

Fintech Revolution: Empowering Entrepreneurial Intentions through Crowdfunding, Cryptocurrency, Blockchain, Mobile Payments, and Artificial Intelligence

Sharbaz Khan¹, Mehtab Munir², Saghir Pervaiz Ghauri¹

¹ Jinnah University for Women

² Greenwich University

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Abstract

Purpose – Financial technology, also known as “FinTech,” has evolved to disrupt nearly every aspect of traditional financial services and it has become increasingly important in the world’s economic system. The main purpose of the study is to explore the relationship between Financial Technology (Fintech) and Entrepreneurial Intentions. It focuses on the impact of specific Fintech innovations such as Crowdfunding, Mobile Payments, Blockchain, Cryptocurrency, and Artificial Intelligence (AI), on Entrepreneurial Finance.

The study examines how these Fintech advancements have affected the overall entrepreneurial ecosystem, fostering innovation, supporting startups, and driving economic growth. Using mixed-methods, the research combines qualitative interviews and quantitative surveys to reveal key factors that have completely shaped the entrepreneurial ecosystem in the context of fintech.

Executive Summary – Financial technology revolution unleashing a wave of technological innovations has transformed the entrepreneurial landscape. Crowdfunding, cryptocurrency, blockchain, mobile payments, and artificial intelligence (AI) play key roles in empowering aspiring entrepreneurs, fueling financial inclusion, and driving economic growth. This report examines the impact of these fintech advancements on entrepreneurial intentions, exploring their benefits, challenges, and future prospects.

Sharbaz Khan¹, Mehtab Munir², and Saghir Pervaiz Ghauri³

¹ Chairperson, Business Administration Department, Jinnah University for Women, Karachi, Pakistan

² PhD fellow, Greenwich University, Karachi, Pakistan

³ Chairperson, Economics Department, Jinnah University for Women, Karachi, Pakistan

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Introduction

In the ever-evolving world of the FinTech Revolution, the intersection of technology and finance has fundamentally raised the entrepreneurial ecosystem. The Fintech Revolution has become a game-changer in the financial industry, disrupting the non-digitized traditional financial systems by empowering entrepreneurial intentions through innovations like Artificial intelligence (AI), Crowdfunding, Cryptocurrency, Blockchain, and Mobile payments.

Belonging to FinTech companies, crowdfunding platforms eliminate the need for physical interaction and thereby make it simpler and convenient for individuals and organizations to seek funding in a digital environment by reaching a wide range of potential investors (Belleflamme et al., 2014; Mollick, 2014).

Crowdfunding platforms democratize fundraising, allowing innovators to reach a diverse pool of investors outside of traditional channels. This unprecedented access to capital fuels the growth of startups and small businesses, making their ideas turn into reality. Although the concept of crowdfunding was brought into existence as a solution for gathering funds in the creative and social forums, mostly expecting nonmonetary rewards in return (Hemer, 2011), however, in the economic system more intense diffusion of crowdfunding has evolved towards entrepreneurship (Bento et al., 2019).

On the other hand, the decentralized nature of Blockchain technology has revolutionized the process of financial transactions completely. By ensuring security, transparency and immutability, it decreases any transaction costs or intermediaries needed. It makes cross-border transactions easy and offers foundations for innovative business models that are trustable. In turn, this creates a fertile ground for those who want to make a step into entrepreneurialism.

Moreover, with the increasing use of smartphones worldwide, mobile payments have made it possible for businesses of all sizes to deal with their customers efficiently and expand their reach to non-banking areas by providing seamless, convenient and faster transaction solutions.

In addition, artificial intelligence is now becoming a powerful ally for individuals looking for entrepreneurship in the field of fintech. From data-driven insights and personalized customer experiences to assessment of risk and detection of fraud, AI has enhanced the decision making process and allowed a competitive advantage in the marketplace.

Taken together, the rapid technological advancements in the financial industry have given rise to the fintech phenomenon. Financial technology that has become a driving force for business start-ups and technological companies, enables an enormous applications ranging from c-currency, mobile banking, marketplace financing to robo-advisory, smart contracts and even decentralized autonomous organizations (Böhme et al., 2015; Yu et al., 2017). These fintech innovations have not only revolutionized traditional financial methods but also created new and transformative opportunities for individuals in which entrepreneurial ambitions can thrive. By harnessing the power of technology, fintech democratizes access to capital, facilitates secure and transparent transactions, and provides data-driven insights to optimize business strategies. In this article, we explore the role of Crowdfunding, C-Currency, Blockchain, Mobile Payments, and Artificial Intelligence (AI) in empowering entrepreneurial intentions within the fintech landscape.

The sections that follow explain all the variables used in the research with their hypothesis, the methodology, data collection and procedure along with respondents' characteristic profile, results of the hypothesis, findings, and the related implications, limitations of the study and future recommendations. Finally, a detailed questionnaire attached as appendix.

The objectives of the study

1. To examine any positive/negative impact of Fintech advancements on the overall entrepreneurial ecosystem.
2. To examine the effect of Fintech innovations such as Crowdfunding, Mobile Payments, Blockchain, Cryptocurrency, and Artificial Intelligence (AI) on Entrepreneurial Finance.

Artificial Intelligence: Unleashing Business Insights

AI is at the forefront of the fintech revolution, providing entrepreneurs with data-driven insights and automating various processes. AI-powered algorithms offer valuable insights by analyzing large amounts of data, helping entrepreneurs understand consumer behavior, market trends, and identify potential opportunities and risks. The benefits of the Artificial intelligence include personalized customer experience, streamlined business processes and cost savings, enhanced risk management and fraud detection. Challenges include ethical considerations in AI deployment, data privacy and security concerns, skilled labor and barriers to AI adoption.

In finance, AI-driven robo-advisors are revolutionizing investment management, delivering personalized investment strategies at a fraction of the cost of traditional financial advisors. This access to sophisticated financial services opens doors for budding entrepreneurs who can now make informed investment decisions without extensive financial expertise.

Artificial intelligence is often seen as a foundational and emerging technology, transforming nearly every area of financial services, which also includes customer engagement, credit scoring, robot-advisory, market analysis and even detection of fraud (Belanche et al., 2019 and D'Acunto et al., 2019).The following hypothesis has been proposed:

- *H1*. AI has a positive effect on Entrepreneurial Finance.
- *H2*. Entrepreneurial Finance mediates the relationship between AI and Digital Entrepreneurship.

