bonini and Capizzi, 2019). Additionally, digital transformation accelerates proactiveness by providing ventures with real-time access to funding opportunities, which enables them to respond swiftly to market dynamics and investor orientation (Fatorachian and Smith, 2024). Digital platforms such as Kickstarter, Indiegogo, and GUST empower ventures to actively engage with investors and donors, share updates on progress, and gather feedback to refine their offerings proactively (Feola et al., 2021; Gafni et al., 2021). Accordingly,

Hypothesis 5. The positive relationships between equity-, reward-, and donation-based crowdfunding approaches and EO are strengthened by venture firms' digital transformation.

2.8.2. The moderation effect on lending-based crowdfunding mode

Lending-based crowdfunding often imposes structured repayment obligations, which can limit ventures' flexibility and discourage risk-taking and innovation due to the necessity of repaying loans with interest. This repayment pressure can deter ventures from pursuing entrepreneurial activities and may instead redirect focus toward lower-risk, revenue-stabilizing projects. However, we argue that digital transformation can moderate the negative impact of lending-based crowdfunding on a venture's EO. Drawing on RDT, we hypothesize that digital transformation helps ventures reduce dependency on powerful external entities, fostering a resource environment conducive to EO.

RDT asserts that firms seek stability and resilience by minimizing reliance on dominant external actors, opting instead to access diverse resources and relationships that boost autonomy (Chatterjee and Ravichandran, 2013; Pfeffer and Salancik, 2003). Digital transformation enables this strategic autonomy by equipping ventures with tools that help manage financial dependencies more effectively, offering control over resource flows and diminishing the need for powerful, centralized funding sources (Xing et al., 2024). Tools like real-time analytics, advanced forecasting software, and automated financial management systems provide ventures with detailed insights into cash flows and financial performance (Bottiglia and Pichler, 2016). This enhanced visibility empowers ventures to effectively monitor their repayment capabilities and to identify revenue opportunities, thereby balancing the risks associated with lending-based crowdfunding (Stefanelli et al., 2022).

Additionally, digital transformation facilitates more flexible, innovation-friendly lending models such as peer-to-peer lending, where ventures can access funds through a distributed digital network of individual investors often willing to accept higher risks for greater returns (Pierrakis, 2019). This sharing-based funding model aligns with RDT's emphasis on balancing power dependencies by diversifying funding sources (Drees and Heugens, 2013), allowing ventures to secure financing while retaining autonomy from traditional financial institutions.

Digital lending platforms further support ventures' proactiveness by enabling them to customize loan terms and repayment schedules to better match their growth trajectories, unlike the rigidity of conventional financing (Turi and Turi, 2020). RDT underscores the importance of resource flexibility for securing competitive positioning and reducing dependency (Pfeffer and Salancik, 1978). Digital tools like AI-driven analytics and big data platforms strengthen this flexibility by allowing ventures to actively engage with investors in real-time. Ventures can solicit feedback, provide progress updates, and attract customized funding for innovative projects (Berné-Martínez et al., 2021; Cumming et al., 2024), enhancing their capacity to respond dynamically to market shifts. Accordingly, we propose our final hypothesis:

Hypothesis 6. The negative relationship between lending-based crowdfunding and EO is weakened by venture firms' digital transformation.

3. Methodology

3.1. Sampling and data collection

To empirically examine the proposed hypotheses, we collected data through a survey of business venture firms in China's manufacturing

sector. We believe China provides an ideal, unique research setting to test our conceptual model for the following reasons: first, as the largest emerging economy in the world, China has a rapidly evolving economy with a growing entrepreneurial ecosystem. As crowdfunding increasingly attracts significant attention across the globe, exploring how different crowdfunding approaches may contribute to EO in Chinese new venture firms can both improve our understanding of this important phenomenon and provide new insights into the unique market dynamics and institutional environments that drive entrepreneurial behaviors. Furthermore, China has in recent decades increasingly attempted to upgrade its development and growth strategy by pursuing an innovation-driven, entrepreneurially oriented approach. In this regard, understanding how different crowdfunding approaches may encourage new venture firms to pursue more innovative, proactive, and risk-taking activities can shed new light on recent research on crowdfunding and entrepreneurship. Finally, the Chinese government has adopted various policies to inspire firms to adopt digitization and technological innovation in their business operation (China Daily, 2024a; China Daily, 2024b). Owing to such favorable government policies and quickly advanced digital infrastructures, including high-speed 5G networks and cloud computing services, Chinese firms have quickly adopted digital technologies, such as AI, fintech, and big data, across various business fields. Overall, China provides an appropriate setting to examine the effect of different crowdfunding approaches on EO. We believe our research effort is crucial to advancing knowledge about the crowdfunding and entrepreneurial landscapes as well as digital transformation dynamics in one of the world's largest and fastest-growing economies.

