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5

ETHICS IN FINTECH THROUGH USERS' CONFIDENCE: DETERMINANTS THAT AFFECT TRUST

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Abstract: Fintech have irrupted around the world. This paper proposes an analysis of the mechanism of influence of the salient factors of the Fintech phenomenon on user confidence in Fintech companies. This represents a barrier for an increased use and adoption of Fintech services in financial markets, which represent an opportunity for Fintech to become part of the mainstream of access to financial services with a greater ethical and inclusive commitment. We have designed an analysis of the Fintech web platforms from a trust and ethical view. The consensus shows that all six factors influence user confidence, relevant for ethical behaviour because trustworthy if the first step that flourish the well doing and trust-base collaboration between parties. However, it is the risk (security, privacy and financial) where there is a perfect consensus, while financial inclusion presents a consensus with a greater dispersion of opinions. Fintech firms need to ensure that the tools they are building are trustworthy and safe and that their business models do not abuse customer relationships by selling data, maintaining a lack of security protocols and other inappropriate and unethical practices. Therefore, this study con-

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tributes to the literature on Fintech's development by providing a comprehensive analysis of the user-Fintech interrelationship and the incorporation of the determinants influencing trust as a critical and complementary element in the technology acceptance model (TAM). This paper contributes to the ethical relationship based on trust.

Keywords: *Fintech, Financial, Ethics, Technology, TAM, Trust*

JEL: M14; M15.

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1. INTRODUCTION

In recent years, global investment in Fintech has increased almost 30-fold to over $53 billion (Accenture, 2019). This is because there are new opportunities to empower people by increasing transparency, reducing costs, eliminating intermediaries and making financial services more convenient and accessible (Zavolokina et al., 2016). In addition, the use of Fintech has been extended to mobile environments by making finance more inclusive. The mobile network in the world reaches 67% of the population (GSMA, 2020) and 45% of people in emerging countries have a mobile phone (Mekko Graphics, 2019; Poshakwale & Ganguly, 2015). However, there is a barrier, that is the lack of trust, and it could be a barrier for ethical behaviour based on technology. Indeed, the level of trust that Fintech generate in users is under analysis, as it is a key factor in the adoption of new and innovative technologies (Fernando & Touriano, 2018; Stewart & Jürjens, 2018), and even more so if they have an associated financial component.

The trust or confidence is aligned with ethical behaviour; Brien highlighted in the nineties (1998: 407) "*that trust can be an effective mechanism should not surprise us. And that is ultimately what the professions and society must seek to do: through developing a culture of trust lead the profession's members to ethical action at first by the hand, then through the heart*". In that sense, Fintech companies must ensure that the tools they build are trustworthy, safe and that they enhance social and

consumer trust, rather than diminish it. Trust can only be earned and maintained if decision-makers are embedded in a community, and make decisions always in the common interest and not in pursuit of individual objectives (Schwab, 2016). Likewise, ethical Fintech business models must be oriented towards the common good and do not abuse customer relationships by selling data, maintaining lack of security protocols and other inappropriate practices. Thereby, the trust is one of the elements significant for guaranteeing an ethical behaviour.

Fintech substitute direct relationships between professionals; investors-financial professionals and financial professionals-savers with investors-Fintech platform and Fintech platform-savers. The inclusion of technology is important for our society progress; however, the ethical behaviour should be analysed using the parameters that make it make sense. Thus, the aim of this paper is to determine how the most relevant factors of the Fintech, i.e. risk, reputation, quality of website information, regulation, inclusion and price, influence on confidence and trust. In order to select the determinants, we have taken as a base the evolution of Fintech perspectives in the literature, such as the comprehensive view, the convergence of its potentialities, convenience, and ethical and innovative impact on the global development of markets (Arner et al., 2015; Gabor & Brooks, 2017; Puschmann, 2017), all of which influence user confidence in Fintech companies and the conditioning of financial technology adoption. The approach taken here is to compare Fintech platforms from trust, as an effective mechanism to ethical culture. The methodology used is based on content analysis (Krippendorff, 2018) of the websites of 45 Fintech companies (CBInsights, 2018) according to the six factors that represent the total population. Subsequently, a Delphi was applied with eleven experts (academics and professionals) to determine whether there is a prospective consensus regarding the influence of each factor on user confidence in the companies that are the subject of our study.

This study contributes to fill the gap to understand of the opportunities, potential risks and challenges involved in the Fintech phenomenon, as well as detailed knowledge of the most relevant and prioritary factors in this regard. There is a deficiency about trusting Fintech; the form of using financial services has changed, and therefore the trust parameters will change. The research questions of this paper are firstly based on which parameters (with an ethical view) are important to establish the trust on Fintech, and secondly how could they be improved. This study benefits not only the members of the Fintech ecosystem, but also researchers and

the ethical and financially inclusive promotion of society. In this way, our approach incorporates the conditioning of these factors into the trust construct, thus expanding and improving the technology acceptance model (TAM). Trust can be a barrier for confidence among people when direct relations are limited, and this study can shed light on this issue to establish the overcoming process.

This paper is structured as follows. In the following section, the relevant literature and Fintech confidence model are presented. Section 3 introduces the material and methods used, followed by the results and discussion in Section 4. Finally, Section 5 shows the conclusions, limitations, and suggestions for future work.

2. THEORY AND FINTECH CONFIDENCE MODEL

From a deeper perspective of trust, we have begun to explore the process of trust transfer to better understand the development of trust. According to Stewart (1999), the theory of trust transfer is based, in the first instance, on cognitive and behavioural theories, that state that if a person trusts a known person, they would trust an unknown person whom the known person trusts. In other words, trust can be transferred from one individual to another. Likewise, Stewart (1999) indicates that transfer is a means by which initial trust in unknown organizations doing business on the *World Wide Web* can be established.

This behaviour should be analysed in current environments such as the technological one. In that regard, the technology acceptance model (TAM) (Davis, 1989), adapted from the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1977), has received significant attention in the literature on the acceptance of information technology (IT) and information systems (IS). Research on web systems refers to trust as perceived credibility, which strongly influences users' willingness to make purchases, online banking and to exchange money and sensitive personal information (Gefen & Straub, 2004; Wang et al., 2003). Specifically, Wang et al. (2003) found that perceived credibility has a significant positive influence on the behaviour of the intention to use Internet banking. Recent studies on the application of TAM in the adoption of Fintech services by bank users reveal that most users who refuse to provide sensitive information to mobile banking systems, in order to make banking transactions, say they do not trust the data collectors (Hu et al., 2019; Stewart & Jürjens, 2018). These facts show a growing concern of users

about the ethical and responsible processing of their personal information that could be carried out by financial institutions (Boatright, 2011; Van Hoorn, 2015) and, in turn, it entails various risks as well as potential underlying ethical issues, such as the accountability related to the ownership and leverage of their data.

The selected factors influencing confidence in Fintech are as follows:

2.1. REPUTATION

Reputation is relevant to user confidence in the financial sector (Campbell et al., 2014) and consists of the representation of public opinion, which can determine users' first impressions of a company (Kim et al., 2008). Users tend to infer that transactions with reputable companies that work ethically are low risk (Cowton, 2002), while transactions with negative reputation companies are uncertain and perceived as high risk (Antony et al., 2006). Furthermore, firms can leverage their reputation inherent in their stability, long history, ethical conduct and credibility to win user confidence (Chuang et al., 2016). Therefore, a company's positive reputation can reduce uncertainty and increase user confidence (Kim et al., 2008). Reputation building is a social process that depends on past interactions between consumers and the seller (Zhang, 2005). Based on its reputation, a consumer is likely to infer that the seller is likely to continue its behaviour in the present transaction (Greiner & Wang, 2010). Consequently, under the above assumptions, in the case of a positive reputation it is likely to be inferred that the company will fulfil its specific obligations and hence conclude that it is trustworthy. In the case of a negative reputation, the conclusion is likely to be that the company will not fulfil its specific obligations and that it is not trustworthy.