Conceptual Framework and Hypothesis development

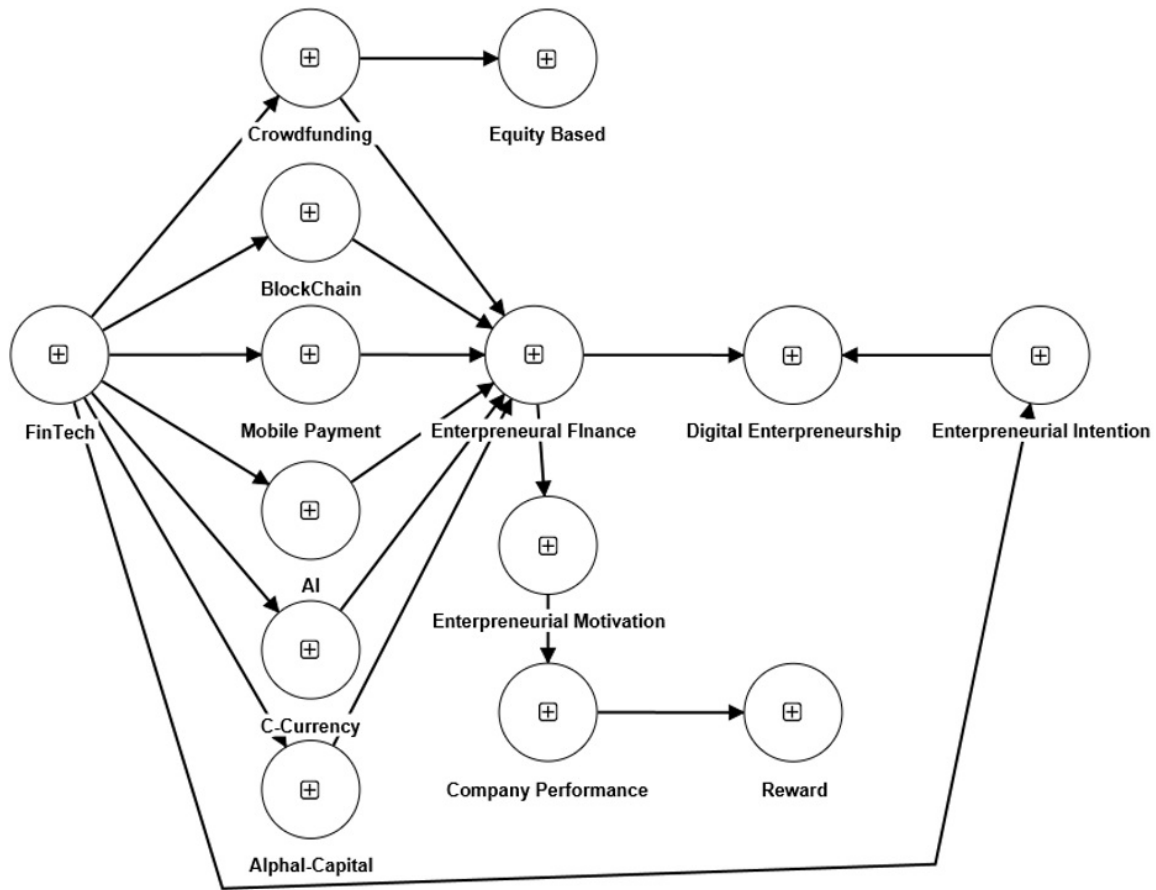


Figure 1. Conceptual Framework

Blockchain: Ensuring Trust and Transparency

Blockchain technology is mainly known as the underlying framework for cryptocurrencies and has a profound effect on entrepreneurial ventures. Its decentralized nature ensures that all transactions are transparent, secure, and tamper-proof. This level of trust and transparency boost investors and consumers' confidence alike and drives entrepreneurial intentions.

For startups, blockchain-based crowdfunding platforms streamline the fundraising process by securely automating the allocation and distribution of funds. In addition, blockchain's smart contracts can automate the execution of agreements, reduce administrative overhead and improve business operational efficiency. The benefits of the blockchain are enhanced security, reduced fraud, transparent and auditable transactions, and improved efficiency in financial processes.

Blockchain is a digitalized novel platform that allows numerous applications in economic transactions, such as fundraising. In finance, blockchain is a popular method used for transferring money, for distributed algorithms and digitization of assets (Goldstein et al., 2019). The following hypothesis has been formed:

- H3. Blockchain has a positive effect on Entrepreneurial Finance.
- H4. Entrepreneurial Finance mediates the relationship between Blockchain and Digital Entrepreneurship.

Cryptocurrencies

The unexpected fame of cryptocurrencies, enabled by blockchain technology, has prompted hundreds of business startups to build services like mobile payments and international remittances.

Since bitcoin was first introduced by Nakamoto (2008), investors, regulators and the media have given considerable attention to cryptocurrencies (Böhme et al., 2015). The following hypothesis has been proposed that shows a positive relationship:

- H5. C-Currency has a positive effect on Entrepreneurial Finance.

- *H6*. Entrepreneurial Finance mediates the relationship between C-Currency and Digital Entrepreneurship.

Company performance and Reward

The following hypothesis has been formed suggesting the impact of company performance on reward:

- *H7*. Company Performance has an impact on Reward.

Crowdfunding: Democratizing Entrepreneurship

Crowdfunding is the term used for raising money from a large group of individuals, usually through internet platforms. This fintech innovation changes the way entrepreneurs secure funding for their ventures, allowing them to reach a diverse pool of potential investors, including ordinary people from around the globe to contribute to projects and ideas they believe in.

Unlike traditional sources of financing, crowdfunding provides an opportunity to validate and test the market appeal of a product or service before its launch. Additionally, it allows greater authority to entrepreneurs over their businesses by diversifying their funding sources rather than relying on a small number of key investors.

Equity-Based crowdfunding has established itself as a new comer in the field of entrepreneurial finance (Block et al., 2018), allowing young innovative newcomer organizations the possibility of issuing securities in a simpler and cheaper new forms via online platforms.

According to some authors, crowdfunding is becoming a major force in corporate finance and some nonprofit organizations (Vealey and Gerding, 2016). Overall, it appears to have a large impact on entrepreneurial potential (Del Sarto and Magni, 2018). Crowdfunding has turned out to be an interesting opportunity, especially in emerging markets (Nisar et al., 2020).The following hypothesis has been formed:

- *H8*. Crowdfunding has a positive effect on Entrepreneurial Finance.
- *H9*. Crowdfunding has an effect on Equity-Based.
- *H10*. Entrepreneurial Finance mediates the relationship between Crowdfunding and Digital Entrepreneurship.

Mobile Payments: Fueling Financial Inclusion

The widespread adoption of mobile payments has transformed the way we handle money, making financial transactions easier, faster, and more convenient than ever before. For entrepreneurs, this means embracing a cashless society where customers can easily pay via smartphones or mobile devices. Especially in underserved areas, where a significant portion of the population lacks access to traditional bank services, mobile payments promote financial inclusion by providing them with access to financial services and allowing them to be part of the digital economy.

The benefits of mobile payments include increased accessibility and convenience for consumers, opportunities for targeted marketing and customer engagement and expanded reach into remote locations. The development of the Internet, especially when accessed via smartphones such as mobile payments, has had a huge and similar impact on the financial system as has happened in virtually every other field of the digital economy (Del Giudice et al., 2021). Telecommunication operators, financial institutions and merchants are growing rapidly, increasing mobile internet services, mostly through the use of mobile phones (Humbani and Wiese, 2019; Kumar et al., 2021).The following hypothesis has been observed:

- *H11*. Mobile payment has a positive effect on Entrepreneurial Finance.
- *H12*. Entrepreneurial Finance mediates the relationship between Mobile payment and Digital Entrepreneurship.

Financial Technology

Financial technology has brought disruptive changes in almost all areas of traditional financial services, revolutionizing the entire financial industry (Goldstein et al., 2019). Santoso (2016) explicitly mentions fintech as a factor in the entrepreneurial ecosystem and points out that the use of information technology strongly influences entrepreneurial intentions.