We collected data from new venture firms operating across diverse manufacturing industries within China's three most prominent and economically well-developed regions along the east coast: Jiangsu, Zhejiang, and Shanghai. We defined new venture firms as those with fewer than 500 employees and in operation for less than eight years (Atuahene-Gima and Li, 2004). For the survey, we randomly selected 650 new ventures from a pool of thousands based on sampling lists obtained from the Annual Industrial Survey Database (AISD) collected by the Chinese National Bureau of Statistics (CNBS), the directories (provided by commercial providers) of firms located in entrepreneurial parks, and another venture database provided by a commercial research company. We selected new ventures for our survey based on three key criteria. First, consistent with previous studies (e.g., Atuahene-Gima and Li, 2004), we defined our sample frame by targeting firms that had been established within the past eight years. Second, we focused exclusively on new manufacturing ventures, as research suggests significant differences between manufacturing and service ventures, particularly in their market information scanning practices (Peters and Brush, 1996). Lastly, as mentioned earlier in the paper, we concentrated on firms located in three coastal regions of Jiangsu, Shanghai, and Zhejiang, which are widely recognized for fostering innovation and entrepreneurship in China. To create the survey instrument, we first developed an English-language questionnaire and had it translated into Chinese by a bilingual researcher with the assistance of two professional bilingual translators. To ensure conceptual equivalence and mitigate possible comprehensive risks, we further asked two other professional translators to help us back-translate the Chinese questionnaire into English (Brislin, 1986). To ensure construct validity and better capture the phenomena in the local market, we also conducted a series of field interviews with senior managers (e.g., chief executives, presidents, vice presidents, or directors) from a number of Chinese business ventures. Based on the feedback obtained from these interviews, we further slightly modified the questionnaire items. Prior studies have pointed out potential challenges in collecting high-quality data and emphasized the particular importance of developing good *guanxi* (i.e., building connection and trust) to enhance the response rate and obtain high-quality data from firms in the Chinese market (Xiao et al., 2020). We conducted our formal survey process by hiring a professional research company with extensive experience in data collection in the Chinese local market. Although using a survey approach may limit our capability to fully rule out the possibility of reverse causality, we conducted *two waves* of time-lagged surveys to mitigate the potential problem of reverse causality.[2]

In the first wave of the survey, we asked the respondent from each firm to assess their primary type of crowdfunding strategy as well as control variables. After a two-week period of mailing the questionnaire to the respondent from each firm, we asked the research company to make several phone calls and send two email reminders one week apart. In the survey's first wave, we collected 296 completed questionnaires. We conducted the second wave of the survey one month later by administering the questionnaire to the firms that had participated in and completed the first round of questionnaires, asking the respondent from each firm to assess their level of EO. After sending out the second wave of the survey, the research company helped us conduct several follow-up phone calls and email reminders two weeks apart. Using these careful procedures of survey design and data collection, the study eventually collected 239 useable questionnaires for the final empirical analysis, with an effective response rate of 36.8 %. Most (75.3 %) of the responding firms had fewer than 300 employees, and 74.5 % had existed for less than six years. Furthermore, over half (50.2 %) the responding firms operated in highly technology-intensive electronic information sectors.[3]

3.2. Bias testing

Like all other survey-based research, our study may suffer from nonresponse bias and common method variance (CMV). To check for nonresponse bias, we compared the key firm characteristic variables (e.g., firm size and firm age) between early- and late-responding ventures (Armstrong and Overton, 1977). The results of the t-tests demonstrated no significant differences in either the number of employees ($t = 0.702$, $p > .48$) or the age of the venture ($t = 0.904$, $p > .36$) between the early- and late-responding firms, suggesting that nonresponse bias was unlikely to be a serious issue in our data (Armstrong and Overton, 1977). We also checked for the threat of CMV, but we believe our data were less prone to CMV problems due to the careful procedures followed in designing our survey instrument and administering the survey. First, we carefully designed the questionnaire by dividing the survey questions into several subsections to reduce the occurrence of simple "straight line" response patterns that may lead to CMV concerns (Chang et al., 2020; Johnson et al., 2011). Second, we attempted to mitigate the possibility of CMV by using unique survey software to randomize the order of the questionnaire's survey items, and we reversed the scaling on several items of the key constructs (e.g., EO and digital transformation). In addition, we assured the respondents that both the confidentiality and anonymity of their responses would be fully protected and especially assured them that there were no right or wrong answers to the survey questions and that their responses would be used only for the purposes of the current research. Finally, we further checked for potential CMV by conducting Harman's single-factor test as recommended by Podsakoff et al. (2003). For this test, we performed exploratory factor analysis by loading all the study's construct indicators into a factor analysis. In the results of Harman's single-factor analysis, no single factor emerged that dominated and accounted for a majority of the total covariance in the unrotated factor structure, suggesting that CMV is not very likely to be a serious concern in our study.

[2] We believe, however, that reverse causality is not very likely to arise in our study, as our conceptual model is well constructed and largely theory driven. Moreover, our field interviews suggest that in many new ventures in China, EO was not in place prior to making a good crowdfunding choice, as EO is not a necessary prerequisite or important antecedent of a venture firm's crowdfunding decision.

[3] Detailed sample characteristics are available upon request from the corresponding author.

