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ASSESSING THE RISKS OF FINTECH DEVELOPMENT: THE CASE OF ONLINE ILLEGAL CAPITAL RAISING

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Abstract. This study examines the impact of financial technology (FinTech) on online illegal capital raising (ICR) in China. Using a large dataset of court judgments from China Judgment Online from 2014 to 2019, we observe a steady increase in the number and proportion of defendants involved in online ICR cases. Our empirical analysis shows that FinTech contributes significantly to the increase in online ICR, particularly in regions with low opportunity costs of crime and limited access to traditional financial services. The findings remain robust to different FinTech proxies, sample adjustments, and considerations of potential endogeneity. Weak regulatory oversight and higher potential criminal returns are key channels through which FinTech promotes online ICR. These findings highlight the need for stronger financial regulation, especially in high-risk regions, alongside efforts to improve public awareness of online investment risks. Strengthening regulation while promoting the positive role of FinTech in financial development is critical to mitigating emerging financial risks.

Keywords: FinTech, online illegal capital raising, financial regulation, crime rate.

JEL Classification: G23, G41, O33.

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1. Introduction

Financial technology (FinTech) is transforming the financial services industry. By leveraging advanced data analytics, the widespread availability of big data and alternative data sources, and the proliferation of smartphones, FinTech is making financial services more convenient, accessible, and efficient (Ibish & Nedelkovska, 2018; Gomber et al., 2017). These advances are particularly impactful in emerging and developing economies, where FinTech has the potential to significantly increase financial inclusion and market efficiency (Goldstein et al., 2019; Allen et al., 2022). However, this wave of innovation also brings with it a number of unforeseen challenges. As the pace of FinTech evolution often outpaces the adaptability of existing regulatory frameworks, it opens the door to hidden and complex risks (Walch, 2015; Zetzsche et al., 2017; Magnuson, 2018), including the amplification of illicit activities such as fraud and money laundering (Jagtiani & John, 2018; Griffin et al., 2023).

The Financial Action Task Force (FATF) has highlighted a significant global increase in cyberfraud cases that exploit vulnerabilities in non-traditional platforms such as digital financial institutions, e-commerce, and social media (Financial Action Task Force [FATF] et al., 2023). These digital technologies have enabled criminals to expand and accelerate their illicit financial activities, both in terms of scale and speed (Griffin et al., 2023; Deloitte, 2018). Among the most concerning of these crimes are online illicit fundraising schemes, which often involve large numbers of victims over vast geographic areas. For example, in the 2017 "Ezubao" case in China, an internet financial platform fraudulently raised more than 76.2 billion yuan from more than 1.15 million people through the sale of fictitious investment products. Such crimes often result in significant financial losses and undermine public trust in digital systems-issues that have become a global concern (FATF et al., 2023; Zetzsche et al., 2017; Magnuson, 2018). Tackling online fundraising fraud requires not only the collective efforts of policymakers, financial regulators, and law enforcement, but also a deeper understanding of the socioeconomic and technological contexts that facilitate these crimes.

Similar with Ponzi schemes[1], online illegal capital raising (ICR) schemes often disguise themselves with new technologies and use deceptive marketing to lure investors into high-yield, fraudulent investment opportunities. Previous research has identified factors that make investors vulnerable to Ponzi schemes, such as trust (Bhadra & Singh, 2024), financial literacy (Amoah, 2018), social networks (Zhu et al., 2017), and cognitive biases (Hidajat et al., 2021). In addition to these individual factors, the broader macroeconomic, cultural, and social environment also plays a role (Jain & Ohalehi, 2018). Li et al. (2021) found that the simplicity and convenience of online loan applications attract financially illiterate individuals, leading to various forms of cyber financial crime. Cheng (2018) suggests that "uneven development" drives these crimes, with predatory lending more prevalent in economically disadvantaged areas. Li et al. (2021) attribute the persistence of cyber financial fraud to a complex mix of economic, cultural, and social factors. However, few studies have examined how FinTech affects online illicit fundraising from a financial environment perspective. As FinTech continues to evolve, it introduces new risks such as financial fraud and regulatory arbitrage (Yuan & Xu, 2020), highlighting the close relationship between the financial environment and criminal activities. In light of this, the present study aims to explore the role of FinTech in online ICR crimes in China and examine the underlying mechanisms. This analysis not only reassesses the existing gaps in FinTech risk governance, but also contributes to the broader field of crime governance research.

China's rapidly growing FinTech sector has revolutionized financing and investment for small businesses and individuals, with innovations such as internet cash loans, ICOs, P2P lending, and equity crowdfunding. However, these developments have also increased the risk of financial misconduct. The P2P lending industry is an example of this, having grown rapidly from its launch in 2007 to over 5,000 platforms and RMB 5 trillion in loans by 2017. However, this growth exposed regulatory gaps and led to widespread fraud, defaults, and ICRs (Huang & Pontell, 2023). These problems undermined investor confidence and threatened financial stability, leading to a government crackdown in 2017 that shut down most P2P platforms by

[1] According to the United States Securities and Exchange Commission (SEC), a "Ponzi scheme" is a type of investment fraud that pays returns to existing investors using funds raised from new investors (United States Securities and Exchange Commission, n.d.).