A vast series of innovative solutions have emerged that have led to increasing advances in entrepreneurship. In this respect, fintech represents a strong element of the global entrepreneurial ecosystem, for both developed and emerging markets (Berman et al., 2021). The following hypothesis has been proposed to test this specific expectation:

- *H13*. FinTech positively influences AI
- *H14*. FinTech positively influences Blockchain
- *H15*. FinTech positively influences C-Currency
- *H16*. FinTech positively influences Crowdfunding
- *H17*. FinTech positively influences Mobile Payment

The hypothesis H18, H19, H20 and H21 shows a chain of relationships suggesting the impact of FinTech on AI (H18), Blockchain (H19), Crowdfunding (H20), and Mobile Payment (H21), which in turn has an impact on Entrepreneurial Finance, and finally, the impact of Entrepreneurial Finance on Digital Entrepreneurship. We see the results as follows:

- *H18*. FinTech -> AI -> Entrepreneurial Finance -> Digital Entrepreneurship
- *H19*. FinTech -> Blockchain -> Entrepreneurial Finance -> Digital Entrepreneurship
- *H20*. FinTech -> Crowdfunding -> Entrepreneurial Finance -> Digital Entrepreneurship
- *H21*. FinTech -> Mobile Payment -> Entrepreneurial Finance -> Digital Entrepreneurship

Research Methodology

Literature Review

The investigation of research begins with an extended literature review of educational term papers, industry reports, fintech related publications and its influence on the entrepreneurial ecosystem. The literature review identifies key themes, theoretical frameworks, and gaps in the existing literature. This also provides the basis for the development of research questions and survey instrument. The review highlighted that Fintech innovations have revolutionized the entrepreneurial landscape. For a business startup, crowdfunding has become a powerful tool for funding and validation, while blockchain enhances transparency, trust and security of all financial transactions. Cryptocurrencies bring new opportunities for fundraising and global transactions, and AI-powered tools enable entrepreneurs to make data-driven decisions. Existing research indicates that these innovations have positive impact on entrepreneurial intentions by facilitating access to resources, reducing barriers to entry, expanding market reach, ultimately contributing to a thriving entrepreneurial ecosystem. However, some studies also raise potential limitations and challenges, such as regulatory concerns, generalizability, self-selection bias, security issues, time constraints, and knowledge gaps, which may affect decision-making process of an entrepreneur.

Qualitative Interviews

Moderately structured interviews were held with a diverse group of entrepreneurs, investors, policymakers, and industry experts having firsthand experience at launching businesses using Fintech technology. The interviews aim to gain insights into participant's perceptions of the impact of Fintech innovations on the ecosystem, perceived benefits and challenges of using these technologies, any experiences they have faced, and their motivations for adopting them.

Qualitative interview data was examined using analysis of thematic review to identify recurring patterns, emerging themes related to entrepreneurial intentions and Fintech adoption.

Quantitative Surveys

The structured survey aims to assess perceptions and attitudes towards fintech innovations across a diverse sample of aspiring entrepreneurs. The survey collected data on the level of Fintech adoption, its role in supporting startups, the challenges they may face, their perceived opportunities, concerns, and their impact on entrepreneurial intentions. Statistical methods were used to inspect the quantitative data from the surveys, including descriptive statistics and regression analysis, to determine correlations and patterns amongst Fintech adoption and entrepreneurial intentions.

Data collection and procedure

The sample size used for this research is 435; a confidence level of 95% was calculated with a 5% margin of error. The main target of the study was leading

business institutes in Karachi (Pakistan), the reason being their students having greater knowledge of the technological world and how they can financially benefit themselves from these advancements. Five enumerators were recruited by the authors to gather data from the target universities. The enumerators distributed 435 questionnaires among students of top institutes and received 425 responses, which is considered acceptable.

Questionnaire design, scales and measurements

The constructs used in the research are all taken from previous studies. Table 1 below shows the summary of the Questionnaire, the references from where the questions have been depicted and the number of items per variable. The Questionnaire used in the research contains two sections. Section 1 relates to respondents' personal information, measured on a nominal scale. Section 2 is related to the main study. In addition, the detailed Questionnaire is attached as Appendix.

Table 1. Summary of Questionnaire

Constructs	References	Items
Entrepreneurial Intentions	Fanea-Ivanovici et al., 2021	2
Financial technology	Goldstein et al., 2019	3
Crowdfunding	Del Sarto and Magni, 2018; Nisar et al., 2020	2
Blockchain	Goldstein et al., 2019	3
Artificial intelligence	Belanche et al., 2019; D'Acunto et al., 2019	3
Mobile payment	Chen et al., 2020	4
Cryptocurrency	(Böhme et al., 2015; Cheah and Fry, 2015; Foley et al., 2019)	3

Respondent's characteristics profile

Table 2 below shows the details of the respondent's profile. The enumerators that were hired for the survey made their visit to the top five private business institutes in Karachi, where they distributed 435 questionnaires and received 425 responses.

The table below depicts that out of the total 425 respondents that participated in the survey, 49% of them are male and 51% are female. It shows that 9% of respondents are under the age of 20, 44% are between the age group of 20–30 years, 36% respondents are in the age bracket of 30 to 40 years, whereas 11% are above 40 years old. The educational level shows 70% of respondents holding undergraduate degrees, 20% having a master's degree and 10% are postgraduates. The employment status of the respondents indicates that 60% of them are not working and they are full-time students, 25% of students are doing part-time jobs and the other 15% are working full-time. Furthermore, this profile also shows marital status, suggesting that the high ratio of 66% is single, whereas 34% respondents are married. It further depicts the household income of all the respondents, suggesting 5% of the students' monthly income is up to Rs. 50,000, 25% of them earn an income ranging between Rs. 50,000 to Rs. 75,000, 46% of their household income is from Rs. 75,000 to Rs. 100,000, and the remaining 24% of the students' monthly income is above Rs. 100,000. Moreover, it shows what the respondents mostly prefer to opt for, where 27% selected Mobile Payment, 24% of them selected Artificial Intelligence, 18% respondents' opted for Crowdfunding, and 17% went for Blockchain and 14% for Cryptocurrencies.

Table 2. Respondents' profile

Characteristics	Frequency	Percentage (%)
<i>Gender</i>		
Male	207	49
Female	218	51
<i>Age</i>		
Under 20	38	9
20-30	189	44
30-40	152	36
Above 40	46	11
<i>Education level</i>		
Undergraduates	296	70
Master students	86	20
Postgraduates	43	10
<i>Employment status</i>		
Not working	254	60
Part time	107	25
Full time	64	15
<i>Marital Status</i>		
Single	282	66
Married	143	34
<i>Household income</i>		
Up to Rs. 50k	23	5
Rs. 50-75k	106	25
Rs. 75-100k	194	46
Above Rs. 100k	102	24
<i>What do the respondents mostly prefer?</i>		
Crowdfunding	78	18
Cryptocurrencies	58	14
Blockchain	71	17
Artificial intelligence	102	24
Mobile payment	116	27

Results

Descriptive analysis

The study in this section examined internal consistency and convergent validity, summarized in Table 3.

The results show that the highest Cronbach alpha values are for fintech (α 0.860), and lowest for crowdfunding (α 0.730), indicating an acceptable internal consistency. The results also show that all composite scores are greater than 0.800 and AVE scores are greater than 0.60, confirming that the constructs do not deviate from the convergent validity requirements (Sarstedt et al., 2019).