3.3. Variables and measurement

3.3.1. Dependent variable

The dependent variable in this study is EO. To capture the extent to which the new ventures were entrepreneurially oriented in their business operations, we adopted a nine-item, 7-point Likert scale (1 = "strongly disagree," 7 = "strongly agree") developed by Covin and Slevin (1989) and validated in prior studies (e.g., Ciampi et al., 2021; Ferreras-Méndez et al., 2022), asking the respondents to assess the degree of their firms' innovativeness, proactiveness, and risk-taking in their business operations.

3.3.2. Independent variables

To capture the role of different types of crowdfunding in shaping venture firms' EO, we created four dummy variables for equity-, lending-, reward-, and donation-based crowdfunding, with others as the baseline.

To measure digital transformation, we adopted a five-item scale from prior literature (e.g., Li, 2022; Merín-Rodrigáñez et al., 2024; Nasiri et al., 2020), asking the respondents to assess their firms' capability to use digitization in their operation.

3.3.3. Control variables

To rule out alternative explanations, we also included a number of control variables (including firm size, firm age, industry category, competitive intensity, and market growth rate) that might potentially contribute to our dependent variable, EO. We controlled for the effect of firm size by incorporating the logarithm of the new ventures' total number of employees in the analysis. We controlled for firm age using the number of years since the new venture's establishment. To control for the industry-level effect, we created a dummy variable having a value of 1 for new ventures operating in highly technology-intensive sectors (e.g., bioengineering and new medical technology, electric machinery, electronics, communication, and advanced transportation equipment) and 0 for others. In addition, we controlled for the effect of competitive intensity by including in the estimation a 7-point Likert scale (1 = "not competitive," 7 = "extremely competitive") adapted from previous literature, asking the respondents to evaluate the degree of competition in their market environment. Finally, we controlled for the effect of market growth by asking the respondents to assess the average annual growth rate of their total sales in their focal market segment over the past three years using a 7-point Likert scale (1 = "very low," 7 = "very high").

4. Analyses and results

4.1. Construct reliability and validity

We assessed the reliability and validity of the dependent variable (i.e., EO) and moderating variable (i.e., digital transformation), both measured using multiple-item scales, before examining our hypotheses, by performing a confirmatory measurement model. Table 1 presents the results of our confirmatory factor analysis (CFA). The CFA results demonstrate a good model fit to the data (χ^2 [76] = 174.151, $p < .001$, comparative fit index [CFI] = 0.965, incremental fit index [IFI] = 0.965, non-normed fit index [NNFI] = 0.940, Tucker–Lewis fit index [TLI] = 0.958, root mean square error of approximation [RMSEA] = 0.074). The Cronbach's alpha and composite reliability values for both constructs exceed the commonly recommended rule of thumb of 0.70 (Fornell and Larcker, 1981; Nunnally, 1978), confirming the adequate reliability of both constructs. Moreover, all factor loadings were statistically significant at $p < .001$ and above 0.70, further supporting reliability and validity of the measures of the constructs (Bagozzi and Yi, 1988). To assess the constructs' convergent validity, we calculated the average variance extracted (AVE). The AVE values of both constructs shown in Table 1 exceed the threshold of 0.50, demonstrating sufficient convergent validity and reliability (Fornell and Larcker, 1981; Anderson and Gerbing, 1988). In addition, we examined the R^2 values representing the strength of the linear relationships between the constructs and their respective indicators. As shown in Table 1, the R^2 values of all construct items (ranging from 0.589 to 0.809) surpass the commonly recommended threshold of 0.20, reinforcing convergent validity (Hair et al., 1995). To assess the discriminant validity of the constructs, we compared the square root of the AVE for each construct with the correlations between the construct and all others included in the model. As shown in Table 2, the square root of the AVE of each construct clearly exceeds the absolute value of the correlation between the construct and all other constructs in the model, confirming adequate discriminant validity of this study's measures (Hair et al., 2006; Fornell and Larcker, 1981).

Table 1
Construct measurement and validity assessments.

Constructs/Items	SFL	t-value	R^2 value
Entrepreneurial orientation (EO) (AVE = 0.650, alpha = 0.943, CR = 0.943)			
EO1. In general, the top managers of my firm favor a strong emphasis on R&D, technological leadership, and innovations.	0.799***	Fixed	0.638
EO2. We have very many new lines of products/services (marketed in the past five years).	0.768***	13.247	0.589
EO3. Changes in product or service lines have usually been quite dramatic.	0.799***	13.976	0.638
EO4. In dealing with its competitors, my company is very often the first business to introduce new products/services, administrative techniques, operating technologies, etc.	0.834***	14.816	0.695
EO5. In dealing with its competitors, my company typically initiates actions to which competitors then respond.	0.831***	14.764	0.691
EO6. In general, my company has typically preferred a competitive "undo-the-competitors" posture.	0.836***	14.881	0.699
EO7. Our company has a strong proclivity for high-risk projects (with chances of very high returns).	0.782***	13.584	0.612
EO8. Owing to the nature of the operational environment, bold and wide-ranging acts are necessary to achieve the firm's objectives.	0.788***	13.715	0.621
EO9. When confronted with decisions involving uncertainty, my company typically adopts a bold posture in order to maximize the probability of exploiting opportunities.	0.815***	14.369	0.665
Digital transformation (DT) (AVE = 0.786, alpha = 0.948, CR = 0.948)			
DT1. In our company, we aim to digitize everything that can be digitized.	0.898***	Fixed	0.806
DT2. In our company, we aim at achieving information exchange with digitization.	0.866***	19.542	0.750
DT3. In our company, we aim to enhance an efficient customer interface with digitization.	0.899***	21.309	0.809
DT4. In our company, we aim to create stronger networking between the different business processes with digital technologies.	0.887***	20.598	0.786
DT5. In our company, we collect massive volumes of data from different sources.	0.884***	20.458	0.781