Likewise, the presence of a third-party seal, which works as an assurance of the company provided by a certifying body, is also important (Kim et al., 2008). Since trusted third-party guarantors are considered to have some coercive power over the company through the enactment and enforcement of explicit standards, seals issued by certification authorities can help reduce the risk perceived by users in a transaction, even if the user has no previous direct experience with the website (Chuang et al., 2016).

2.2. QUALITY OF WEBSITE INFORMATION

Information quality refers to the user's overall perception of the accuracy, accessibility and completeness of website information regarding products and transactions (Kim et al., 2008). In that sense, the importance of information quality has been highlighted in building trust, acceptance of technology and behavioural intention (Oliveira & Chan, 2019; Yang et al., 2015). Especially in e-commerce businesses, the high quality of information is a promotional factor that influences the decision-making process of customers and facilitates the generation of trust (Yoon & Occeña, 2015). Similarly, Yoon & Occeña (2015) noted that the quality of the website, including web design, structure and content, plays an important role in influencing the perceptions and attitude of users. On the other hand, it is known that information on Internet vary greatly in quality. It is also often very difficult to know how often the website information is updated (Chuang et al., 2016). Therefore, potential users are likely to be particularly attentive to the quality of information on a website, as the quality of information should help them make good decisions based on their expectations inherent in using Fintech solutions.

In that sense, in the context of online payments, as users perceive that the website presents quality information, they will perceive that the company is interested in keeping the information accurate, up-to-date and truthful, and therefore the company will be more willing, and in a better position, to ethically fulfil its obligations (Jasanoff, 2016; Yang et al., 2015). Likewise, high-quality information helps to reduce the levels of perceived uncertainty and risk inherent in transactions with Fintech companies, since such information (accurate, current, and relevant) should provide what is needed to conduct the transaction in a controlled manner.

2.3. REGULATION

The function of regulation is to improve the functioning and efficiency of the market (Bromberg et al., 2018). However, the global financial crisis of 2008, caused by unethical banking practices, fundamentally changed the way we perceive trust in finance and its regulatory implications (De Bruin, 2015; Graafland & Van de Ven, 2011; Magnuson, 2018). According to Reuters (English & Hammond, 2018), regulatory alerts

increased from 8,000 in 2008 to 56,000 in 2017, an average of 216 alerts per day. This marked a turning point in the banking sector due to the loss of public confidence and, therefore, as a short-term measure to recover it, a rigid regulatory burden was established (Arner et al., 2017; Buchak et al., 2018; Zetsche et al., 2017). This has led many to embrace non-traditional Fintech innovations as a way to democratize finance, and potentially move away from traditional financial industry players.

Fintech companies need to ensure that their innovations provide the highest level of societal trust possible. However, accountability in the Fintech ecosystem, in terms of regulation, is not all clear in the case of decisions and actions that machines and algorithms make. According to Dembinski (2017), once relationships are essentially determined by an algorithm, ethics is on thin ice because of the absence of an empathetic human face capable of identifying ethical dilemmas. In this context, it is also difficult for law and regulation to consider all possible cases, since they are reactive, and not prospective, as ethics is (Argandoña, 2021).

Thus, it is possible at this point that legal systems around the world are not well prepared for ascribing responsibility for things like injuries from autonomous driving vehicles; potential bias due to opaque models, which are also scalable and lacking transparency (Hagendorff, 2020); and breaches of privacy (Max et al., 2021), among others. In this sense, biased data in conjunction with possibly suspect models have the potential to create more unfairness and inequality. In addition, we therefore must be careful in blindly applying them, especially since they tend to repeat past practices, repeat patterns, and automate the status quo.

As such, regulators have had to address how to regulate opportunities as well as challenges, not only from a business approach, but also ethically (Dembinski, 2017; Rossouw, 2012). Under this premise, four main approaches stand out regarding regulators so far.

The first approach has been largely one of doing nothing, which can be considered a positive or negative approach (Buckley & Arner, 2011). It can also be permissive or restrictive. For example, before mid-2015, China was a country adopting a permissive approach through the decision not to implement new regulations. In many ways, this decision allowed the explosion of the Fintech phenomenon in the context of China, but also brought with it new risks (the evolution of entities "Too small to care" to "Too big to fail" in the context of payments, money market, mutual funds and other areas). As a result, even in the Chinese context, the decision of recent years, since 2015, has increasingly been to build a

new regulatory framework for digital financial services (Tsai, 2018; Zetsche et al., 2017). Other jurisdictions have adopted a largely restrictive do-nothing approach, requiring that new participants in new financial services (with new business models, new technologies and new approaches) comply with existing regulatory requirements that would typically be developed for a very different type of established financial institution, banks, insurance companies, mutual funds and the like.

In recent years, regulators have sought to balance innovation and growth objectives with financial stability, consumer protection considerations and fostering more ethical organizations (Herzog, 2019). As a result, an increasing number of experimental approaches are developing. Indeed, this gives rise to a second approach, involving regulators setting up contact points to meet with new participants, to learn about technologies in order to develop appropriate regulatory responses.

A third approach, on the other hand, supports the development of so-called sandboxes, which are areas of experimentation in a limited market context with limited regulation, thus enabling both new companies and the regulator to learn the best way forward (Allen, 2019; Bromberg et al., 2018). The advantages of this approach are clear, as it promotes greater transparency in industry and at the same time it encourages innovation (Magnuson, 2018).

And finally, a fourth approach focuses on a growing number of jurisdictions that are developing new regulatory frameworks, particularly for P2P loans (Tsai, 2018) or alternative payment systems or crowdfunding forms (Macchiavello, 2018; Zetzsche & Preiner, 2018). In this regard, jurisdictions such as China, India, South Africa and Kenya, among others, are also looking to develop completely new regulatory approaches.

In contrast to the above situation, government regulation can significantly shape user behaviour, especially for some emerging technologies (Poortinga & Pidgeon, 2003). It can also reduce the perceived risk and enhance user confidence (Aghion et al., 2010). For instance, legislation is a prominent external factor that positively influences the use intention in online environment (Poortinga & Pidgeon, 2003). In fact, government regulation, depending on the context, can imply a supportive attitude in the condition of emergence of new technologies that can, in turn, increase user confidence and provide a favourable environment for novelty.

2.4. RISK

The risk is difficult to grasp as an objective reality, therefore the notion of perceived risk is defined as the subjective belief of the consumer of suffering a loss in the search for a desired result (Pavlou, 2003). Under this premise, consumers have personal beliefs about the risks inherent in transactions based on the limited information available to them. According to Yang et al. (2015), on the relationship between trust and risk, they affirm that it is not certain that risk is an antecedent to trust or an outcome of trust. Research by Corbitt et al. (2003) supported that good user experiences in the context of e-commerce positively influenced the perceived trust, and their perception of risk negatively influenced the perceived trust. This denotes that risk perception was the antecedent to trust in the businesses concerned. On the other hand, in the context of Fintech companies, some authors cite that the relationship between trust and risk is parallel, and that both factors together influence the willingness to adopt Fintech services (Fernando & Touriano, 2018; Hu et al., 2019).

Since Fintech is an unprecedented and emerging service, Fintech users are vulnerable to far-reaching risks and thereby the risk of the likelihood of inadequate or failed operations is very problematic for the utilization of Fintech products and services, which could be associated with a relatively high loss potential (i.e., privacy, personal data, transactions) (Stewart & Jürjens, 2018). Indeed, this also increases the perceived risk of Fintech companies by users who are sceptical about using their services.