Discriminant validity

In the study, the criteria of Fornell and Larcker (1981) were used for assessing discriminant validity. The summary of the results is presented in Table 4.

The results show that the square root of the AVE values is higher than the Pearson correlation values, suggesting that the constructs used in the study are

unique and different (Fornell and Larcker, 1981).

Table 3. Descriptive Analysis

	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
AI	0.770	0.868	0.687
Alpha-Capital	0.842	0.905	0.760
Blockchain	0.805	0.885	0.719
C-Currency	0.777	0.871	0.692
Company Performance	0.823	0.894	0.738
Crowdfunding	0.730	0.848	0.652
Digital Entrepreneurship	0.779	0.872	0.695
Entrepreneurial Finance	0.765	0.865	0.681
Entrepreneurial Intention	0.744	0.856	0.666
Entrepreneurial Motivation	0.834	0.900	0.750
Equity Based	0.770	0.867	0.685
FinTech	0.860	0.915	0.781
Mobile Payment	0.781	0.872	0.695
Reward	0.762	0.863	0.678

Table 4. Discriminant Validity

	AI	Alpha-Capital	Blockchain	C-Currency	Company Performance	Crowdfunding	Digital Entrepreneurship	Entrepreneurial Finance	Entrepreneurial Intention	Entrepreneurial Motivation	Equity Based	Fintech	Mobile Payment	Reward
AI														
Alpha-Capital	0.948													
Blockchain	0.985	0.811												
C-Currency	1.054	0.986	0.870											
Company Performance	0.848	0.714	0.850	0.863										
Crowdfunding	0.862	0.731	0.971	0.921	0.776									
Digital Entrepreneurship	0.835	0.746	0.891	0.779	0.679	0.888								
Entrepreneurial Finance	0.774	0.690	0.764	0.808	0.791	0.877	0.997							
Entrepreneurial Intention	1.030	0.815	0.891	0.918	0.865	0.849	0.961	0.901						
Entrepreneurial Motivation	0.957	0.868	0.816	0.960	0.887	0.836	0.716	0.819	0.930					
Equity Based	0.935	0.722	0.793	0.829	0.613	0.815	0.971	0.944	1.051	0.750				
Fintech	0.888	0.849	0.910	0.899	0.739	0.916	0.789	0.727	0.818	0.825	0.672			
Mobile Payment	0.957	0.647	0.805	0.849	0.675	0.873	0.714	0.726	0.848	0.862	0.796	0.842		
Reward	0.838	0.769	0.836	0.868	0.975	0.852	0.775	0.810	0.925	0.950	0.754	0.854	0.809	

Hypothesis results

The results related to hypotheses are presented in Table 5; the models of beta and P values are shown in Figures 2 and 3.

The first hypothesis (H1) states that AI is expected to have a positive effect on Entrepreneurial Finance. However, $\beta = 0.024$, T-statistics (0.271) and higher p value (0.786) greater than significance level (0.05), suggests that there is no statistically significant relationship between the two variables. Therefore, we reject (H1).

Table 5 shows β (0.012), T-statistics (0.271) and higher p value (0.786) greater than 0.05, suggesting that the relationship between AI and Digital Entrepreneurship is not statistically significant through the mediation of Entrepreneurial Finance. Therefore, we reject (H2).

The third hypothesis (H3) states that the Blockchain is expected to have a positive effect on Entrepreneurial Finance ($\beta = 0.082$). The higher T-statistics (1.272)

suggest a positive relationship between the two variables, but p value (0.204) greater than 0.05 indicates that the relationship is not statistically significant. Therefore, we reject **(H3)**.

According to the table, it is expected that there might be a positive relationship, but $\beta = 0.041$, T-statistics (1.248) and p value (0.212) greater than 0.05, indicates that there is no significant relationship between Blockchain and Digital Entrepreneurship through the mediation of Entrepreneurial Finance. Therefore, we reject **(H4)**.

The fifth hypothesis **(H5)** is expected to have a positive effect of C-Currency on Entrepreneurial Finance. $\beta = 0.135$ and T-statistics (1.549) suggest that there is a positive relationship between the two variables. However, the p value (0.121) greater than (0.05) indicates that the relationship is not statistically significant. Therefore, we reject **(H5)**.

Table 5. Hypothesis Results

	β	(STDEV)	T stats	P values	Results
AI -> Entrepreneurial Finance (H1)	0.024	0.091	0.271	0.786	Rejected
AI -> Entrepreneurial Finance -> Digital Entrepreneurship (H2)	0.012	0.046	0.271	0.786	Rejected
Blockchain -> Entrepreneurial Finance (H3)	0.082	0.069	1.272	0.204	Rejected
Blockchain -> Entrepreneurial Finance -> Digital Entrepreneurship (H4)	0.041	0.035	1.248	0.212	Rejected
C-Currency -> Entrepreneurial Finance (H5)	0.135	0.089	1.549	0.121	Rejected
C-Currency -> Entrepreneurial Finance -> Digital Entrepreneurship (H6)	0.067	0.043	1.582	0.114	Rejected
Company Performance -> Reward (H7)	0.795	0.020	0.020	0.000	Accepted
Crowdfunding -> Entrepreneurial Finance (H8)	0.349	0.075	4.595	0.000	Accepted
Crowdfunding -> Equity Based (H9)	0.618	0.042	14.628	0.000	Accepted
Crowdfunding -> Entrepreneurial Finance -> Digital Entrepreneurship (H10)	0.175	0.043	3.983	0.000	Accepted
Mobile Payment -> Entrepreneurial Finance (H11)	0.107	0.064	1.704	0.088	Rejected
Mobile Payment -> Entrepreneurial Finance -> Digital Entrepreneurship (H12)	0.053	0.032	1.692	0.091	Rejected
FinTech -> AI (H13)	0.731	0.028	25.816	0.000	Accepted
FinTech -> BlockChain (H14)	0.762	0.023	32.884	0.000	Accepted
FinTech -> C-Currency (H15)	0.740	0.025	29.831	0.000	Accepted
FinTech -> Crowdfunding (H16)	0.726	0.027	27.168	0.000	Accepted
FinTech -> Mobile Payment (H17)	0.691	0.039	17.751	0.000	Accepted
FinTech -> AI -> Entrepreneurial Finance -> Digital Entrepreneurship (H18)	0.009	0.033	0.271	0.787	Rejected
FinTech -> Blockchain -> Entrepreneurial Finance -> Digital Entrepreneurship (H19)	0.032	0.027	1.235	0.217	Rejected
FinTech -> Crowdfunding -> Entrepreneurial Finance -> Digital Entrepreneurship (H20)	0.127	0.033	3.755	0.000	Accepted
FinTech -> Mobile Payment -> Entrepreneurial Finance -> Digital Entrepreneurship (H21)	0.037	0.023	1.653	0.098	Rejected

Hypothesis six shows $\beta = 0.067$ and T-statistic (1.582) suggesting a positive effect, but since the p value (0.114) is greater than 0.05, it indicates that there is no significant relationship between C-Currency and Digital Entrepreneurship through the mediation of Entrepreneurial Finance. Therefore, we reject **(H6)**.