Note: $\chi^2(76) = 174.151$, $p < .001$, CFI = 0.965, IFI = 0.965, NNFI = 0.940, TLI = 0.958, RMSEA = 0.074. AVE = average variance extracted, CR = composite reliability, SFL = standardized factor loading. ***$p < .001$.

4.2. Hypothesis testing

We examined the hypotheses using a regression analysis on new venture EO, ensuring no multicollinearity issue. Table 2 presents the correlation matrix with descriptive statistics for all variables, together with the results of the discriminant validity assessment. The Pearson's correlation coefficients for all variables shown in Table 2 were well below the 0.7 threshold, and the variance inflation factor (VIF) values,

Table 2
Descriptive statistics, correlations, and discriminant validity assessments.

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Firm size	–										
2. Firm age	0.765**	–									
3. Industry category	−0.046	−0.050	–								
4. Competitive intensity	−0.118	−0.103	0.192**	–							
5. Market growth	−0.065	−0.085	0.128*	0.348**	–						
6. Equity-based crowdfunding	−0.032	0.022	0.361**	0.215**	0.193**	–					
7. Reward-based crowdfunding	0.017	0.002	0.160*	0.124	0.051	−0.295**	–				
8. Donation-based crowdfunding	−0.474**	−0.305**	−0.066	0.035	0.071	−0.208**	−0.196**	–			
9. Lending-based crowdfunding	0.278**	0.242**	−0.299**	−0.300**	−0.208**	−0.273**	−0.257**	−0.181**	–		
10. Digital transformation	−0.034	0.003	0.230**	0.217**	0.198**	0.235**	0.161*	0.094	−0.320**	***0.806***	
11. Entrepreneurial orientation	−0.223**	−0.177**	0.287**	0.267**	0.255**	0.346**	0.218**	0.102	−0.493**	0.119	***0.887***
Mean	5.080	4.264	0.502	5.285	5.368	0.238	0.218	0.121	0.192	5.562	5.767
Std. deviation	0.795	1.794	0.501	0.997	0.969	0.427	0.413	0.327	0.395	1.020	0.807

Note: $N = 239$. Bolded diagonals represent the square root of the AVE. *$p < .05$, **$p < .01$.

with a maximum of 4.07, were well under the commonly recommended threshold of 10 (Hair et al., 1998), confirming no significant multicollinearity problems in the study (Burns and Bush, 2000). To further mitigate the threat of multicollinearity, we mean-centered the independent variables when creating interaction terms, following the guidelines recommended by Aiken et al. (1991).

We present the hypothesized results of the main and interaction effects in Table 3. Model 1 serves as the baseline model, including all control variables. In Model 2, we tested Hypotheses 1–4 by adding the four types of crowdfunding strategies used by business ventures, revealing their effects on EO. Hypotheses 1–3 predicted positive impacts of equity-, reward-, and donation-based crowdfunding on EO. The results in Model 2 of Table 3 show that equity- ($b = 0.770$, $p < .001$), reward- ($b = 0.626$, $p < .001$), and donation-based crowdfunding ($b = 0.478$, $p < .01$) all had positive and statistically significant effects on EO, thus confirming Hypotheses 1–3. Hypothesis 4 predicted a negative impact of lending-based crowdfunding on EO. As indicated in Model 2 of Table 3, lending-based crowdfunding had a significant negative impact on EO ($b = −0.529$, $p < .001$), strongly supporting Hypothesis 4. In Model 3, we tested Hypothesis 5 by adding the interactions of digital transformation with the equity-, reward-, and donation-based crowdfunding. Hypothesis 5 posited that higher digital transformation would amplify the positive effects of these crowdfunding strategies (i.e., equity-, reward-, and donation-based crowdfunding) on EO. The results shown in Model 3 of Table 3 demonstrate significant positive interactions for equity crowdfunding ($b = 0.385$, $p < .01$) and reward-based crowdfunding ($b = 0.420$, $p < .01$), but the coefficient for the interaction term between digital transformation and donation-based crowdfunding was positive yet insignificant ($b = 0.227$, $p > .10$). Hence Hypothesis 5 is partially supported.