2020. ICR accounts for 40% of financial crimes in China (China Daily, 2022a), involving the unauthorized collection of public funds with false promises of high returns. From 2017 to 2022, Chinese courts handled more than 60,000 ICR cases involving more than 100,000 suspects (China Daily, 2022b). Online cases accounted for one-third of the cases, involving 69% of the funds and 86% of the suspects (Weiyang Research, 2019). The accelerated growth of FinTech in China has given rise to novel risks and social issues, including financial fraud and regulatory arbitrage. This offers a valuable opportunity to examine the intricate interconnections between the financial landscape and criminal activities.

Although scholars in law and criminology have extensively studied the relationship between FinTech and financial misconduct, economists have been slower to engage with this issue. Pioneering studies by Li and Sun (2024), Lai et al. (2022) have begun to examine the impact of financial infrastructure on criminal activity. Lai et al. (2022) found that while digital inclusive finance increased financial access, it also led to an increase in illegal fundraising activities in Chinese cities. In contrast, Li and Sun (2024) showed that digital finance can reduce urban crime by reducing the expected returns from criminal activity and increasing the opportunity costs for potential offenders. Building on these findings, this study not only reassesses the current gaps in FinTech risk governance, but also contributes to the broader discussion of how FinTech affects financial crime. This paper makes three key contributions to the literature: first, rather than focusing on overall crime rates as much of the previous research has done, it specifically examines the dynamics of online ICR crimes within the context of FinTech developments. Thus, this study provides concrete evidence that can inform targeted regulatory responses. Second, while much of the current FinTech literature concentrates on its economic benefits – such as improving efficiency and resource allocation – this study shifts attention toward the potential risks that accompany technological advancements in finance. Third, by leveraging a large dataset of court judgments to quantitatively analyze online ICR cases, this research this approach enhances the methodological rigor of the study and provides novel empirical evidence in the context of financial misconduct and FinTech.

In this study, we analyzed 26,201 criminal judgments related to ICR, specifically illegal absorption of public deposits and fundraising fraud, recorded in China Judgment Online (n.d.) between 2014 and 2019. These cases cover 271 prefecture-level cities and four centrally-administered municipalities in China. By linking these judgments with firm data from the National Enterprise Credit Information Publicity System [NECIPS] (n.d.), we construct a prefecture-level panel dataset for the same period. We distinguish between traditional ICR and online ICR, and the results show that the growth of FinTech has allowed criminals to use these tools for higher profits through more covert methods, leading to an increase in online ICR cases. This increase does not reflect an increase in the overall incidence of ICR, but rather a higher crime rate and a growing proportion of FinTech-related cases. Even after testing different FinTech indices, adjusting the sample, modifying model specifications, and addressing endogeneity concerns, the impact of FinTech on the online ICR crime rate remains significant. Mechanism analysis shows that weak financial regulation and higher expected criminal returns are key factors through which FinTech affects online ICR. In addition, heterogeneity analysis suggests that FinTech's impact on online ICR crime is particularly pronounced in regions with developed labor markets and limited access to conventional financial services.

The remainder of this paper is organized as follows: Section 2 reviews the literature and sets the stage for our research. Section 3 discusses the research design, describes the data sources used, and explains how the metrics were constructed. Sections 4 and 5 provide a detailed empirical analysis and endogeneity discussion, respectively. Section 6 discusses the mechanism of influence of FinTech on online ICR. The final Section presents the conclusions and implications.

2. Literature review and theoretical analysis

2.1. Literature on FinTech

The literature extensively documents the rapid growth of FinTech and its innovative departure from traditional financial models (Buchak et al., 2018; Ibish & Nedelkovska, 2018; Gomber et al., 2017). Leveraging its strengths in data integration, connectivity, and decentralization, FinTech has transformed various financial sectors, including payments, lending, and wealth management. Key benefits include increasing transaction efficiency (Gabor & Brooks, 2017; Fuster et al., 2019), reducing financial risk (Agarwal & Chua, 2020; Bollaert et al., 2021), improving market structure (Jagtiani & Lemieux, 2019; Buchak et al., 2018), fostering innovation (Zhao et al., 2022; Gopal & Schnabl, 2022), and providing accessible, low-cost solutions to the public (Huang & Wang, 2023).

However, FinTech is a double-edged sword: while it improves the quality and efficiency of financial markets, it also introduces significant risks of financial fraud (Ibish & Nedelkovska, 2018; Bradley, 2018). Although FinTech has the potential to mitigate market fraud related to information asymmetry, its development and use can also lead to dishonest behavior driven by self-interest (Yuan & Xu, 2020; Ng & Kwok, 2017; Zakaria, 2023). For example, some individuals use FinTech-driven transaction methods to engage in illegal activities such as money laundering, market manipulation, and fraud (Wronka, 2023).