H7 suggests that the Company Performance has an effect on Rewards. The p value (0.000) indicates that there is a significant relationship between the two. Hence, we accept **(H7)**.

The eighth hypothesis **(H8)** shows a positive effect of crowdfunding on Entrepreneurial Finance with $\beta = 0.349$, higher T-statistics value (4.595), along with a statistically significant relationship between the two variables with p value (0.000). Therefore, **(H8)** is accepted.

The β (0.618) and higher T-statistics value (14.628) show a positive effect of the crowdfunding on equity based, with a statistically significant relationship between them, as the p value = 0.000. Therefore, **(H9)** is accepted.

As $\beta = 0.175$, the T-statistics is (3.983) and the p value is (0.000), it indicates a positive and significant relationship between Crowdfunding and Digital Entrepreneurship through the mediation of Entrepreneurial Finance. Therefore, **(H10)** is accepted.

H11 states that mobile payment is expected to have a positive effect on Entrepreneurial Finance. Table 5 suggests that the two variables might be positively

related to having $\beta = 0.107$ and T-statistics (1.704), but a p value (0.088) greater than 0.05 indicates that there is no statistically significant relationship between the two. Hence, we reject (**H11**).

The p value (0.091) is greater than (0.05), suggesting that there is no statistically significant relationship between Mobile Payment and Digital Entrepreneurship through the mediation of Entrepreneurial Finance. Hence, we reject (**H12**).

H13 states that FinTech has a positive influence on AI with $\beta = 0.731$ and a higher T-statistic value (25.816), and p value of 0.000 indicates a statistically significant relationship between the two variables. Therefore, we accept (**H13**).

H14 states that FinTech has a positive influence on Blockchain with $\beta = 0.762$ and a higher T-statistic value (32.844), and a p value of 0.000 shows a statistically significant relationship between the two variables. Therefore, we accept (**H14**).

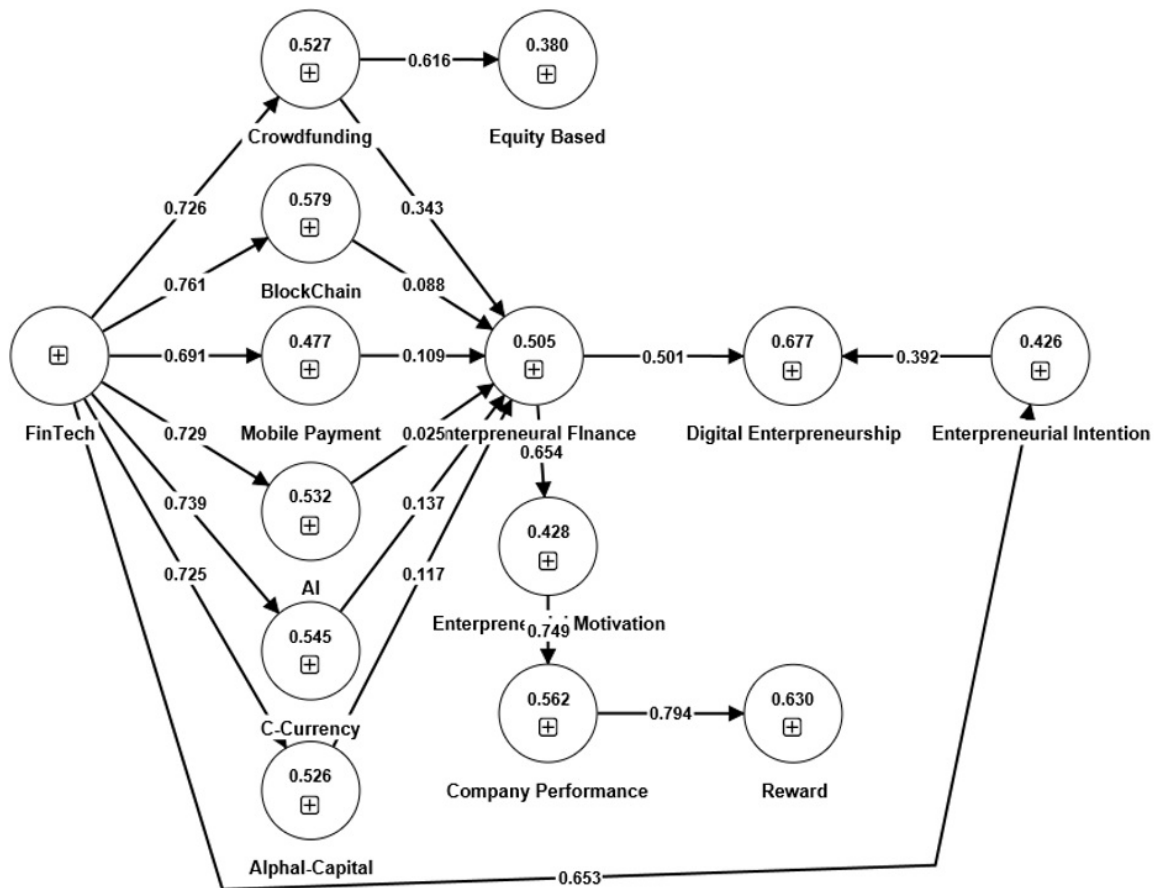


Figure 2. Fintech betas on the lines

H15 states that FinTech has a positive influence on the C-Currency with $\beta = 0.740$ and a higher T-statistic value (29.831), and P value of 0.000 indicates that the relationship between the two variables is statistically significant. Therefore, we accept (**H15**).

H16 indicates that FinTech is expecting to have a positive influence on crowdfunding. With β (0.725), T-statistic value (27.168) and p value of 0.000, a positive and statistically significant relationship is seen between the two variables. Therefore, we accept (**H16**).

H17 states that FinTech has a positive influence on mobile payments. With β of (0.691), a higher T-statistic value of (17.751) and a p value of 0.000, it indicates that the relationship between both variables is positive and statistically significant. Therefore, we accept (**H17**).

Other hypothesis showing chains of relationships are as follows:

The smaller values of β (0.009) and T-statistics (0.271) and a higher p value (0.787) indicate that the relationship between FinTech and Digital Entrepreneurship is not statistically significant. Therefore, we reject (**H18**).

The higher T-statistics (1.235) suggest a positive relationship between FinTech and Digital Entrepreneurship, but β (0.032) and p value (0.217) greater than 0.05 indicate that the relationship is not statistically significant. Therefore, we reject (H19).