Table 3
Results of regression analyses predicting entrepreneurial orientation.

Variables	Model 1	Model 2	Model 3
Constant	5.207***	4.970***	4.810***
	(0.497)	(0.481)	(0.473)
Firm size	−0.196*	−0.016	−0.006
	(0.093)	(0.091)	(0.090)
Firm age	0.005	−0.017	−0.006
	(0.041)	(0.037)	(0.037)
Industry category	0.370***	0.062 (0.094)	0.052 (0.093)
	(0.097)		
Competitive intensity	0.116*	0.035 (0.047)	0.038 (0.045)
	(0.052)		
Market growth	0.137*	0.085† (0.047)	0.079† (0.046)
	(0.053)		
Digital transformation		−0.133**	−0.408***
		(0.046)	(0.080)
Equity-based crowdfunding		0.770***	0.817***
		(0.139)	(0.145)
Reward-based crowdfunding		0.626***	0.672***
		(0.133)	(0.133)
Donation-based crowdfunding		0.478**	0.605**
		(0.171)	(0.183)
Lending-based crowdfunding		−0.529***	−0.373**
		(0.133)	(0.138)
Equity-based crowdfunding × digital transformation			0.385**
			(0.144)
Reward-based crowdfunding × digital transformation			0.420**
			(0.151)
Donation-based crowdfunding × digital transformation			0.227 (0.293)
Lending-based crowdfunding × digital transformation			0.400***
			(0.105)
R^2	0.187	0.397	0.441
ΔR^2		0.210***	0.044**
Model *F*-statistics	10.730***	15.003***	12.606***

Note: $N = 239$. Standard errors in parentheses. †$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.

The insignificant interactive effect of digital transformation and donation-based crowdfunding reveals that the link between donation-based crowdfunding and EO is independent of digital transformation. One possible explanation for this insignificant joint effect is that donation-based crowdfunding relies heavily on altruistic motives, where backers contribute for non-financial rewards such as emotional fulfillment, reputational benefits, empathy, and community support, rather than financial returns or product innovation (Li et al., 2020; Liu et al., 2018, 2025). In this context, digital transformation may play a less critical role, as its primary value lies in enhancing efficiency and innovation — factors more relevant to financially or strategically motivated crowdfunding models. Consequently, successful donation-based campaigns often prioritize social impact, community engagement, and personal storytelling over technological sophistication. Extending this logic, ventures participating in donation-based crowdfunding are likely driven by the desire to demonstrate relational and social value, seeking local community support rather than focusing on digital transformation to enhance innovation or uncover new entrepreneurial opportunities. As a result, the core mechanisms in donation-based crowdfunding are fundamentally social and emotional, which inherently limits the moderating role of digital transformation in the relationship between donation-based crowdfunding and EO. Overall, this insignificant finding may imply that although donation-based crowdfunding may drive business ventures to experiment with new ideas and may enhance their motivation and capability to pursue and engage in entrepreneurial activities (e.g., discovering and exploiting more entrepreneurial opportunities), this effect of the donation-based crowdfunding approach on EO may generally be unrelated to the broader strategic imperatives and transformative impacts associated with digital transformation initiatives. In other words, new ventures engaging in digital transformation often seek to improve their market competitive advantages and operational efficiency by advancing their technological bases. Such strategic

positioning or technological capabilities enhanced by digital transformation may not directly encourage or help ventures to conduct entrepreneurial activities required for donation crowdfunding.

Finally, we tested Hypothesis 6, which posits that digital transformation weakens the negative relationship between lending-based crowdfunding and EO. The results reported in Model 3 of Table 3 show a positive and significant interaction effect ($b = 0.400$, $p < .001$), providing strong support for Hypothesis 6.

To ensure the robustness of our findings, we also ran separate regressions for each of the three sub-dimensions of EO (innovativeness, proactiveness, and risk-taking). The results presented in the Appendix were effectively equivalent to our findings obtained using the overall EO measure.

5. Discussion and conclusion

This study proposed a theoretical understanding and empirically examined the effect on new venture firms' EO of the different crowdfunding approaches employed by those firms. While the importance of crowdfunding has been increasingly highlighted (Frimpong et al., 2024), the literature has almost universally ignored the role of different crowdfunding approaches in driving or inhibiting EO in general and specifically from an emerging market perspective in a new venture context. In addition, we explored how digital transformation potentially enables firms that participate in crowdfunding (using different crowdfunding strategies) to more effectively engage in entrepreneurial activities. Using data collected from new ventures in China, we tested our conceptual framework, and our results provide strong evidence that the various crowdfunding approaches employed by new ventures contribute differently to their EO and, more importantly, that digital transformation moderates the proposed relationship between different types of crowdfunding and EO. By doing so, our study provides new valuable insights and knowledge on how crowdfunding, as an increasingly emerging form of entrepreneurial financing strategy, presents a unique approach in which strategic decisions directly shape a new venture's ability to secure funding and ensure its survival. By theorizing and empirically exploring the effect of different crowdfunding strategic choices on the entrepreneurial activities of new ventures, this research provides important theoretical and practical implications to the fields of entrepreneurship, strategy, and financing management.