The rapid pace of FinTech innovation often outpaces regulatory development, leading to regulatory arbitrage and the emergence of legal gray areas (Walch, 2015). These challenges are intensifying as FinTech accelerates the digitization and online operation of financial services, increasing the need for robust regulatory oversight (Zetzsche et al., 2017; Magnuson, 2018; Cumming et al., 2023; Conrad et al., 2016). In particular, the late-stage evolution of P2P platforms poses significant risks to social stability (Jagtiani & John, 2018). Rao (2021) highlights how the abuse of P2P lending illustrates the ways in which platforms, borrowers, and other market participants can exploit these technologies to commit fraud. This demonstrates that no matter how neutral the underlying technology or transaction model may appear, FinTech remains vulnerable to abuse. This problem is particularly pronounced in developing countries, where regulatory frameworks are often less established (Zakaria, 2023).

2.2. Literature on FinTech and online ICR

The State Council of China (SCC) defines an ICR scheme as the act of collecting funds from unidentified individuals by promising returns or other investment rewards without proper authorization from financial regulators or in violation of national financial regulations. These schemes typically present themselves as legitimate business activities, such as selling products, offering services, or launching investment projects, often with the promise of extremely high returns, and are essentially similar to Ponzi schemes (Hidajat et al., 2021).

With the rise of digital technology and virtual services, many fraudulent schemes now masquerade as legitimate FinTech ventures, using misleading marketing to deceive the public and blur the line between genuine investment opportunities and scams (Kubilay et al., 2023). Online ICR schemes that use new technology as a "front" are particularly effective at misleading investors. If not properly regulated, these schemes are likely to become increasingly complex and pose even greater risks to social stability (Nițu et al., 2020; Wronka, 2023). For example, Cortés et al. (2016) found that the collapse of a Ponzi scheme in Colombia in 2008 significantly worsened crime levels in the affected regions.

The reasons why investors fall prey to Ponzi schemes go beyond individual characteristics and include external factors such as economic shocks, regulatory environment, and cultural influences (Bosley & Knorr, 2017). Amoah (2018) found that an investor's financial literacy and level of education play a significant role in determining their susceptibility to fraud. Hidajat et al. (2021) identified optimism and overconfidence (cognitive biases) as major factors that lead investors into online high-yield investment scams. Trust, greed, and social pressure may also lead individuals to participate in these schemes (Frankel, 2012; Lewis, 2015). Jamil et al. (2022) found that the COVID-19 pandemic increased reliance on online transactions, which, while reducing physical crime in Malaysia, led to an increase in online financial fraud. This highlights the importance of an effective regulatory framework, including the presence of strong regulatory bodies and strict enforcement, to curb online financial fraud (Jain & Ohalehi, 2018).

In recent years, economists have begun to explore the relationship between FinTech and illegal activities, as well as the mechanisms through which FinTech may affect criminal behavior. Jiang and Liang (2021) found that the rise of FinTech can effectively reduce theft rates, suggesting that the development of FinTech may deter theft by increasing the profitability of legitimate activities, easing the financial constraints of potential criminals, and reducing the perceived benefits of theft. When it comes to financial misconduct, opinions vary. Karpoff (2021) argues that while FinTech has increased the likelihood of fraud by increasing the anonymity of financial transactions, in the long run, technological advances and shifts in wealth may increase the effectiveness of reputational capital, third-party enforcement, and moral incentives as deterrents to fraud. This could contribute to a sustained decline in fraudulent activity. However, Lai et al. (2022), analyzing data from Chinese court decisions, show that digital financial inclusion has had a positive impact on ICR activities. They attribute the increase in such activities to the ease of access to banking solutions provided by FinTech.

Building on existing research, the specific role of FinTech in facilitating financial fraud and other forms of misconduct remains unclear. Previous studies of ICR have not adequately distinguished between the impact on online ICR and those conducted through traditional means. Furthermore, the broad scope of FinTech development encompasses a wide range of technological innovations in the financial sector, going well beyond initiatives focused solely on digital financial inclusion. Our study aims to fill these gaps in the literature and provide new insights into the evolving impact of FinTech on financial misconduct.

2.3. Theoretical analysis and hypothesis

ICR schemes today generally falls into two categories: traditional and online schemes. Both types use promises of "high returns" and "low risk" to lure investors into handing over their money (Lewis, 2012). Although they're prosecuted under the same legal charges, their tactics differ. Traditional ICRs often spread through word of mouth, relying on personal connections like recommendations from friends and family. They also use events like community gatherings or health seminars to promote their offers, leveraging trust within close social networks to draw investors in Frankel (2012). These schemes are particularly effective in rural areas, among older populations, or in tight-knit communities, where social influence runs deep. Conversely, online illegal fundraising use FinTech to create a polished facade. Buzzwords like virtual stocks, cryptocurrency, or blockchain are used to confuse and attract potential investors. These scams take advantage of the internet's anonymity, speed, and ability to cross geographic boundaries, enabling large-scale financial fraud (Ng & Kwok, 2017). Organizers often rely on FinTech infrastructure, like online banking and digital payment platforms, to move and manage funds seamlessly (Nikkel, 2020; Lai et al., 2022). Therefore, advances in FinTech have made it easier and cheaper for these criminals to operate, while making detection and regulation significantly more challenging. To summarise, this paper proposes the following Hypothesis:

H1: *The development of FinTech increases the occurrence of online ICR crimes.*

Theoretically, criminal behavior is often understood as a rational choice in which individuals evaluate the potential benefits and risks of engaging in illegal activities (Becker, 1968; Ehrlic, 1973). Specifically, it can be modeled as an optimal allocation of time under conditions of uncertainty. When deciding whether to commit a crime, individuals essentially allocate their time between "legal" and "illegal" activities. On the one hand, illegal activities may offer higher returns compared to legal opportunities; on the other hand, engaging in crime carries the risk of detection and punishment. Assuming that an individual can switch seamlessly between legal (l) and illegal (i) activities without incurring any costs or barriers, he chooses to maximize his expected utility. This decision process can be expressed as:

$$\begin{aligned}&\underset{t_l,t_i}{\mathrm{Max}}: EU(I_s)=\sum_{s=i,l}\pi_s U(I_s)=\\&(1-p)U\left[w_l(t_l)+w_i(t_i)\right]+pU\left[w_l(t_l)+w_i(t_i)-f_i(t_i)\right]\quad(\text{s.t. } t_l+t_i=t_0),\end{aligned}\tag{1}$$

where $w_l(t_l)$ and $w_i(t_i)$ denote the returns from legal and illegal activities, t_l and t_i are the time allocated to each activity, p is the probability of being caught and $f_i(t_i)$ is the penalty upon detection. The conditions that $w_l^{'}>0$, $w_l^{''}<0$, $w_i^{'}>0$, $w_i^{''}<0$, $f_i^{'}>0$, $f_i^{''}<0$. The first-order condition for optimal time allocation between the two markets is:

$$(1-p)U'(I_l)(w_i'-w_l')+pU'(I_i)(w_i'-w_l'-f_i')=0. \tag{2}$$

This indicates that the optimal time allocation to illegal activities increases with higher illegal marginal returns w_i' and decreases with a higher probability of detection p and greater marginal punishment f_i':

$$\frac{\partial t_i^*}{\partial w_i'}>0,\ \frac{\partial t_i^*}{\partial p}<0,\ \frac{\partial t_i^*}{\partial f_i'}<0. \tag{3}$$

Thus, if illegal returns are higher, or the probability and severity of punishment are lower, more time will be allocated to illegal activities, result in greater engagement in crime.

From a cost perspective, the deterrence effect of punishment depends on both the certainty of being caught (p) and the severity of the penalty (f_i). Studies have shown that criminal behavior is more sensitive to the likelihood of punishment than to its severity (O'Flaherty & Sethi, 2015). Therefore, this paper focuses on the certainty of punishment. FinTech, especially cross-border and decentralized platforms, often lack stringent regulatory oversight (Walch, 2015). Some illegal fundraising platforms use sophisticated tactics to evade detection, making it harder for authorities to identify and punish these activities in a timely manner (Nikkel, 2020). Additionally, furthermore, as FinTech sectors evolve from "nascent" to "expansion" and eventually to an "explosive" growth stage, regulatory frameworks often lag behind. Initially, these industries may be governed by reputation-based self-regulation, but over time, they move toward administrative oversight (Rao, 2021). The slow adaptation of regulatory mechanisms reduces the certainty of punishment, thereby lowering the perceived costs of committing illegal acts (Becker, 1968; Magnuson, 2018). Thus, this paper proposes:

H2: *FinTech influences the occurrence of online ICR crimes by reducing the certainty of punishment.*

From a benefits perspective, before illegal fundraising schemes are uncovered, investors with incomplete information may perceive them as legitimate financial opportunities. If investors are not highly risk-averse, they may allocate some of their resources to these high-risk ventures (Dow & Werlang, 1992). High returns are a key feature of FinTech platforms and are often used by illegal fundraisers to attract investors through deceptive marketing (Lai et al., 2022). Moreover, the disintermediation characteristic of FinTech allows direct fund transfers on platforms, bypassing traditional financial institutions like banks. This not only reduces operating costs for illegal fundraisers but also enhances the efficiency and scale of fundraising (Agarwal & Chua, 2020), further increasing the returns from such activities. Based on this analysis, the paper presents:

H3: *FinTech influences the occurrence of online ICR crimes by increasing the potential returns from illegal activities.*

3. Empirical strategy

3.1. Data sources and measurements

This study focused on ICR cases in 271 prefecture-level cities and four directly-administered municipalities in China from 2014 to 2019[2]. Data on cases of ICR crimes were collected from the China Judgment Online platform (n.d.), an official website mandated by the Supreme People's Court of China since 2013, which requires courts at all levels to publish their judgments. The selection of the study period is based on two main considerations. First, China Judgment Online (n.d.) was officially launched on July 1, 2013, and local courts were instructed to upload their judgments from that date. However, data from cases prior to 2013 may be incomplete, making 2014 a more reliable starting point for data collection. Second, there has been a noticeable decline in the number of court decisions made available on the platform in recent years (Liebman et al., 2023). Despite China's emphasis on increasing judicial transparency and public trust, the implementation of stricter privacy and data security laws, such as the Personal Information Protection Law (National People's Congress, 2021a) and the Data Security Law (National People's Congress, 2021b), has imposed additional restrictions on the publication of sensitive case information. In addition, judges are now required to consider the broader social impact of public disclosure of certain judgments. Complex financial crimes, such as ICR cases, are often considered sensitive and could potentially lead to market instability or unwanted public scrutiny. As a result, the availability of data from 2020 onwards has been significantly reduced. Therefore, our analysis focuses on illegal fundraising crimes up to 2019 to ensure a more complete and reliable dataset.