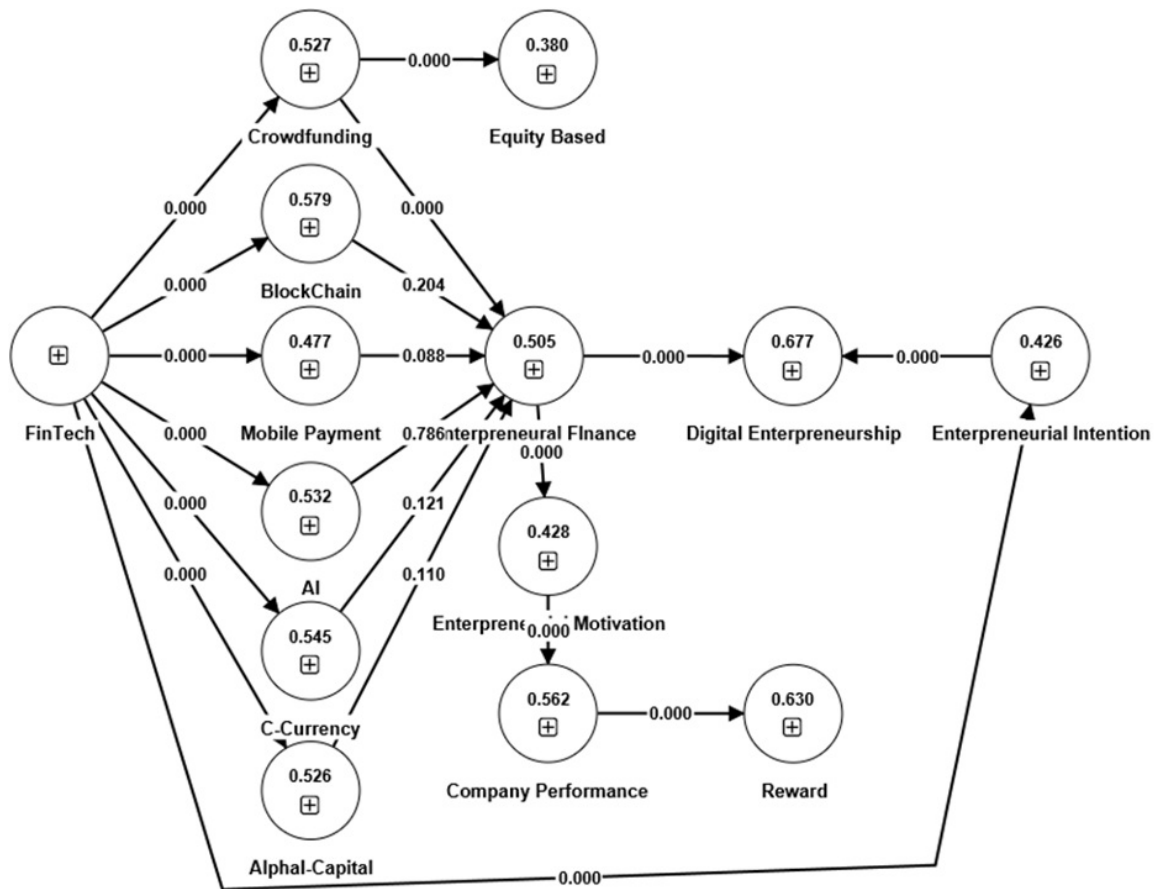


Figure 3. Fintech P values on the lines

Another chain of hypotheses showing $\beta = 0.127$, T-statistics value (3.755) and p value (0.000) indicates a positive and statistically significant relationship between FinTech and Digital Entrepreneurship. Therefore, we accept (H20).

The T-statistics value (1.653) suggests a positive relationship between FinTech and Digital Entrepreneurship. However, $\beta = 0.037$ and p value (0.098) greater than significance level (0.05) indicates that the relationship is not statistically significant. Therefore, we reject (H21).

Findings

Impact of Crowdfunding: The research shows that by providing viable alternative solutions to traditional funding sources, crowdfunding significantly influences entrepreneurial intentions. Entrepreneurs appreciate the ability of this platform at validating market demand, providing access to a diverse investor base, and maintaining control over their ventures.

Blockchain's Effect on Trust and Transparency: The decentralized nature of blockchain positively impacts entrepreneurial intentions as it infuses trust and transparency in financial transactions, which allows entrepreneurs to recognize blockchain's potential in enhancing security, simplifying supply chain management, and to provide an immutable record of transactions.

Mobile Payments and Financial Inclusion: The widespread adoption of smartphones and increased use of mobile payment technology has a strong effect on entrepreneurial willingness, mainly in underserved regions. Therefore, entrepreneurs appreciate the accessibility of convenience provided to customers and markets all around the world, and the potential for financial inclusion and growth.

AI-driven Insights: Entrepreneurs consider data-driven insights from AI as a valuable resource as AI-powered tools facilitate personalized customer experiences, efficient operations, and improved risk management, all of which impact entrepreneurial intentions in a positive way.

Conclusion

The research shows that Fintech innovations significantly affect entrepreneurial intentions. The Fintech revolution has triggered a paradigm shift in the entrepreneurial landscape, offering aspiring innovators unprecedented opportunities. With the combination of both qualitative and quantitative methods, the study aims to obtain a clearer vision of how crowdfunding, blockchain, mobile payments, and artificial intelligence collectively enhance entrepreneurial intentions, such as improved access to capital, enhanced transparency and trust in financial transactions, expanding the potential customer base for startups, financial inclusion, and providing valuable data insights to refine business strategies. Entrepreneurs and policymakers, however, must address the challenges posed by these fintech innovations to avoid any issues.

Limitations and future recommendations

Generalizability: Due to diversity of entrepreneurial ecosystems and varying levels of Fintech adoption across different industries and regions, the generalizability of the findings may be limited.

Self-Selection Bias: The sample for interviews and survey data may be subject to self-selection bias, as respondents with stronger views of the Fintech ecosystem may be more inclined to participate.

Time Constraints: The time constraints of the study may have limited the scope of data collection and analysis, and may have overlooked some aspects of the relationship between Fintech and entrepreneurial intentions.

Ethical Considerations: Privacy and confidentiality issues can arise when collecting sensitive information from entrepreneurs and industry experts, so there is a need for careful handling of data.

The research findings emphasize the importance of Fintech adoption in fostering entrepreneurial aspirations and driving economic growth in the digital era. As the fintech landscape continues to evolve, entrepreneurs are equipped with a powerful toolkit to unleash creativity and nurture their ambitions like never before. Despite potential drawbacks, policymakers, investors, and entrepreneurs alike can all make their mark on the global stage by embracing these revolutionary fintech innovations to drive positive change across industries and improve lives. The future promises exciting possibilities for those who embrace the fintech revolution cautiously and innovatively. There is a need for regulatory frameworks to strike a balance between safeguarding consumer interests and fostering innovation. Entrepreneurs must remain mindful of any regulatory challenges, cybersecurity threats and concerns, and ethical considerations they may face.

While fintech bring advantages to consumers, businesses and economy in general, it also raises questions and concerns regarding data privacy, secure funding, and equality of access (Zetsche et al., 2017). The regulatory and legal communities by working with entrepreneurs can address the challenges that may arise and take additional steps to better prepare themselves for any fintech developments and upcoming barriers related to financial industry in the near future.

For instance, intervention of a robo-advisory design to easily meet the needs of wide range of financial clients with different personal attributes their knowledge of investment and relation with fintech providers (Belanche et al., 2019; D'Acunto et al., 2019).

The results of the study, besides positive outcomes, limitations and recommendations also suggests that the survey needs to be conducted in different geographic locations other than just targeting students' from top business universities in Karachi (Pakistan). Secondly, the sample size of this study is small where only 435 surveys were conducted that was primarily based on a student's sample from one particular location. It is therefore recommended to increase the size of sample and to conduct a non-student survey sample outside one geographic location and to collect data by conducting online surveys via Google Forms and emails to further extend the generalizability of this study.