5.1. Theoretical implications

Our study contributes in several ways to the literature on crowdfunding and EO. The primary contribution of this study is the finding that the various crowdfunding approaches of new venture firms differently contribute to those ventures' EO. More specifically, we extend the current understanding of entrepreneurship in emerging countries by examining how the intrinsic characteristics of various crowdfunding models impact EO in China. Building on this logic, we provide valuable insights into small businesses, showing that diverse and idiosyncratic crowdfunding models can generate distinct entrepreneurial inclinations. This deepens the important stream of research on the role of crowdfunding in explaining new ventures' strategic behaviors *(*Zafar et al., 2023; Maier et al., 2023*)*. Specifically, while equity, reward-based, and donation-based crowdfunding enhances new ventures' innovative, proactive, and risk-taking activities, lending-based crowdfunding presents a different case. Contrary to the idea that all forms of crowdfunding equally influence EO *(see* Blanchard et al., 2023*)*, we, instead, argue that different types of crowdfunding may not be uniformly interpreted as driving forces in the engagement of entrepreneurial activities. Thus, while our study echoes earlier attempts to bring strategic considerations such as EO into conversations about crowdfunding, we offer a significant advancement by explaining why two venture firms employing crowdfunding to raise funds can experience different entrepreneurially oriented outcomes.

Another theoretical implication is that the degree of digital transformation represents an important means through which new venture firms can increase the benefits of some types of crowdfunding and mitigate the costs of other types. To date, little research has incorporated the role of digital transformation into the crowdfunding and EO literature and explored digital transformation as a moderating influence on entrepreneurially oriented outcomes (Alalwan et al., 2023; Wu et al., 2023; Maurer et al., 2023). By exploring digital transformation as an important moderating factor and providing new insights into how digital transformation moderates the possible effects of diverse crowdfunding approaches on EO, our study goes beyond the recent discourse on the relationship between different crowdfunding approaches and EO to begin a new discussion regarding the question of what digital transformation provides to new ventures to enhance their entrepreneurial activities.

More broadly, the present study also importantly contributes to agency theory by advancing our understanding of how the divergent interests of the principal and the agent may explain the varying effects of new ventures' diverse crowdfunding strategies on their engagement in entrepreneurial activities (Arthurs and Busenitz, 2003). New ventures may frequently encounter a principal-agent problem in traditional venture financing, where the interests of investors (principals) and entrepreneurs (agents) may not align or even diverge. Crowdfunding addresses this issue by enabling entrepreneurs to maintain control over their ventures while obtaining essential funding. In this context, the absence of formal investor oversight on most crowdfunding platforms alters the financing landscape for new ventures, potentially reducing the tension between investor expectations and entrepreneur autonomy, thereby fostering entrepreneurial activities. By addressing several concerns associated with prior research on crowdfunding, our study provides a useful lens for a more comprehensive, fine-grained analysis of the effect of crowdfunding strategies on firm strategic activities and behaviors among new ventures in emerging markets.

5.2. Practical implications

Our study offers useful practical implications. One of our central findings—is that while some crowdfunding approaches (including equity-, reward-, and donation-based crowdfunding) encourage new ventures to engage in more entrepreneurial activities, other types (e.g., the lending crowdfunding approach) negatively affect EO—underscores the need for strategic managers of new ventures in emerging markets to better understand the double-edged effect of crowdfunding on EO. In doing so, our study provides initial evidence that equity-, reward-, and donation-based crowdfunding approaches encourage new ventures to pursue more entrepreneurially oriented, innovative, proactive, and risk-taking activities. These findings imply that new ventures can foster their entrepreneurial activities in response to real-time feedback obtained from potential customers and investors through a crowdfunding approach. In particular, we found that lending-based crowdfunding hinders new venture firms from pursuing more entrepreneurial activities. These distinct effects of different crowdfunding strategies imply that new venture firms can potentially reap additional benefits to enhance their innovative, proactive, and risk-taking behaviors by using appropriate crowdfunding approaches, such as equity-, reward-, and donation-based strategies. At the same time, higher EO is negatively associated with lending crowdfunding, a result that clarifies the role of lending crowdfunding in hindering venture firms' innovative, proactive, and risk-taking behaviors.

Moreover, given the role of digital transformation in positively moderating the effect of distinct types of crowdfunding, including lending-, equity-, and reward-based crowdfunding, new venture entrepreneurs may seek to enhance the benefits or mitigate the costs of typical crowdfunding approaches by adopting more novel digital technologies, such as AI, blockchain, and big data, in their business operations. For example, AI can improve investor matching and potential risk

assessment in equity or lending-based crowdfunding, while big data can enhance campaign targeting in reward-based crowdfunding. Blockchain technology can also improve transparency and trust in donation-based crowdfunding by enabling secure and traceable transactions.