In this research we will take as a reference the several risks classified by Ryu (2018), of which we highlight, on the one hand, the financial risk that refers to the potential financial loss in the financial transactions with Fintech companies. It is the most consistent predictor of online and mobile user behaviour (Abramova & Böhme, 2016; Hansen et al., 2018). And, on the other hand, the security risk is conceptualized as the probability of an invasion of privacy. This is increasingly a fundamental social and ethical concern among consumers (Dierksmeier & Seele, 2018; Fernando & Touriano, 2018). For instance, fraud and hacking by hackers can cause financial losses to users and violate their privacy (Lee et al., 2013).

In this regard, we want to control what the world knows about us in terms of privacy and ownership of our own data. Notwithstanding, there are very valid concerns in terms of safety and national security (e.g., the San Bernardino shooting in USA, where large segments of the population

advocated for privacy and security for themselves and they were simultaneously asking Apple to crack a phone for ensuring these types of attacks do not occur). Therefore, this alludes to a dichotomy in terms of privacy for ourselves and the broader social good. It is like a subjective aspect of ethics, which can be related to culture or what is perceived to be acceptable in society. Consequently, this phenomenon can certainly influence how governments should decide (i.e., in terms of how much to regulate, and then how to back off that regulation).

2.5. PRICE

The economic benefit is the most common and consistent extrinsic motivation for Fintech (Chuen et al., 2015). Compared to traditional financial products, the goal of Fintech companies is to offer solutions that include as many advantages as possible, such as automation, transparency, time saving and a better user experience, all this together with the advantage in price (Teigland et al., 2018). For example, in the case of roboadvisors, due to labour cost cuts, this service provides a personalized and cost-saving service to individual investors (Lee & Shin, 2018). In addition, in the context of Fintech operating with cryptocurrencies, blockchain can contribute to reducing transaction costs by sharing a digital record among competitors with the assurance that cryptocurrencies have a permanent record of transfers and ownership free of manipulation or hacking. Under this premise, in the case of Bitcoin, users may consider the lower transaction costs to be the most sought-after high value potential benefit of Bitcoin (Fosso-Wamba et al., 2020).

In this sense, some startups fail with the strategy of covering transaction fees for their customers, since their pricing model changes because of their scalability. Therefore, when they grow, rates also increase. Other Fintechs, on the other hand, choose the freemium pricing model when some products are offered for free, while the rest are commercial. They are slower to expand, but their growth may become more sustainable (Arner et al., 2017).

In short, Fintech has significant economic benefits, but it should also be perceived for its added value. Price could influence user confidence if it is inherent in the characteristic attributes of Fintech, such as better user experience, personalization, accessibility, ethical commitment, and transparency, among others.

2.6. FINANCIAL INCLUSION

Nowadays, the advancement of new technologies and the Internet has brought about a staggering transformation in financial terms in places like Asia (Arner et al., 2017), due to high penetration rates of smartphones, combined with the availability of broadband Internet access. This combination is presented alongside a feature of many emerging markets around the world: traditional banking and financial systems are often inefficient. These facts allow emerging markets to leapfrog a hundred years of development, which took place in Western markets, in a short period of a few years.

Globally, according to the World Bank (Demirguc-Kunt et al., 2018), financial inclusion is increasing worldwide. Its database indicates that 1.2 billion adults have obtained an account since 2011. This denotes a substantial increase in financial access worldwide, which is crucial when we consider that having access to banking is one of the key factors for raising people out of poverty. And access to finance increasingly means access to the internet and all things digital. This is perhaps most evident in China, where 890 million people are now using mobile phone payment apps and the transition to a cashless society has happened rapidly (Ding et al., 2018). Likewise, in the context of India, it is noteworthy that a variety of design elements of technology infrastructure have been used to support the expansion of finance to 300 million people who did not previously have access to financial services through the India Stack project (Arner et al., 2017; Zetsche et al., 2017).

In that sense, the Fintech phenomenon can promote financial inclusion and the opportunity to help more than 2 billion people who have no access to financial services around the world (Chuen et al., 2015; Loo, 2019). Thus, it is not only a boost to productivity, but also a bundle of accessible and sustainable financial solutions that reach larger groups of people in an ethically responsible way, which is one of the key elements that makes Fintech so compelling and is making a system-wide impact possible.

Notwithstanding, there are also ethical issues to consider when introducing innovative disruptions, which is rarely thought about until after the technology has been introduced. In this sense, the switch to a digital economy could also exacerbate exclusion. For instance, some disadvantaged populations in China, especially some of the elderly (118 million who live alone) have been largely blocked from participating in their vast

digital economy (Loo, 2019). Likewise, Malady (2016) argues that, although consumers may have digital banking credentials to access the digital financial system, consumers in emerging markets are not actively using digital channels due to a lack of confidence in them. This has a negative impact on digital finance-driven financial inclusion programmes in emerging and developing countries (Gabor & Brooks, 2017).

Overall, Fintech has the potential to benefit underserved communities and individuals through a large array of features, but at the same time, from an ethical standpoint, we should consider if we are really concerned enough about the elderly or the poor or those that are disadvantaged not having access to a system.

Therefore, considering the previous arguments we propose the following model (see Figure 1) whose propositions are:

- **Reputation,** based on financial companies or certifications that support Fintech companies, positively influences user confidence in them.
- The **quality of the information** provided on the website (complete, professional, and easily accessible) positively influence users' confidence in Fintech companies.
- Proper financial **regulation** has a positive impact on user confidence in Fintech companies. Specifically, government financial regulation

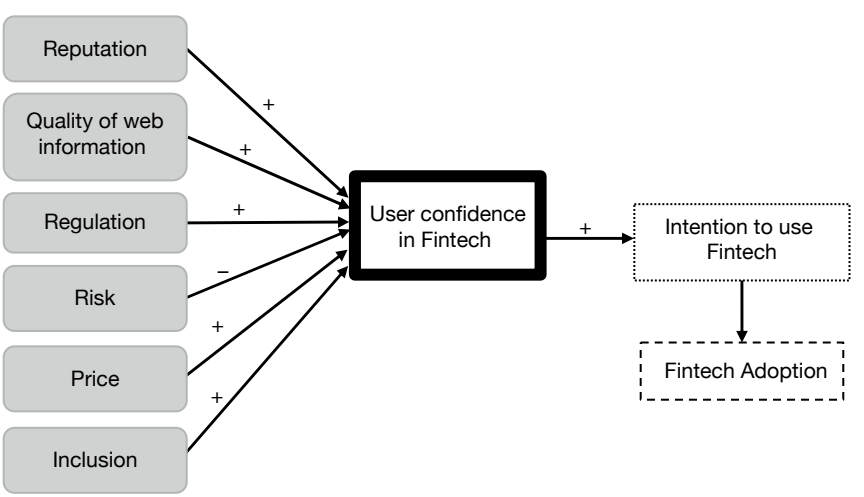

Figure 1. Model proposal: Fintech Confidence Model.

can reduce perceived risks and positively influence the intention to use Fintech services.

- The **risks** of Fintech are associated with a relatively high potential for loss in a multidimensional way, which makes users distrustful of Fintech companies.
- The economic benefit is the most common and consistent extrinsic motivation for Fintech. Therefore, if users perceive that **prices** are convenient, then this will positively influence their confidence in Fintech companies.
- Fintech companies improve access to financial services for all and provide an unprecedented opportunity for growth by democratizing the financial services they promote; this **inclusion** positively influences user confidence in Fintech companies.