The number of FinTech firms at the prefecture level and in directly administered municipalities was obtained from the NECIPS (n.d.). Economic data for cities were obtained from various editions of the China City Statistical Yearbook (National Bureau of Statistics of China, n.d.), while information on the permanent urban population was obtained from the CEIC China Economic Database (n.d.). Due to gaps in statistical data for certain prefecture-level cities in certain years, the final analysis included 1,542 city-year observations.

3.1.1. Measuring the online ICR crime rate

Following the methodology of Zhang et al. (2011) and Chen (2012), this study quantified the online ICR crime rate by calculating the number of offenders per million population. The scope of ICR included crimes such as illegal solicitation of public deposits and capital-raising fraud. Data for these crimes were extracted from China Judgment Online (n.d.). The data collection and refinement process included the following steps: 1) A title-based search was conducted on the China Judgment Online portal (n.d.), focusing on terms such as "illicit

[2] According to data from the National Financial Regulatory Administration (2020), the number of active P2P lending platforms in China was reduced to zero by mid-November 2020 (NFRA, 2020). Since the online illegal fundraising crimes discussed in this paper include activities involving fraudulent fundraising under the guise of P2P platforms, excluding data from 2020 could introduce bias into the regression results. However, statistics from Wangdaizhijia show that by the end of 2019, the number of P2P platforms operating normally in China had decreased to 343, down by 732 from the end of 2018 and down by 3,230 from the peak of 3,573 at the end of 2015 (see Appendix Figure A2 for the trend of P2P platform operations). Therefore, we believe that the shutdown of P2P platforms was largely completed by the end of 2019, and the potential bias caused by excluding 2020 data is within an acceptable range.

solicitation of public deposits" and "capital-raising fraud," while filtering for "criminal" cases. 2) The retrieved documents were further refined by selecting "judgment" as the document type, limiting the time range to 2014–2019, and eliminating duplicate or irrelevant entries. 3) The cases were then categorized into online ICR and traditional ICR. Cases containing terms such as "internet," "digital technology," "big data," "cloud computing," "blockchain," "artificial intelligence," "online lending," "internet finance," and "P2P" were categorized as online ICR. Those without these keywords were classified as traditional ICR. 4) Finally, the number of defendants in all online ICR cases was aggregated by city and year, based on the jurisdiction of the presiding court and the date of adjudication. This aggregate, divided by the city's permanent population, provided the city-specific online ICR crime rate. It is important to note that criminal case data sets may have an inherent dark number that refers to unreported crimes. However, these unreported cases are generally considered to be relatively minor (Skogan, 1977). Therefore, the use of criminal case datasets as indicators of the regional online ICR crime rate is credible (Liang & Jiang, 2020).

Using this methodology, the study identified 44,063 defendants from 26,201 sentences between 2014 and 2019. Of these, 4,963 defendants were involved in online ICR, while the remaining 39,100 were associated with traditional ICR.

3.1.2. Measuring FinTech progress

Building on the work of Zhao et al. (2022), this study assessed regional FinTech development by calculating the number of FinTech firms per 100,000 people. Data on these firms were obtained from the NECIPS (n.d.). The Financial Stability Board (FSB) defines FinTech as the integration of finance and technology within financial services, driven by emerging technologies such as cloud computing, big data, blockchain, and artificial intelligence. These technologies improve the operational efficiency of traditional financial sectors and significantly reduce costs. To compile relevant data, the study collected commercial registration information for companies by searching for keywords such as "FinTech," "cloud computing," "big data," "blockchain," "artificial intelligence," and "IoT." To avoid unintentional matches, the study only included firms that had these keywords prominently in their company name or core business.

The FSB emphasizes that the core proposition of FinTech is to drive financial innovation through technology. This has led to the creation of new business models, technological applications, and transformative processes and products across financial services and markets. Firms that do not use emerging technologies such as blockchain, artificial intelligence, or big data in the financial sector are not classified as FinTech firms. Therefore, this study added an additional layer of data filtering by focusing on the operational areas of FinTech firms within our dataset. This approach aligns with the Basel Committee on Banking Supervision's categorization of FinTech operating models, using regular expressions to loosely match finance-centric keywords in firms' operational domains. Only firms that successfully matched these criteria were included in the analysis. In addition, phrases such as "not involved in… operations," "strictly prohibited from… operations," and "except for the aforementioned… operations" were filtered out of the business area descriptions during preprocessing.

In total, the study identified 21,548 FinTech companies, capturing details such as company names, places of registration, primary business activities, and dates of incorporation. These data were consolidated based on registration periods and locations to create a FinTech panel dataset for prefecture-level cities. This dataset is critical for assessing regional FinTech development, with higher numbers indicating greater FinTech progress.