In addition, our findings offer valuable insights for policymakers, particularly in fostering entrepreneurship, regulating crowdfunding, and enhancing digital infrastructure. Importantly, governments must recognize that different types of crowdfunding have varying impacts on entrepreneurial activity. Specifically, equity-, reward-, and donation-based crowdfunding tend to support entrepreneurial growth, while lending-based crowdfunding may constrain it. This suggests the need for tailored regulatory frameworks and targeted incentives that encourage more innovative and risk-tolerant models, such as equity-, reward-, and donation-based crowdfunding. For lending-based crowdfunding, policymakers should investigate the factors that limit its positive influence on entrepreneurship. This could include addressing financial pressures on entrepreneurs through measures such as lower interest rates, flexible repayment structures, or complementary financial support programs. Furthermore, our findings emphasize the crucial role of digital capabilities—such as fintech platforms and data analytics—in enhancing the benefits of crowdfunding. These technologies amplify the positive effects of equity- and reward-based crowdfunding while helping mitigate the downsides of lending-based models. As a result, governments should prioritize investments in digital infrastructure and actively promote digital adoption among new ventures. This could involve national initiatives to improve access to digital tools and expanded entrepreneurial training programs focused on developing essential digital skills, such as data analytics and effective digital storytelling for crowdfunding campaigns.

5.3. Limitations and future research

Like all empirical research, our study is not without limitations, which open potential avenues for future research. *First,* we empirically validated our conceptual framework with data from new ventures in China, the world's largest emerging economy, thus raising the concern that our finding may not be generalizable to other contexts. Clearly, future research must validate our conceptual model in a multiple-country research project, including both advanced and emerging economies. *Second*, the rapid adoption of digital technologies by firms from emerging economies like China highlights the potential for exploring how fintech innovations, including AI-powered technologies, influence crowdfunding in these contexts. However, due to data unavailability, we were unable to conduct a comprehensive analysis on this topic in this study. We hope future research will address this important perspective and provide a deeper examination of how fintech innovations shape crowdfunding in emerging versus developed economies, particularly by examining the evolving role of fintech in crowdfunding. [4] More importantly, differences in market conditions, such as institutional environments and levels of digital adoption between emerging and developed economies (Filatotchev et al., 2007; Kumar et al., 2021; Zhao et al., 2021), may play a significant role in shaping crowdfunding dynamics, campaign strategies, backer behaviors, and the success rates of different crowdfunding models. For instance, conventional financing options, such as venture capital, are often limited in emerging markets, particularly for startups and small businesses (Allen and Qian, 2024). In contrast, developed markets typically have more mature financial ecosystems with diverse funding mechanisms. As a result, crowdfunding tends to be a necessity rather than an alternative in emerging markets, driving higher adoption and reliance on these platforms. At the same time, backers in emerging markets may exhibit lower trust in online platforms and digital campaigns, especially for revenue-driven models like equity or lending-based crowdfunding. Consequently, firms may place greater emphasis on leveraging local networks and personal connections. This, in turn, can lead to a stronger preference for community-based donation crowdfunding, with many campaigns tied to social causes.

Third, while we utilized a scale from prior literature to measure digital transformation, we recognize that this may not encompass the entire scope of digital transformation as it exists in practice. We thus encourage future research to consider treating digital transformation as a multidimensional phenomenon and to adopt an integrative or multidisciplinary approach that embraces multiple facets of digital transformation, reflecting current practices in the field. Moreover, we empirically validated our conceptual framework with data from new ventures in China, the world's largest emerging economy, thus raising the concern that our finding may not be generalizable to other contexts. Clearly, future research must validate our conceptual model in a multiple-country research project, including both advanced and emerging economies.

Finally, our empirical research adopted a cross-sectional design, which did not allow us to explore how various crowdfunding strategies and digital transformation interactively evolve and promote new ventures' EO over time. Although causality cannot be fully established due to the cross-sectional nature of the data, the robustness of the study results has been improved by including several control variables. More specifically, despite our best efforts to reduce concerns about the reverse causality problem by collecting data through two survey waves at different time periods, and despite the fact that our theoretical reasoning and empirical findings generally support the notion that different crowdfunding approaches matter greatly in explaining variation in the EO of new ventures, we cannot definitely rule out the possibility of reverse causality in our context due to the very nature of the cross-sectional design. Potential solutions may encompass the following approaches. One possible approach to solving the endogeneity problem is the use of instrumental variables (IV). Future research could mitigate the endogeneity problem by identifying exogenous variables that affect the independent variable but are not directly related to the dependent variable. Future research could also utilize two-stage least squares (2SLS) or the generalized method of moments (GMM) to control for endogeneity problems that may arise in the relationship between crowdfunding and EO. Longitudinal studies or panel data analysis could help address causality issues by capturing dynamic relationships over time.

Despite these research limitations and to the best of our knowledge, this study represents the first attempt to theorize and empirically examine how different types of crowdfunding and digital transformation can interactively help new ventures promote their entrepreneurially oriented activities. We hope that our research may stimulate and help focus future studies on crowdfunding and digitization.