3. MATERIAL AND METHODS

In order to analyse Fintech factors influencing user confidence, the contents of the main Fintech websites are first analysed and factors are assessed, to subsequently agree on their importance through a Delphi analysis with experts from around the world.

3.1. METHODOLOGICAL PROCESS OF FINTECH WEB REVIEW AND ANALYSIS

Firstly, a list of 45 Fintech platforms is randomly drawn up (using random number tables), according to data obtained from the CBInsights report *The Fintech 250: The Top Fintech Startups Of 2018,* which lists the top 250 Fintechs in the world. There is no reposition, and authors influence is controlled because of their lack of interest in any of the platforms. Determinants of each factor were developed based on literature and before the platform analysis. Two researchers review the data after the assessment of platforms, and experts show their consensus with the developed data. A comparative analysis of the information on their websites is then carried out according to the six salient factors of the Fintech phenomenon. The aim of this method is not to produce formal theories, but rather to theorize on variables specific to the Fintech phenomenon which may acquire a higher status to the extent that new studies of other

substantial areas are added. A description will be made, including conceptual ordering, coding, and constant comparison.

The factors influencing confidence in Fintech companies are classified into two or three levels and these are based on the literature sorted by year of publication (See Table 1):

After the selection of the websites, each of them is reviewed and the level is established for each factor (low-high, yes-no, low-medium-high).

3.2. DELPHI ANALYSIS TO REACH CONSENSUS ON EXPERT OPINION REGARDING THE FACTORS INFLUENCING CONFIDENCE IN FINTECH COMPANIES

This research has applied the Delphi methodology, a qualitative research method with quantitative elements, with a group of experts (academics and professionals from the Fintech sector) to reach a consensus on the influence of the six above mentioned variables on user confidence in Fintech companies. This method is suitable for this purpose, since it works as a scientifically proven survey to collect expert opinions in an interactive process that limits the sources of bias that usually exist in personal interactions (Goluchowicz & Blind, 2011; Okoli & Pawlowski, 2004). It is a particularly suitable research technique when there is an incomplete understanding of the subject matter (Okoli & Pawlowski, 2004). It is a structured, interactive group communication and judgmental forecasting process, which has the purpose of facilitating a systematic exchange of informed opinions among a panel of experts to develop a consensual understanding on a topic, particularly in situations characterized by uncertainty. It this context, the Delphi method has proven to be effective (Donohoe & Needham, 2009).

In this research 3 rounds were carried out, in which the experts have worked using the same structured questionnaire of 6 questions (one on each of the six highlighted factors). For each question, the expert was asked to choose the answer on a 5-point Likert scale (from totally disagree to totally agree). The questions are presented in Appendix 1. After each round, each participant received feedback of the group responses from the moderator-researcher, so that he/she could compare his/her answers with those of the group, evaluate them and respond in the next round. By anonymizing expert contributions, influences such as reputation,

Table 1. Criteria for the classification of the six factors in web analysis

Criterion	References	Classification	Definition
REPUTATION	Antony et al. (2006); Kim et al. (2008); Campbell et al. (2014)	**HIGH** **LOW**	Third party support (investors and certifications). Score equal to or greater than 20 is high; if less than 20, it is low.
QUALITY OF INFORMATION	Kim et al. (2008); Yoon & Occeña (2015); Chuang et al. (2016)	**HIGH** **MEDIUM** **LOW**	Presentation of complete, easily accessible, and useful information about the company and its products/ services.
REGULATION	Arner et al. (2017); Bromberg et al. (2018); Magnuson (2018); Hagendorff(2020)	**YES** **NO**	Compliance with the competent financial regulations for its operation.
RISK	Arner et al. (2017); Magnuson (2018); Ryu (2018); Burr et al. (2019); Argandoña (2021)	**HIGH** **LOW**	Existence of uncertainty regarding data security and privacy, little or no transparency of information on the services offered.
PRICE	Chuen et al. (2015); Chishti & Barberis (2016); Li et al. (2017)	**HIGH** **LOW**	Presentation of payment methods and their flexibility.
INCLUSION	Zetsche et al. (2017); Ding et al. (2018); Sanchis & Campos (2018); Loo (2019)	**YES** **NO**	Promotion of greater access, democratization of financial services and welfare for users.

overwhelming personality and rhetorical ability are excluded. With several rounds of evaluations, the results can be perfected by reflecting on previous expert assessments, which typically (though not necessarily) allow the convergence of ideas.

In Table 2 below we can see a summary of the process concerning the evaluation and operation of the Delphi method used:

Table 2. Delphi data collected and analysed

Delphi data collected (December 2019 to January 2020)	
Evaluating with Delphi	
Summary of the procedure	The researchers detected a problem (user confidence in Fintech determined by 6 prominent factors), and in consequence designed a questionnaire that was sent to experts in the field. Feedback was then given to each participant, asking them to review their original responses before replying again. This process was reiterated until the experts reached a satisfactory degree of consensus in the third round.
Representativeness of the sample	The Delphi virtual panel experts were not chosen statistically, but by using two criteria: in the case of academics, publication of research related to Fintech; in the case of professionals, work or collaboration with Fintech companies in recent years.
Sample size for statistical power and significant findings	The Delphi Panel is made up of 11 experts from a total of 26 possible candidates. Countries represented: Spain, France, Germany, USA, Algeria, United Kingdom, Singapore, and Ukraine.
Individual vs. group response	The group response is more cohesive in questions requiring experts' judgements (they have provided their opinions and comments in each round).
Reliability and response review	A pre-test of the questionnaire was previously done with 4 non-experts. Subsequently, the experts also had the opportunity to give their opinion and comment on the questions in all the rounds, thus ensuring their credibility.
Construct validity	Construct validity is assured, as experts validate the researchers' interpretation and categorization of the variables.

(Continued)

Table 2. Delphi data collected and analysed *(Continuation)*

Delphi data collected (December 2019 to January 2020)	
Evaluating with Delphi	
Anonymity	Participants are always anonymous in relation to each other, but never with the moderator.
Non-response issues	None, all participants answered all questions.
Attrition effects	There were no dropouts.
Richness of data	Response review based on feedback and issues about trust in Fintech and its determinants open to debate.
Experts	Sheludko, Sergii; Igual Molina, David; Parker, Chris; Argandoña, Antonio; Chemseddine, Tidjani; Canedo Saez, Cesar and four participants who prefer to remain anonymous.
Operating with Delphi	
Round number	Three rounds (each round had a maximum of three petitions for each expert, with a time gap of 10–15 days)
Response time	Response time: an average of 13 days (19 days in the first round, 12 days in the second round, and 8 days in the third round).
Contact Form	Email survey with GoogleForms.
Survey Type	Structured Survey
Consensus	IQRs ranged from 0.00 (most agreement) to 3.00 (least agreement), or a GC between 0 and 1.

Source: application and adaptation of Okoli and Pawlowski (2004)

For the selection of experts, two conditions were established, in the case of academics, who have published in journals catalogued on the Web of Science (Wos) or in the Scholarly Publisher Indicator (SPI). In the case of professionals, who have devoted the last 4 years of their working life to activities inherent in the Fintech field or, for at least 2 years, have used the services of a Fintech or collaborated with a Fintech for the performance of their work in the financial sector. In addition to the above criteria, the place where they carried out their research or work activity should be in countries where there is a significant penetration concerning the adoption of Fintech products and services. This will allow us to appreciate a comprehensive

and, at the same time, close approach to the context in which the participants are immersed. Initially, 26 experts (13 academics and 13 professionals) were contacted, 11 of whom have shown interest in participating and will therefore constitute the panel: 7 academics and 4 professionals.