Appendix

Questionnaire

Section 1: Personal Information

Name:

Age: Under 20/20-30/30-40/40 above

Gender: Male/Female

Education level: Undergraduates/Master's/Postgraduates

Employment status: Not working/Part-time/ Full-time

Section 2:

Entrepreneurial Intentions

1. Do you plan to become an entrepreneur in Fintech industry in the near future?

- Yes
- No

2. What motivates you to pursue entrepreneurship in the FinTech industry? (Multi-select option)

- Higher returns
- Personal passion for technological advancements and innovations
- Time flexibility, freedom and change
- Resilience
- More opportunities
- Other (Please specify):

Financial technology:

3. How do you classify your knowledge of any FinTech services or platforms such as e-wallets, online banking or investment apps?

- Not at all familiar
- Somewhat familiar
- Moderately familiar
- Very familiar

4. Are you planning to start a FinTech-related venture or make any investments into the FinTech industry in coming years?

- Highly likely
- Moderately likely
- Neutral
- Unlikely

5. Will FinTech completely disrupt the concept of traditional (non-digitized) financial services in the near future?

- Yes
- No
- Unsure

Crowdfunding:

6. Do you agree that Crowdfunding helps in arranging funds for entrepreneurial projects and business start-ups from a large number of people through an online platform

- Yes
- No
- I am not familiar with Crowdfunding

7. In your opinion, do you think an entrepreneur should opt for an equity-based crowdfunding platform?

- Yes
- No
- Unsure

Blockchain:

8. How much are you aware of Blockchain technology?

- Not much aware
- Somewhat aware
- Very much aware

9. Blockchain is a peer-to-peer _____ distributed ledger technology that enables transparent records of any digital currency.

- Decentralized
- Centralized
- Demanding
- Secure
- Popular

10. What do you think are advantages of using Blockchain technology in financial transactions? (Multi-select option)

- Enhanced security and transparency
- Quicker and cheaper transactions
- Elimination of intermediaries such as banks
- Improved traceability of transactions
- Other (Please specify):

Artificial Intelligence:

11. How much will AI bring change in the FinTech industry in the next few years?

- Not very much
- Neutral
- A lot

12. Is AI more of a threat or more of an opportunity for businesses?

- A strong threat
- A threat
- Neutral
- An opportunity

13. How much do you think AI has influenced the FinTech industry?

- Not very much
- Neutral
- A lot

Mobile Payment:

14. How often do you use mobile phone to do your payment?

- Frequently
- Occasionally
- Not very often

15. Which of the following mobile banking features would you mostly use?

- Balance enquiry
- Utility bill payment
- Transfer money between accounts
- Email and text alerts
- Other (Please specify):

16. What are your reasons for choosing mobile payments services? (Multi-select option)

- Convenience
- Ease of use
- Time efficiency
- Quick transactions
- 24 hours facilities
- Detect frauds quickly

17. What are your concerns, if any, about using online banking services? (Multi-select option)

- Security and identity theft concerns
- Lack of acceptance at certain merchants
- Technical issues and reliability
- Restrictions on deposits
- Cyber-Physical attacks
- Not familiar with using it
- Other (Please specify):

Cryptocurrency:

18. Do you trade or invest in Cryptocurrencies?

- Yes
- No

19. What potential benefits do you see in using Cryptocurrencies for any financial transactions? (Multi-select option)

- Easy international payments
- Self-governed and managed
- Private and secure payments
- Protection against inflation
- Cost effective transactions
- Transparent
- Other (Please specify)

20. Do you think Cryptocurrencies will be valued more or less in the next five years?

- Significantly less
- Somewhat less
- About the same
- Somewhat more
- Significantly more

References

- Abdalhakeem, O. and Mostafa, F. (2018), "Crowdfunding platforms as an innovative way of funding projects", *Alejthead Journal for Legal and Economic Studies*, Vol. 7 No. 1, pp. 291-308
- Akbarpour, S. (2019), "Blockchain start-ups to venture out from venture capital! are ICOs here to stay?", *The Journal of Investing*, Vol. 28 No. 3, pp. 32-44.
- Ardchivili, A., Cardozo, R. and Ray, S. (2003), "A theory of entrepreneurial opportunity identification and development", *Journal of Business Venturing*, Vol. 18 No. 1, pp. 105-123.
- Baeck, P., Collins, L. and Zhang, B. (2014), *Understanding Alternative Finance: The UK Alternative Finance Industry Report 2014*, Nesta, London
- Belanche, D., Casalo, L. and Flavian, C. (2019), "Artificial intelligence in FinTech: understanding roboadvisor adoption among customers", *Industrial Management & Data Systems*.
- Belleflamme, P., Lambert, T. and Schwienbacher, A. (2014), "Crowdfunding: tapping the right crowd", *Journal of Business Venturing*, Vol. 29 No. 5, pp. 585-609.
- Bento, N., Gianfrate, G. and Groppo, S.V. (2019), "Do crowdfunding returns reward risks? Evidences from clean-tech projects", *Technological Forecasting and Social Change*, Vol. 141 No. 2019, pp. 107-116.
- Berman, A., Cano-Kollmann, M. and Mudambi, R. (2021), "Innovation and entrepreneurial ecosystems: fintech in the financial services industry", *Review of Managerial Science*, Vol. 16 No. 2021, pp. 45-64.
- Block, J.H., Colombo, M.G., Cumming, D.J. and Vismara, S. (2018a), "New players in entrepreneurial finance and why are there", *Small Business Economics*, Vol. 50 No. 2, pp. 239-250.
- Böhme, R., Christin, N., Edelman, B. and Moore, T. (2015), "Bitcoin: economics, technology, and governance", *Journal of Economic Perspectives*, Vol. 29 No. 2, pp. 213-238.
- Brown, R., Mawson, S. and Rowe, A. (2019), "Start-ups, entrepreneurial networks and equity crowdfunding: a processual perspective", *Industrial Marketing Management*, Vol. 80, pp. 115-125.
- Bruton, G., Khavul, S., Siegel, D. and Wright, M. (2015), "New financial alternatives in seeding entrepreneurship: microfinance, crowdfunding, and peer-to-peer innovations", *Entrepreneurship: Theory and Practice*, Vol. 39 No. 1, pp. 9-26
- Cohen, B., Amoros, J.E. and Lundy, L. (2017), "The generative potential of emerging technology to support startups and new ecosystems", *Business Horizon*, Vol. 60 No. 6, pp. 741-745.
- Colombo, M.G., Dagnino, G.B., Lehmann, E.E. and Salmador, M. (2019), "The governance of entrepreneurial ecosystems", *Small Business Economics*, Vol. 52 No. 2, pp. 419-428.
- Chesbrough, H. (2003), *Open Innovation: The New Imperative for Creating and Profiting, from Technology*, Harvard Business School Press, Boston, MA.
- Chen, P.C., Chan, W.C., Hung, S.W. and Lin, D.Z. (2020), "How entrepreneurs recognise entrepreneurial Opportunity and its gaps: a cognitive theory perspective", *Technology Analysis and Strategic Management*, Vol. 32 No. 2, pp. 223-238
- Chen, X., Su, L. and Carpenter, D. (2020), "Impacts of situational factors on consumers' adoption of mobile payment services: a decision-biases perspective", *International Journal of Human-Computer Interaction*, Vol. 36 No. 11, pp. 1085-1093.
- D'Acunto, F., Prabhala, N. and Rossi, A.G. (2019), "The promises and pitfalls of robo-advising", *Review of Financial Studies*, Vol. 32 No. 5, pp. 1983-2020.
- Del Giudice, M., Di Vaio, A., Hassan, R. and Palladino, R. (2021), "Digitalization and new technologies for sustainable business models at the ship-port interface: a bibliometric analysis", *Maritime Policy and Management*, pp. 1-37.
- Del Sarto, N. and Magni, D. (2018), "How dynamic capabilities matter for the implementation of a successful equity crowdfunding campaign", in Barile, S., Espejo, R., Perko, I., Saviano, M.L. and Caputo, F. (Eds), *Cybernetics and Systems*, Routledge, London, pp. 96-100
- Di Vaio, A., Palladino, R., Hassan, R. and Escobar, O. (2020), "Artificial intelligence and business models in the sustainable development goals perspective: a systematic literature review", *Journal of Business Research*, Vol. 121 No. 2020, pp. 283-314
- Doan, X.T. and Hien Phan, T.T. (2020), "The impact of entrepreneurial education on entrepreneurial intention: the case of Vietnamese", *Management Science Letters*, Vol. 10 No. 8, pp. 1787-1796.
- Fanea-Ivanovici, M. and Baber, H. (2021), "The role of entrepreneurial intentions, perceived risk and perceived trust in crowdfunding intentions", *Engineering Economics*, Vol. 32 No. 5, pp. 433-445.
- Fornell, C. and Larcker, D.F. (1981), *Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics*, Sage Publications Sage CA, Los Angeles, CA.
- Goldstein, I., Jiang, W. and Karolyi, G.A. (2019), "To FinTech and beyond", *Review of Financial Studies*, Vol. 32 No. 5, pp. 1647-1661.
- Gomber, P., Kauffman, R.J., Parker, C. and Weber, B. (2018), "On the fintech revolution: interpreting the forces of innovation, disruption and transformation in financial services", *Journal of Management Information Systems*, Vol. 35 No. 1, pp. 220-265
- Haddad, C. and Hornuf, L. (2019), "The emergence of the global fintech market: economic and technological determinants", *Small Business Economics*, Vol.