CRediT authorship contribution statement

Shufeng Xiao: Validation, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Omar AL-Tabbaa:** Writing – review & editing, Writing – original draft,

[4] Previous studies, such as Hoque (2024), Wonglimpiyarat (2018), World Bank (2015), and Zalan and Toufaily (2017), explain that in developed countries, AI and blockchain technologies streamline investor-project matching and reduce investment risk to speed up the financing process. Fintech enables to reduce crowdfunding platform operating costs and automate procedures to ensure that more projects are funded. AI-based investment recommendation services and blockchain smart contracts also provide investors with customized portfolios and automate contract execution. In contrast, in emerging markets, fintech allows small businesses and individuals to raise funds even in areas where banking services are scarce. Mobile payment systems and digital wallets allow more people to participate in crowdfunding. In addition, AI credit rating systems and blockchains enhance transparency and security to increase investor confidence and manage risk. Until we demonstrate this and examine it in person, these illustrations remain as a conjecture. We thank an anonymous reviewer for pointing out this important direction for future research.

Supervision, Conceptualization. **Byung Il Park:** Writing – review & editing, Writing – original draft, Supervision, Project administration, Methodology, Conceptualization.

Funding

This research received no external funding.

Declaration of competing interest

The authors declare no conflict of interest.

Acknowledgments

This work was supported by Hankuk University of Foreign Studies Research Funds.

Appendix. Results of regression analyses predicting sub-dimensions of entrepreneurial orientation

Variables	DV = Innovativeness			DV = Proactiveness			DV = Risk taking		
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)	Model (9)
Constant	4.997***	4.851***	4.704***	5.170***	4.799***	4.601***	5.453***	5.261***	5.126***
	(0.531)	(0.516)	(0.509)	(0.562)	(0.554)	(0.549)	(0.547)	(0.560)	(0.556)
Firm size	−0.197*	−0.037	−0.031	−0.179†	0.045 (0.105)	0.062 (0.105)	−0.211*	−0.055	−0.050
	(0.100)	(0.098)	(0.097)	(0.105)			(0.103)	(0.106)	(0.106)
Firm age	0.014	−0.005	0.007 (0.039)	−0.017	−0.043	−0.034	0.018	−0.002	0.009 (0.043)
	(0.044)	(0.039)		(0.047)	(0.042)	(0.042)	(0.045)	(0.043)	
Industry category	0.372***	0.052 (0.101)	0.043 (0.100)	0.424***	0.100 (0.109)	0.082 (0.108)	0.315**	0.036	0.030 (0.109)
	(0.104)			(0.110)			(0.107)	(0.110)	
Competitive intensity	0.160**	0.074 (0.050)	0.077 (0.049)	0.094	0.007 (0.054)	0.010 (0.053)	0.096†	0.023	0.026 (0.053)
	(0.055)			(0.059)			(0.057)	(0.054)	
Market growth	0.124*	0.076 (0.050)	0.069 (0.049)	0.160**	0.100†	0.095†	0.125*	0.079	0.073 (0.054)
	(0.056)			(0.060)	(0.054)	(0.053)	(0.058)	(0.054)	
Digital transformation		−0.145**	−0.426***		−0.131*	−0.404***		−0.124*	−0.394***
		(0.049)	(0.086)		(0.052)	(0.093)		(0.053)	(0.094)
Equity-based crowdfunding		0.768***	0.806***		0.821***	0.888***		0.721***	0.756***
		(0.149)	(0.156)		(0.160)	(0.169)		(0.162)	(0.171)
Reward-based crowdfunding		0.725***	0.780***		0.607***	0.633***		0.545***	0.603***
		(0.142)	(0.143)		(0.153)	(0.155)		(0.154)	(0.157)
Donation-based crowdfunding		0.405*	0.533**		0.622**	0.747***		0.408*	0.536*
		(0.183)	(0.197)		(0.197)	(0.212)		(0.199)	(0.215)
Lending-based crowdfunding		−0.539***	−0.376*		−0.589***	−0.444**		−0.459**	−0.298†
		(0.143)	(0.149)		(0.153)	(0.160)		(0.155)	(0.162)
Equity-based crowdfunding× Digital transformation			0.412**			0.345*			0.397*
			(0.155)			(0.167)			(0.169)
Reward-based crowdfunding× Digital transformation			0.401*			0.492**			0.366*
			(0.162)			(0.175)			(0.177)
Donation-based crowdfunding× Digital transformation			0.228 (0.316)			0.258 (0.341)			0.194 (0.345)
Lending-based crowdfunding× Digital transformation			0.412***			0.383**			0.403**
			(0.113)			(0.121)			(0.123)
R^2	0.181	0.386	0.427	0.174	0.365	0.400	0.130	0.279	0.317
ΔR^2		0.205***	0.041**		0.191***	0.035*		0.149***	0.038*
Model *F*-statistics	10.322***	14.331***	11.904***	9.814***	13.092***	10.668***	6.953***	8.803***	7.410***

Note: $N = 239$. Models 1, 4, and 7 are the respective baseline models. Standard errors in parentheses. $^{\dagger}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.

Data availability

Data will be made available on request.

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