Quantification of the degree of consensus among Delphi panellists is an important component of the analysis and interpretation of Delphi data (Förster & von der Gracht, 2014). Among others, Interquartile Range (IQR) is often used as a measure of consensus in the literature on the Delphi method because of its robustness as a statistical measure (Ray & Sahu, 1990). There are various criteria for establishing the moment when experts reached a consensus, some authors believe that 1 is sufficient as an appropriate consensus indicator for a scale of 4 or 5 units (Raskin, 1994; Rayens & Hahn, 2000). Under this premise, in this research, an IQR of less than 1 means that more than 50% of all opinions are located at a certain point on the Likert scale, thus reaching a consensus. A zero IQR indicates a perfect consensus among panel members: the higher the IQR, the greater the dispersion of the data. Similarly, some authors consider that a relative IQR is adequate to assess the degree of convergence of the group's views (Landeta, 2006; Ray & Sahu, 1990), especially the convergence of views on each statement in successive rounds. In the present study, therefore, the consensus approach adopted was the latter, which is known as convergence group opinions (CG). A CG close to 1.0 indicates a high degree of convergence of opinions of the group (Ray & Sahu, 1990). For all the six questions, the following statistical parameters have been calculated: mean, standard deviation, CG and IQR. Regarding reaching consensus, the IQR best represents the concentration of responses in each round. As a complement, the CG shows the transition and amount of convergence for each proposition in relation to the agreement or disagreement from one round to another.

4. RESULTS AND DISCUSSION

Analysis was carried out in two stages. The first stage was to assess the quality level of the six factors identified through the web analyses of 45 Fintech companies (see Table 3). The second stage was based on evaluating, using the Delphi method, the assessments given by the panel to confirm the influence of the six factors on user confidence in the Fintech platforms (see Table 4).

Table 3. Summary of assessment for the 45 Fintech companies

1. Reputation			2. Quality of website information			3. Regulation			4. Risk			5. Price			6. Inclusion		
High	21	47%	High	3	7%	Yes	43	96%	High	32	71%	High	5	11%	Yes	33	73%
Low	24	53%	Medium	22	49%	No	2	4%	Low	13	29%	Low	32	71%	No	12	27%
			Low	20	44%							No data	8	18%			

Table 4. Summary statistics of the Delphi process

	Statistics	1. Reputation	2. Quality of website information	3. Regulation	4. Risk	5. Price	6. Inclusion
Round 1	Mean	4.6	4.0	4.2	3.5	3.7	3.5
	IQR	1	2	1	1	2	2
Round 2	Mean	4.6	4.4	4.4	3.5	3.5	3.6
	IQR	1	1	1	1	1	3
Round 3	Mean	4.5	4.5	4.2	4.0	3.5	3.6
	IQR	1	1	1	0	1	3
	CG (R2 to R3)	0	0	0	**1**	0	0

As far as the first stage is concerned, a sequential process has been carried out. The data of the factors to be evaluated in the web platforms have been searched, and subsequently they have been assessed by means of an objective and structured assignment in a comparative table (quantifying the percentage according to each factor that had been previously scaled). This has allowed us to see that many aspects developed on the characteristics of the six relevant factors of Fintech match what they display on their websites (see Appendix 2). The results indicate that most are Fintech companies with much of their reputation based on third parties, presenting a good quality of web information in form and content, with some risk in terms of information and operational transparency, with flexible and convenient pricing schemes for the market and promoting financial inclusion.

In particular, the results show that, in terms of reputation, although all companies have large investments from reputable financial institutions

in monetary terms through funding rounds for this purpose, not all of them show the backing of their investors and certifications that endorse them as reliable entities. Fifty-three percent of them having less than 20 investors and/or certifications, which indicates a low reputation, less consolidated; on the contrary, 47% have more than 20 investors and/or certifications. The information shown in this regard did not indicate more than 3 or 4 certifications per entity, therefore the name and number of investors were what essentially mattered as reputational support.

However, the quality of website information is rated as medium, since they presented relatively complete, accessible, and useful information about the company and its business model (49%). Fourty-four percent were low, since they presented little content, sometimes incomplete. This fact was presented mainly in companies dedicated to segments of investments or blockchain operations in their business model. On the other hand, a minority percentage of 7% was high, mainly focused on online payment systems.

Concerning regulation, almost all of them comply with the relevant regulations for their operation (96%). All companies are located in different latitudes where the Fintech phenomenon has penetrated and, although the regulatory frameworks are different, they have shown compliance with the regulations that concern them for their operation, even in countries where there is a lax regulatory framework such as Brazil, China and India. In contrast, 4% represent companies that report that part of their operation is not regulated.

As regards risk, there is a high risk regarding the security and privacy of consumer data (71%). In this context, although there is a privacy policy for data processing, the risks have an operational and security nuance, since the information provided is not transparent and is not entirely clear in relation to the services offered. This happens mainly when they are focused on the B2C segment and operate internationally. For example, companies that manage cryptocurrencies like Circle, or in the case of Chinese companies like Ant Financial and Lufax present in many verticals with specialized technology, especially those related to wealth management and blockchain technology services. These facts indicate that when these companies achieve significant growth, they seek to be contacted by other companies or consumers to report in more detail on their offers, thus showing only specific and limited information. In contrast, the remaining 29% are companies that comply with an adequate data and security policy and show information transparency inherent in their

functioning and their products/services offered (e.g., payment platforms, insurance, loans, and cloud services).

The price is very variable as there is a wide variety of modalities according to the vertical in question. Seventy-one percent of companies opt for flexible pricing models, including free and no commission in the case of vertical payments and digital banking. Also noteworthy are P2P loans and insurance with a wide range of more customized options. Eleven percent of companies have a clear tendency to focus on Premium modalities, which is the case of B2B companies that base their business model on the automation of various processes with specialized software and artificial intelligence. On the other hand, there are also 18% of companies that do not have explicit data on price modalities (sometimes with a high quality of information and low risk). This indicates that, although price can be a significant factor, at least of first order (compared with the financial products of traditional banking), in these cases it is an element that they keep as a key factor. In fact, they do not want to show it on their website initially because possibly their target audience could rule out many trades just for the price.

Finally, with reference to inclusion, there is a large percentage of companies showing information on their activity aimed at a commitment to greater access to financial services (73%), particularly focused on B2C solutions and business models oriented to digital wallets, payments, microcredits, insurance, P2P lending and crowdfunding. While those that focus on providing B2B solutions are less inclusive (27%), this is the case of platforms that use blockchain technology for regulatory compliance, securities trading, automation of billing and payment processes, as well as the use of artificial intelligence for biometric verifications, among others.

In order to give robustness to the assessment of the six factors, in the second stage we have proceeded to analyse the existence of consensus among the experts regarding the objective assessments made on the basis of the revised web information. Thus, the Delphi method applied with eleven experts from around the world has allowed us to confirm that there is consensus regarding the effect of positive influence on user confidence in Fintech by reputation, quality of web information, regulation, price and financial inclusion; on the contrary, the risk (particularly security and privacy) has a negative impact on user confidence in Fintech (see Appendix 3). In this context, the quartiles are very close in the case of all variables (all IQRs varied between 0.00 and 3.00). The inclusion IQR is 2 in the first two rounds and 3 in the last one, therefore, it is the vari-

able with the least agreement. In contrast, price and quality of web information have changed from less agreement (2 in both cases) to more agreement (1) in the last two rounds. The regulation and reputation have remained constant at 1 in all rounds, showing continuous agreement from experts. Finally, it should be noted that risk (IQR with a score of 1 in the last round) has reached the most agreement and consensus. Likewise, the convergence group opinion (CG) clearly shows that, at the end of the last round, a consensus was reached on the propositions expressed in each of the six questions. Of these, five show consensus with a value of 0, while the one concerning risk presents a perfect consensus with a value of 1.