3.2. Stylized facts of ICR cases

As shown in Figure 1, the number of defendants associated with ICR cases showed a general upward trend from 2014 to 2019. In particular, the number of defendants in traditional ICR cases declined after 2017. In contrast, the number and percentage of defendants in online ICR cases has steadily increased. This indicates that the current means and methods of ICR have been constantly innovated and gradually shifted to a new model that uses the Internet as a carrier.

On average, each ICR case involved 1.81 defendants. Thus, traditional ICR cases involved an average of 1.76 defendants, while online ICR cases involved an average of 2.27 defendants. In terms of educational background, 13.3% of traditional ICR participants and 29.6% of online ICR participants had a college education. In addition, fines can often indicate the severity of an offense. In traditional ICR cases, the average fine was 341,100 yuan. This figure jumped to 1,428,000 yuan for the online ICR cases. Although the proportion of online ICR cases is smaller, defendants in such cases tend to have higher levels of education, often work in groups, and commit crimes of greater magnitude, resulting in greater negative social impact.

3.3. Model formulation and variable definitions

To examine the relationship between FinTech development and online ICR activities, this study uses a panel data fixed effects model:

$$\text{Online } ICR_{it} = \alpha_0 + \alpha_1 \ln FinTech_{i,t-1} + \boldsymbol{\beta X_{i,t-1}} + \delta_i + \lambda_t + \varepsilon_{it}, \tag{4}$$

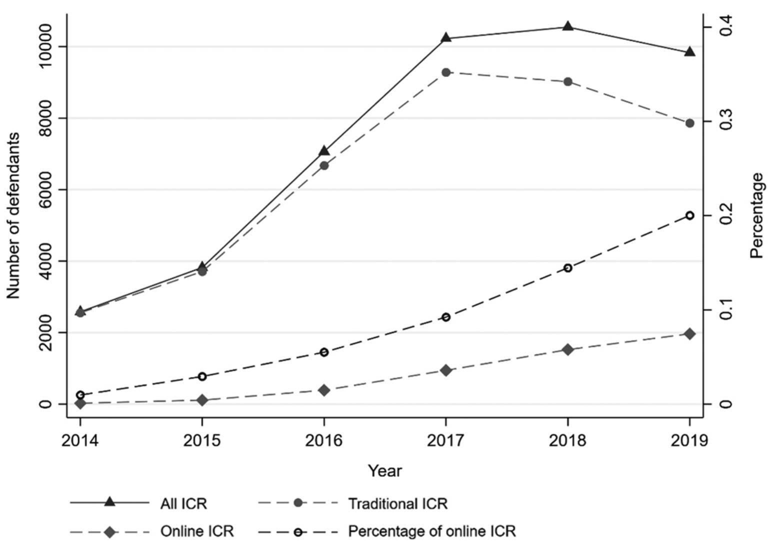


Figure 1. Frequency of defendants in ICR cases between 2014–2019

where the dependent variable, Online ICR_{it}, denotes the natural logarithm of the online ICR rate for city i in year t. The central independent variable, $FinTech_{i,t-1}$, denotes the natural logarithm of the number of FinTech firms per 100,000 inhabitants, indicating the degree of FinTech development in a city. α_1 represents our focal parameter, indicating the impact of FinTech on online ICR. Following the existing literature (Li & Sun, 2024; Jiang & Liang, 2021), this paper selected the control variables $\boldsymbol{X}_{i,t-1}$ that may affect urban criminals: GDP per capita (*GDP*), which takes the logarithm to reflect regional economic factors; population size (*Population*), which indicates the ease of controlling criminal behavior; fiscal expenditure per capita (*Fiscal*), which takes the logarithm to serve as a proxy for political and legal expenditures; total deposits as a percentage of GDP (*Deposits*) and financial professionals (*Finan*), which measure the level of financial development in the region; Internet usage (*Internet*); income gap (*Gap*), which indicates social inequality; unemployment rate (*Unemployed*) and entrepreneurial vitality (*Startups*), which reflect the state of the regional labor market. To better synchronize with the chronology of criminal acts, the independent variables were shifted back by one period. In addition, δ_i and λ_t represent city and year fixed effects, respectively, while ε_{it} represents the error term. Table 1 summarizes the variable definitions and the corresponding descriptive statistics.