53 No. 1, pp. 81-105.

- Hemer, J. (2011), "A snapshot on crowdfunding", Fraunhofer ISI Working Papers Firms and Region No. R2/2011, pp. 1-34.
- Humbani, M. and Wiese, M. (2019), "An integrated framework for the adoption and continuance intention to use mobile payment apps", *International Journal of Bank Marketing*, Vol. 37 No. 2, pp. 646-664.
- Kumar, V., Lai, K.-K., Chang, Y.-H., Bhatt, P.C. and Su, F.-P. (2021), "A structural analysis approach to identify technology innovation and evolution path: a case of m-payment technology ecosystem", *Journal of Knowledge Management*, Vol. 25 No. 2, pp. 477-499.
- Lee, I. and Shin, Y.J. (2018), "Fintech: ecosystem, business models, investment decisions, and challenges", *Business Horizons*, Vol. 61 No. 1, pp. 35-36.
- Leong, K. and Sung, A. (2018), "FinTech (Financial Technology): what is it and how to use technologies to create business value in FinTech way?", *International Journal of Innovation, Management and Technology*, Vol. 9 No. 2, pp. 74-78.
- Mochkabadi, K. and Volkmann, C.K. (2018), "Equity crowdfunding: a systematic review of the literature", *Small Business Economics*, Vol. 54 No. 1, pp. 75-118
- Mollick, E. (2014), "The dynamics of crowdfunding: An exploratory study", *Journal of Business Venturing*, Vol. 29 No. 1, pp. 1-16.
- Morkunas, V.J., Paschen, J. and Boon, E. (2019), "How blockchain technologies impact your business model", *Business Horizons*, Vol. 62 No. 3, pp. 295-306.
- Mustafa, M., Shawer, M.A. and Hamouche, S. (2021), "The technology of mobile banking and its impact on the financial growth during the covid-19 pandemic in the gulf region", *Turkish Journal of Computer and Mathematics Education*, Vol. 12 No. 9, pp. 389-399.
- Nakamoto, S. (2008), "Bitcoin: a peer-to-peer electronic cash system", available at: <https://bitcoin.org/bitcoin.pdf> (accessed April 3, 2017).
- Nisar, T.M., Prabhakar, G. and Torchia, M. (2020), "Crowdfunding innovations in emerging economies: risk and credit control in peer-to-peer lending network platforms", *Strategic Change*, Vol. 29 No. 3, pp. 355-361.
- Richter, C., Kraus, S. and Syrjä, P. (2015), "The smart city as an opportunity for entrepreneurship", *International Journal of Entrepreneurial Venturing*, Vol. 7 No. 3, pp. 211-226
- Santoso, S. (2016), "Influence of self-efficacy to student entrepreneurial-intention with student background as a moderating variable: case study in Indonesia", *Journal of Information, Business and Management*, Vol. 8 No. 4, pp. 131-145.
- Sarstedt, M., Hair, J.R.J.F., Cheah, J.-H., Becker, J.-M. and Ringle, C.M. (2019), "How to specify, estimate, and validate higher-order constructs in PLS-SEM", *Australasian Marketing Journal (AMJ)*, Vol. 27, pp. 197-211.
- Stanko, M.A. and Henard, D.H. (2017), "Toward a better understanding of crowdfunding, openness and the consequences for innovation", *Research Policy*, Vol. 46 No. 4, pp. 784-798.
- Troise, C. (2019a), "Entrepreneurship and equity crowdfunding: does it matter? *International Journal of Business and Management*, Vol. 14 No. 10, pp. 72-86
- Troise, C. and Tani, M. (2020), "Exploring entrepreneurial characteristics, motivations and behaviours in equity crowdfunding: some evidence from Italy", *Management Decision*.
- Vealey, K.P. and Gerding, J.M. (2016), "Rhetorical work in crowd-based entrepreneurship: lessons learned from teaching crowdfunding as an emerging site of professional and technical communication", *IEEE Transactions on Professional Communication*, Vol. 59 No. 4, pp. 407-427.
- Yang, S., Lu, Y., Gupta, S., Cao, Y. and Zhang, R. (2012), "Mobile payment services adoption across time: an empirical study of the effects of behavioral beliefs, social influences, and personal traits", *Computers in Human Behavior*, Vol. 28 No. 1, pp. 129-142.
- Yu, S., Johnson, S., Lai, C., Cricelli, A. and Fleming, L. (2017), "Crowdfunding and regional entrepreneurial investment: an application of the CrowdBerkeley database", *Research Policy*, Vol. 46 No. 10, pp. 1723-1737.
- Zetzsche, D.A., Buckley, R.P., Arner, D.W. and Barberis, J.N. (2017), "From FinTech to TechFin: the regulatory challenges of data-driven finance", *New York University Journal of Law & Business* (forthcoming); *European Banking Institute Working Paper Series 2017 - No. 6*; *University of Hong Kong Faculty of Law Research Paper No. 2017/007*; *University of Luxembourg Law Working Paper No. 2017-001*, available at: <https://ssrn.com/abstract=2959925> (accessed April 25, 2018).