After these two stages, the results are consensual and robust. We have been able to show that, although the analysis of websites resulted in a greater number of inclusive Fintech companies, Delphi experts diverge on this, since they claim that financial inclusion integrates 3 situational elements: the willingness and ability to manage digital services by users, to have a business model oriented towards it and that there is a regulatory framework to promote it. This is clearly one of the future challenges that will transform by bringing ethics to the core of financial ecosystem and that will certainly benefit society. On the other hand, the price presents different flexible and convenient modalities for the users, which constitutes an extrinsic motivation to acquire Fintech solutions. However, the experts agree that price can contribute to a greater confidence if it is in conjunction with the benefits perceived by the user (i.e., a better user experience, customized financial services, and ubiquity, among others). Thus, the importance and relevance of Fintech can be perceived in different ways according to the factor and its respective optics of analysis. However, the type of user can also form a differential feature in terms of their priorities in adopting Fintech, as their personality, experience and social influence could influence their beliefs, attitudes and behaviour. In that context, a less conservative user may prefer to use Fintech applications simply for the convenience of service and the quality of information perceived on their website; on the contrary, a more conservative and private user in terms of technology use, shall only engage with reputable entities. Similarly, some users may rely more on the recommendations of friends and family than on the information presented on the Fintech website.

In reference to emerging markets, there is a gradual and constant irruption of Fintech in financial services. Its development is based on

the type of users and the type of financial services offered. Therefore, there is a clear trend towards ethically minded millennials and unbanked user segments, and at the same time, there is more demand for verticals such as P2P lending, crowdfunding, and financial advisory. This pattern of Fintech adoption is striking, as it reflects neither economic development nor political boundaries. In a way, the development of Fintech represents an incredible market opportunity for emerging countries. Unfortunately, they often must build several infrastructures in order to succeed.

5. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

This paper has analysed the factors that increase the confidence of Fintech users through a two-stage investigation. Firstly, a content analysis of the top 45 Fintechs to assess the salient factors; secondly, a Delphi with eleven experts to demonstrate the level of consensus on these factors that influence confidence in Fintech firms.

Trust in Fintech has so far focused on analysing it in conjunction with risk, or being determined by data security (Fernando & Touriano, 2018; Stewart & Jürjens, 2018). This paper extends the literature of trust in Fintech by exploring in depth the mechanism of influence of trust in Fintech companies by users, focusing on the most prominent determinants of the Fintech phenomenon as the main factors influencing users. We identified a total of six factors influencing trust in Fintech, which are reputation, quality of website information, regulation, risk, price, and inclusion.

The results show that in the user-Fintech duality, *reputation* is a component that has an important and positive impact on user confidence, so that third-party backing establishes an underlying indirect confidence mechanism. The *information quality* also has a positive influence on the user's confidence, but its priority and importance depend on the type of user and how the user perceives the intention of the company regarding the information provided. *Regulations* that promote user protection and market integrity have a positive effect on users' confidence in Fintech. Notwithstanding, regulations are often retroactive and reactionary and do not possess the prospective aspect of ethics; thus, authorities will need to apply a mixture of prudence and determination to regulate Fintech innovations properly. The potential *risks* associated with Fintech com-

panies lead to user distrust. However, this may vary depending on the context, their knowledge, and their intrinsic and personal background. *Price* is the most common extrinsic motivation for Fintech which, along with the convenience, ethical business culture / techno ethical culture, customization, and best user experience provided by Fintech, positively influences user confidence. The *inclusiveness* and promotion of the financial democratization of Fintech companies positively influence users' confidence in them. In form, this fact can be conceived as ethical; in substance, it does not benefit everyone equally.

Moreover, this study proves the applicability of the trust transfer theory and extends it in the new context of Fintech companies, bringing a more thorough understanding of the mechanism of confidence that exists in the duality user-Fintech company, in which there is certainly a conditioning of external factors in the user's perceptions and, therefore, in their behavioural intentions regarding the adoption of financial technology. It reflects that in Fintech area the trust is an effective mechanism to promote the ethical culture.

This research also has several practical implications. Firstly, the results are useful for Fintech companies and other traditional financial institutions (such as banks) to understand user needs and design more ethically efficient solutions. Secondly, we help to make society aware of the fact that there are ethical and innovative financial alternatives and we promote the knowledge of inclusive financial alternatives for a better society. Especially in emerging markets, where Fintech, cemented on an ethically solid groundwork, has an incredible market opportunity.

However, there are some limitations that should be considered in our study. Firstly, regarding the analysis of websites, the information which is not provided in them concerning the study variables does not mean that it does not exist for each company. Therefore, while this research is significant, to generalize it globally it would be advisable to carry out the analysis by taking a larger number of Fintech companies. Secondly, the study was conducted in a specific time-point, but perceptions change with the passage of time and the advancement of technology. Therefore, it would be interesting to focus on areas inherent to Fintech with eminent interest such as Regtech or Blockchain in the future, or also a virtue ethics view.

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APPENDICES

APPENDIX 1. DELPHI QUESTIONNAIRE

The main objective of this study is to determine the influence of certain factors (inclusion, risk, quality of website information, reputation, regulation, and price) on user confidence in Fintech companies from a global perspective.

For this research we use the Delphi method, which involves successive questioning of the individual experts (3 rounds), with the aim of obtaining an increasingly consensual response about the Fintech issue among experts. In each of these rounds (with the same questions), the panel of experts receives the results from the previous round (controlled feedback process). All answers will be based on the principle of anonymity and independence of judgement.

Thank you in advance for completing this questionnaire. We estimate it will take three to six minutes of your time.

What level of knowledge about Fintech do you think you have?

-1 2 3 4 5 6 7 8 9 10 +

1. **Reputation has great influence on user's confidence toward Fintech. For instance, a user could spend lots of time on choosing a Fintech service with a good reputation. If there are third parties like major banking firms, financial companies or certifications/acknowledgements that support the company's business, then a user will have more confidence in the company and will prefer to choose their services?**

Strongly disagree 1 2 3 4 5 Strongly agree

Please share any additional comments or opinions you have about the above statement and your given answer:

2. **The information quality provided on the Fintech website is very important. In this regard, do you think that a sceptical user can have more confidence in those Fintech that can provide complete, professional and easily accessible information?**

Strongly disagree 1 2 3 4 5 Strongly agree

Please share any additional comments or opinions you have about the above statement and your given answer:

3. Proper financial regulation can have a positive impact on user confidence in Fintech companies. For instance, government regulation in financial matters can reduce perceived risks and positively influence use intention in an online environment (ensuring not only privacy and consumer data protection, but also promoting financial stability and competition in the market).

Strongly disagree 1 2 3 4 5 Strongly agree

Please share any additional comments or opinions you have about the above statement and your given answer:

4. The use of Fintech is associated with a relatively high loss potential in a multidimensional manner (financial losses, operational and security issues). These major risks, among others, would lead users to distrust Fintech. For instance, in case of possible financial losses of Fintech caused by the malfunctioning of the system of financial transactions, the lack of operational capacity or the inadequacy of internal processes.

Strongly disagree 1 2 3 4 5 Strongly agree

Please share any additional comments or opinions you have about the above statement and your given answer:

5. Economic profit is the most common and consistent extrinsic motivation for Fintech. In that context, some Fintech applications (e.g., mobile remittances or P2P loans) may suggest to users lower transaction costs than traditional financial service providers by directly providing standardized services in a mobile channel without intermediation. Therefore, users may feel more confidence in these Fintech companies.

Strongly disagree 1 2 3 4 5 Strongly agree

Please share any additional comments or opinions you have about the above statement and your given answer:

6. Fintech companies enhance the accessibility of financial service to all people and provide unprecedented opportunity for growth, especially for the unbanked and underbanked. In that sense, do you think that the democratization of financial services positively influences users' trust in Fintech?