Table 1. Variable definitions and descriptive statistics

Variable name	Variable definition	Sample size	Mean	Standard deviation	Minimum	Maximum
Online ICR rate	Number of defendants in online ICR per million people	1,542	0.063	0.288	0	4.177
Traditional ICR rate	Number of defendants in traditional ICR per million people	1,542	1.244	0.959	0	4.74
FinTech	Number of FinTech companies per 100,000 people	1,542	0.138	0.286	0	2.762
GDP	Log (per capital GDP)	1,542	1.53	0.539	–0.094	3.068
Population	Log (permanent population)	1,542	3.61	0.661	1.545	5.757
Fiscal	Log (per capital public fiscal outlay)	1,542	–0.161	0.369	–1.675	1.226
Deposits	Aggregate deposits / GDP	1,542	1.447	0.612	0.377	7.048
Finan	Number of employees in the financial sector / permanent population	1,542	0.006	0.066	0.001	2.603
Internet	The number of Internet accounts / permanent population	1,542	0.216	0.126	0.004	1.259
Gap	Average disposable income of urban residents / average disposable income of rural residents	1,542	2.36	0.444	1.509	4.399
Unemployed	Urban registered unemployed individuals / permanent population	1,542	62.65	55.838	4.955	1356.053
Startups	Log (innovation and entrepreneurship index)	1,542	3.893	0.657	-0.614	4.601

Note: ①The permanent population unit is 10,000. ②All independent variables are lagged by one period.

4. Empirical results

4.1. Baseline regression

Table 2 presents the regression results for equation (4). Columns (1) and (2) present the benchmark regression results. The estimated coefficients (ln *FinTech*) show significant positive effects at the 1% significance level, even after accounting for city and year fixed effects and the inclusion of control variables, thus supporting Hypothesis 1. These results indicate that FinTech has a positive impact on the online ICR crime rate, diverging from the conclusions of Li and Sun (2024), who suggest that the integration of digital technology in the financial sector can reduce urban crime. However, their conclusions are based on findings related to overall crime rates. As noted by Ünvan (2020), the characteristics and effects of different types of crime vary widely, meaning that a reduction in overall crime rates does not necessarily imply a reduction in financial risks. This study, which focuses specifically on financial crime, provides a valuable addition to the existing literature by highlighting how FinTech may facilitate certain types of financial misconduct.

In column (3), the dependent variable is replaced by the traditional ICR crime rate. The estimated coefficient of FinTech on the traditional ICR crime rate is small and statistically insignificant. Contrary to Karpoff (2021), these results suggest that FinTech has not reduced financial fraud. Instead, it has become a tool for perpetrators to conduct ICR activities online, encouraging a shift to more digitized and technologically advanced methods. To further substantiate these findings, we regressed the ratio of the online ICR crime to the overall ICR crimes in column (4). This result confirms that FinTech is changing the nature of ICR. As a result, our next analysis focuses primarily on the nuances of online ICR crimes.

4.2. Robustness test

To further confirm the stability of the baseline regression results, Tables 3 through 5 present the results of a series of tests.

First, we adjusted the key variables. Given that some of the FinTech firms in our study were involved in illegal business practices, we excluded these firms to mitigate any resulting bias. Columns (1) and (2) of Table 3 present the results after excluding firms with operational anomalies and those involved in raising deposits and capital, respectively. We then redefine the indicators representing FinTech growth. Our results remain consistent, highlighting that FinTech continues to have a significant impact on the online ICR crime rate. In addition, we replaced the independent variables in columns (3) and (4) with data from the China FinTech Enterprise Database (Fintech, n.d.) and the Tianyancha website (n.d.). Despite this change in the source of our data, our results underscore that FinTech development facilitates the commission of cases of online ICR crimes.

Second, we modified the regression sample. Directly-administered municipalities such as Beijing, Shanghai, Tianjin, and Chongqing have unique characteristics in terms of economic development, population density, and market supervision compared to other regions. Including these data may distort the estimation results. In Table 4, the results in column (5) exclude the data from these four municipalities. In addition, the number of cases in 2014 appears to

Table 2. Impact of FinTech on online ICR

Variables	(1) ln *Online ICR rate*	(2) ln *Online ICR rate*	(3) ln *Traditional ICR rate*	(4) *Ratio of Online ICR*
ln *FinTech*	0.182*** (0.066)	0.182*** (0.067)	0.041 (0.102)	0.048** (0.021)
GDP		–0.174 (0.107)	0.154 (0.238)	–0.073 (0.058)
Population		–0.409 (0.315)	–0.254 (0.419)	–0.223* (0.135)
Fiscal		0.083 (0.075)	0.259 (0.218)	–0.011 (0.048)
Deposits		0.033 (0.045)	–0.020 (0.108)	0.008 (0.024)
Finan		0.031** (0.013)	0.585*** (0.082)	0.000 (0.007)
Internet		–0.084 (0.089)	–0.359* (0.204)	0.011 (0.048)
Gap		0.015 (0.051)	0.324*** (0.114)	–0.034 (0.029)
Unemploy		–0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Startups		0.004 (0.033)	0.010 (0.056)	0.007 (0.015)
Constant	0.038*** (0.010)	1.714 (1.270)	1.255 (1.741)	1.006* (0.583)
City fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
Observations	1,566	1,542	1,542	1,274
R-squared	0.321	0.325	0.713	0.325

Note: (i) All independent variables are lagged by one period; (ii) Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

Table 3. Impact of FinTech on online ICR: robustness test I

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	ln *Online ICR rate*						
ln *FinTech*	0.178** (0.079)	0.208** (0.097)	0.429*** (0.155)	0.226*** (0.084)	0.192*** (0.069)	0.168** (0.076)	0.185** (0.076)
Control variable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,528	1,528	1,288	1,528	1,520	1,275	1,289
R-squared	0.324	0.325	0.333	0.327	0.331	0.375	0.363