Strongly disagree 1 2 3 4 5 Strongly agree

Please share any additional comments or opinions you have about the above statement and your given answer:

APPENDIX 2. WEB ANALYSIS OF 45 FINTECH COMPANIES (CBINSIGHTS 2018 REPORT)

CLASSIFICATION OF FINTECH COMPANIES

Name	Headquarter	Website	Description
STRIPE	San Francisco, California (USA)	https://stripe.com/	It is a web and mobile-based payment processing platform that allows individuals and businesses to accept online payments. It provides the technical, fraud prevention and banking infrastructure needed to operate online payment systems.
COINBASE	San Francisco, California, USA	https://www.coinbase.com/	It is a bitcoin wallet and platform where merchants and consumers can transact with digital currencies like Bitcoin, Ethereum, and Litecoin.
AFFIRM	San Francisco, California, USA	https://www.affirm.com/	It is a consumer finance company that seeks to provide shoppers with instant point-of-sale financing for online purchases. Affirm empowers shoppers to buy now and pay later in monthly instalments and at reasonable interest rates through its transparent financing solutions.
OSCAR	New York, USA	https://www.hioscar.com/	It is a technology-driven, consumer-focused, health insurance company using technology and personalized service to give members transparency into the health care system and empower them to choose quality, affordable care.
TRADESHIFT	San Francisco, California, USA	https://tradeshift.com/	It is a cloud-based platform that provides invoicing, workflow, and supplier financing processes solutions for businesses.

1. Reputation	2. Information quality	3. Regulation	4. Risk	5. Price	6. Inclusion
High	High	Yes	High	Low	Yes
High	Medium	Yes	Low	Low	Yes
High	High	Yes	Low	Low	Yes
High	Low	Yes	High	High	Yes
High	Low	Yes	High	No explicit data	No

(Continued)

CLASSIFICATION OF FINTECH COMPANIES *(Continuation)*

Name	Headquarter	Website	Description
GUSTO	San Francisco, California, USA	https://gusto.com/	It is an online platform that consolidates a company's payroll system, benefits information, and HR in one place.
CIRCLE	Boston, Massachusetts, USA	https://www.circle.com/es/	It is a peer-to-peer cryptocurrency payments technology company that allows users to convert, store, send and receive digital money.
KABBAGE	Atlanta, Georgia, USA	https://www.kabbage.com/	It is an automated money lending platform that allows businesses and individuals to receive working capital loans.
ROOT INSURANCE	Columbus, Ohio, USA	https://www.joinroot.com/	It is an insurance company that creates personalized products to give good drivers the protection they deserve. It incorporates individual driving behaviour into every quote, thus calculating insurance premiums based on driver behaviour
SYMPHONY COMMUNICATION	Palo Alto, California, USA	https://symphony.com/en-US	It is a cloud-based messaging and collaboration platform that allows employees to communicate with team members, share documents and conduct meetings.
UIPATH	New York, USA	https://www.uipath.com/	It is a robotic process automation (RPA) company that delivers free and open training and collaboration and enables robots to learn new skills through AI and machine learning. The technology is used by thousands of companies, particularly in document management, contact center, healthcare, finance and accounting, human resources, and supply chains.

1. Reputation	2. Information quality	3. Regulation	4. Risk	5. Price	6. Inclusion
High	Medium	Yes	High	Low	Yes
High	Low	Yes	High	Low	Yes
High	Medium	Yes	High	Low	Yes
High	Medium	Yes	Low	Low	Yes
High	Medium	Yes	Low	No explicit data	No
Low	Medium	Yes	High	High	Yes

(Continued)

CLASSIFICATION OF FINTECH COMPANIES *(Continuation)*

Name	Headquarter	Website	Description
ROBINHOOD	Menlo Park, California, USA	https://robinhood.com/	It is a web-based trading platform that offers automated investment management and financial advisory solutions for individuals and businesses.
NUBANK	Sao Paulo, Brazil	https://nubank.com.br/	It is a technology-driven financial services startup. Nubank works to redefine the standard in financial services in Brazil by offering a no-fee credit card that is managed through a mobile app as well as a digital account.
REVOLUT	London, England	https://www.revolut.com/en-ES/	It develops a SaaS-based platform that offers digital banking solutions for businesses and individuals.
ANT FINANCIAL	Hangzhou, Zhejiang Province, China	https://www.antfin.com/	It is an online platform that offers micro-lending, digital banking, and payment solutions for businesses and individuals. It is dedicated to building an open ecosystem of technologies, while working with other financial institutions to support the future financial needs of society.
TIGER BROKERS	Beijing, China	https://www.itiger.com/	It provides brokerage services for Chinese investors wanting to invest in overseas securities, particularly stocks listed on the U.S. and Hong Kong exchanges.
POLICYBAZAAR	Gurgaon, Haryana, India	https://www.policybazaar.com/	It is an online platform that enables users to compare, analyse and buy life, health, and motor insurance products.

1. Reputation	2. Information quality	3. Regulation	4. Risk	5. Price	6. Inclusion
High	Low	Yes	High	Low	Yes
Low	Low	Yes	High	Low	Yes
High	Medium	Yes	High	Low	Yes
High	Medium	Yes	High	No explicit data	Yes
Low	Low	Yes	High	Low	No
Low	Medium	Yes	High	Low	Yes

(Continued)

CLASSIFICATION OF FINTECH COMPANIES *(Continuation)*

Name	Headquarter	Website	Description
PAYTM	Noida, Uttar Pradesh, India	https://paytm.com/	It is an Indian mobile commerce platform that offers prepaid mobile, data card and utility recharge services.
KLARNA	Stockholm, Sweden	https://www.klarna.com/international/	It offers safe and easy-to-use payment solutions to e-stores with the ambition to make e-commerce safer, simpler, and more fun. At the core of Klarna's services is the concept of after delivery payment, allowing buyers to receive ordered goods before any payment is due. At the same time, Klarna assumes all credit and fraud risk for e-stores.
AXONI	New York, USA	https://axoni.com/	It is a provider of blockchain infrastructure and data privacy solutions for the financial institutions and capital markets.
CHAINALYSIS	New York, USA	https://www.chainalysis.com/	It is the blockchain analysis company. It develops a compliance software that allows financial institutions to detect and investigate cryptocurrency money laundering and violations.
XAPO	Hong Kong	https://xapo.com/en/	It combines the convenience of an everyday wallet with the security of a cold-storage Vault. The company's experienced financial services and security are dedicated to building products to manage all bitcoin needs.

1. Reputation	2. Information quality	3. Regulation	4. Risk	5. Price	6. Inclusion
Low	Medium	Yes	Low	Low	Yes
High	Medium	Yes	Low	Low	Yes
High	Low	Yes	High	No explicit data	No
Low	Low	Yes	High	No explicit data	No
Low	Medium	Yes	High	Low	Yes

(Continued)

CLASSIFICATION OF FINTECH COMPANIES *(Continuation)*

Name	Headquarter	Website	Description
BEHALF	New York, USA	https://www.behalf.com/	It is a financing provider that facilitates commerce between business to business vendors and their small and medium business customers. Driven by data and technology, Behalf allows vendor partners to offer business customers instant credit and flexible payment terms at the point of sale.
CAPITAL FLOAT	Bangalore, Karnataka, India	https://www.capitalfloat.com/	It is a digital finance company and provides collateral free-unsecured business loans in India online with easy documentation and instant approval for small businesses.
FUNDING SOCIETES	Central Region, Singapore	https://fundingsocieties.com/	It is a digital financing platform. It provides business financing to small and medium-sized enterprises (SMEs), which is crowdfunded by individual and institutional investors.
MARKETIN-VOICE	London, England	https://www.marketinvoice.com/	It is a peer-to-peer invoice finance platform. Businesses can choose between having an open funding line against their outstanding invoices or decide which invoices they want to finance, unlocking tied-up cash in as little as 24 hours at competitive rates.
IEX GROUP	New York, USA	https://iextrading.com/	It is an online trading marketplace that provides fair-access platform for registered broker dealers. It seeks to provide a more balanced Marketplace via simplified market structure design and cutting-edge technology.

1. Reputation	2. Information quality	3. Regulation	4. Risk	5. Price	6. Inclusion
High	Medium	Yes	High	Low	Yes
Low	Low	Yes	High	High	Yes
Low	Low	Yes	High	Low	Yes
Low	Low	No	High	Low	Yes
Low	Medium	Yes	High	Low	No

(Continued)

CLASSIFICATION OF FINTECH COMPANIES *(Continuation)*

Name	Headquarter	Website	Description
NEIGHBORLY	San Francisco, California, USA	https://neighborly.com/	It is a financial technology platform that allows municipal finance professionals to make investments in civic-natured projects.
RISKALYZE	Auburn, California, USA	https://www.riskalyze.com/	It develops a technology platform to capture a quantitative measurement of client risk tolerance for investment advisors.
CREDIT KARMA	San Francisco, California, USA	https://www.creditkarma.com/	It is a digital finance platform that offers credit score monitoring and reporting solutions to individuals.
JUVO	San Francisco, California, USA	https://juvo.com/	It is a cloud-based platform that provides mobile users with identity scoring for getting access to personalized financial services.
NAV	Draper, Utah, USA	https://www.nav.com/	It is an online platform that allows business owners and individuals to access financial reports, personalized insights, and credit scores.
ANGELLIST	San Francisco, California, USA	https://angel.co/	It is a website that matches high-tech startups with venture capitalists.
GOFUNDME	Redwood City, California, USA	https://www.gofundme.com/	It is an American crowdfunding platform that allows people to raise funds for events ranging from celebrations and graduations to difficult circumstances such as accidents and illnesses.
CIRCLEUP	San Francisco, California, USA	https://circleup.com/	It is the investment platform providing capital and resources to early-stage consumer brands with a modern, scalable approach to private markets.

1. Reputation	2. Information quality	3. Regulation	4. Risk	5. Price	6. Inclusion
Low	Low	Yes	High	No explicit data	Yes
Low	Low	Yes	High	High	No
Low	Low	No	High	Low	Yes
Low	Low	Yes	Low	Low	Yes
Low	Medium	Yes	Low	Low	Yes
Low	Low	Yes	Low	Low	Yes
Low	Medium	Yes	Low	Low	Yes
Low	Medium	Yes	Low	Low	Yes

(Continued)

CLASSIFICATION OF FINTECH COMPANIES *(Continuation)*

Name	Headquarter	Website	Description
CLOUD9 TECHNOLOGIES	New York, USA	https://c9tec.com/	It offers a cloud-based, voice trader communications platform, a digital trading solution for the voice trading community. The platform offers immediate access to a pool of liquidity; interoperability with third-party systems; and real-time provision of audio, trading metadata, and transcription.
OPENFIN	New York, USA	https://openfin.co/	It develops an OS integration platform that enables banks and financial institutions to deploy desktop applications.
QUOVO	New York, USA	https://www.quovo.com/	It develops an API management toolkit that offers account aggregation and data analytics solutions for the finance sector.
LENDUP	San Francisco, California, USA	https://www.lendup.com/	It is an online lending platform that offers short term loans to borrowers with poor credit scores.
LUFAX	Shanghai, China	https://www.lu.com/	It is an online platform that offers P2P lending, financial asset transaction and wealth management solutions for individuals and businesses.
WELAB	Hong Kong	https://www.welab.co/en	It is an online lending platform that provides unsecured personal loans to borrowers based on creditworthiness.
LEMONADE	New York, USA	https://www.lemonade.com/de/en	It is a licensed insurance carrier offering homeowners and renters insurance powered by artificial intelligence and behavioural economics.

1. Reputation	2. Information quality	3. Regulation	4. Risk	5. Price	6. Inclusion
Low	Low	Yes	High	Low	No
Low	Medium	Yes	High	Low	No
Low	Medium	Yes	High	Low	Yes
High	Low	Yes	High	Low	Yes
High	Low	Yes	High	Low	Yes
High	Low	Yes	High	No explicit data	Yes
Low	Medium	Yes	Low	Low	Yes

(Continued)

CLASSIFICATION OF FINTECH COMPANIES *(Continuation)*

Name	Headquarter	Website	Description
TROV	Danville, California, USA	https://www.trov.com/	It is a provider of digital insurance solutions for businesses in the finance, insurance, mobility, and retail sectors.
AVIDX-CHANGE	Charlotte, North Carolina, USA	https://www.avidxchange.com/	It develops an account payable software that offers invoice management and payment automation solutions for businesses.
ONFIDO	London, England	https://onfido.com/use-cases/kyc	It is an AI-based platform that provides document identification and facial biometrics verification solutions for businesses.

1. Reputation	2. Information quality	3. Regulation	4. Risk	5. Price	6. Inclusion
Low	Medium	Yes	High	Low	No
High	Medium	Yes	High	High	No
High	High	Yes	Low	No explicit data	No

APPENDIX 3. SUMMARY OF DELPHI ROUNDS RESPONSES

Participants	1. Reputation	2. Quality of website information	3. Regulation	4. Risk	5. Price	6. Inclusion
P1	5	5	4	5	3	5
P2	5	5	5	3	3	4
P3	3	4	4	4	4	5
P4	5	5	5	4	4	4
P5	5	5	4	4	4	3
P6	5	3	5	2	5	5
P7	5	4	3	3	4	4
P8	4	4	5	3	3	3
P9	5	3	5	3	5	4
P10	5	2	1	5	1	1
P11	4	4	5	3	5	1
Mean	**4,6**	**4,0**	**4,2**	**3,5**	**3,7**	**3,5**
IQR1	**1**	**2**	**1**	**1**	**2**	**2**

Participants	1. Reputation	2. Quality of website information	3. Regulation	4. Risk	5. Price	6. Inclusion
P1	5	5	4	4	3	5
P2	5	5	5	4	4	5
P3	5	5	5	4	4	4
P4	5	5	5	2	3	4
P5	5	4	4	4	4	4
P6	4	5	5	4	4	5
P7	5	4	4	3	4	4

P8	4	5	5	2	3	2
P9	5	4	5	4	4	5
P10	5	3	1	5	1	1
P11	3	3	5	3	5	1
Mean	**4,6**	**4,4**	**4,4**	**3,5**	**3,5**	**3,6**
IQR2	**1**	**1**	**1**	**1**	**1**	**3**

Participants	1. Reputation	2. Quality of website information	3. Regulation	4. Risk	5. Price	6. Inclusion
P1	5	5	5	4	4	5
P2	5	5	4	4	4	5
P3	4	4	5	4	4	5
P4	5	5	5	3	4	4
P5	5	4	5	4	4	4
P6	5	5	5	4	4	5
P7	4	4	4	4	4	4
P8	4	5	4	3	2	2
P9	5	4	4	4	4	4
P10	5	5	1	5	1	1
P11	3	3	4	5	3	1
Mean	**4,5**	**4,5**	**4,2**	**4,0**	**3,5**	**3,6**
IQR3	**1**	**1**	**1**	**0**	**1**	**3**
CG (R2 to R3)	**0**	**0**	**0**	**1**	**0**	**0**