Note: (i) Control variables are consistent with Table 2; (ii) Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

have been suppressed, given that the publication of case information started in September 2014 and many procuratorates had not set up effective websites by the end of the year. Accordingly, data from 2014 have been omitted from the re-estimation shown in column (6). In addition, the China Banking Regulatory Commission's issuance of the Guidelines on the Custody of Funds for Online Lending in February 2017 triggered regulatory adjustments for internet lending platforms. This policy upheaval in 2017 led to a number of failures in P2P lending, which may have affected the development of FinTech and introduced biases in the estimates. Therefore, the analyses in column (7) exclude the 2017 data. Columns (5)–(7) of Table 3, taken together, show that our results remain robust after adjustment.

Third, we included controls for the overall crime rate. Government oversight has a significant impact on online ICR activities. However, there are challenges in collecting regulatory data at the city level. Therefore, our study uses overall crime rate as a proxy for government oversight to account for variables that may simultaneously influence both FinTech development and online ICR occurrences. After controlling for these, column (1) of Table 4 underscores that FinTech's significant impact on ICR persists.

Fourth, we refine the model specifications. Column (2) of Table 4 employs city-level clustered standard errors to counteract the effect of serial correlation on the standard error projections. Column (3) integrates the interaction terms of city and annual trend effects to control for the exogenous increase in online ICR activity. The post-specification adjustments and FinTech regression coefficients remain significantly positive.

Table 4. Impact of FinTech on online ICR: robustness test II

Variables	(1)	(2)	(3)	(4)
	ln *Online ICR rate*			
ln *FinTech*	0.167** (0.076)	0.182** (0.072)	0.182*** (0.067)	0.180*** (0.066)
Crime rate	0.041 (0.038)			
Gap				–0.023 (0.051)
Growth				0.123 (0.175)
Edu				–0.000 (0.000)
Control variable	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
City × year time trend effects	No	No	Yes	No
Observations	1,275	1,542	1,542	1,542
R-squared	0.376	0.325	0.325	0.023

Note: (i) Control variables are consistent with Table 2; (ii) Column (5) uses clustered robust standard errors at the city level; (iii) Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Finally, we consider measurement error in crime rates. A common challenge in crime research is the discrepancy between officially reported crime rates and actual crime levels, often referred to as the "dark figure" of crime. This discrepancy can lead to an underestimation of the true crime rate, and failure to account for this bias in empirical analyses can lead to biased estimates. Previous studies have shown that the "dark figure" is affected by factors such as inequality, economic growth, and educational attainment (Soares, 2004). Following the approach of Chen and Zhang (2014), we first regress the officially reported rate of illegal online fundraising on variables that account for inequality (*Gap*), GDP growth (*Growth*), and the ratio of college students to the resident population (*Edu*). This regression helps explain the "dark figure" by identifying the unobserved component. We then took the residuals from this regression as a new dependent variable to rerun the regression with other explanatory factors. This method allows us to obtain a more unbiased estimate of the effect of FinTech on illegal online fundraising.

The results presented in Table 4, column (4), show that the estimated coefficient for FinTech is 0.180 and remains statistically significant at the 1% level. Moreover, there is no significant deviation from the results in Table 2, column (2). This consistency suggests that the use of court judgment data as a proxy for actual crime levels is relatively robust.

4.3. Impact on the characteristics of cases of online ICR crime

In addition to examining crime rates, analyzing specific crime characteristics can play an important role in refining crime prevention strategies (Lu, 2021). Thus, in this study, we further investigate the impact of FinTech on various aspects of online ICR crimes, including the scale of the crime, the educational background of the offenders, and the number of participants involved. In doing so, we aim to provide deeper insights into the impact of FinTech on the dynamics of these crimes, which can better inform targeted interventions.

First, we measured the scale of online ICR crimes in a given region by summing the total amount of fines across cases at the city level and dividing this figure by the region's GDP (denoted as the *scale of online ICR*). The results presented in Table 5, column (1), show that FinTech has a significantly positive effect on the scale of online ICR crimes. This finding suggests that in regions where FinTech is more advanced, not only is the crime rate higher, but also the monetary amounts involved in these illegal activities are significantly higher.

Table 5. Impact of FinTech on the characteristics of online ICR

Variables	(1) *Scale of Online ICR*	(2) *Low*	(3) *Intermediate*	(4) *High*	(5) *Individual*	(6) *Gang*
ln *FinTech*	1.783** (0.759)	–0.013 (0.011)	0.148** (0.070)	0.221** (0.089)	0.246*** (0.087)	0.159** (0.072)
Control variable	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,542	1,542	1,542	1,542	1,542	1,542
R-squared	0.289	0.169	0.292	0.296	0.317	0.292

Note: (i) Control variables are consistent with Table 2; (ii) Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

Second, we categorized the educational background of defendants into three categories: low, medium, and high, based on their reported education levels. Then, we aggregated the number of cases by education level at the city level to analyze the educational characteristics of online ICR crimes. As shown in columns (2)–(4) of Table 5, the results indicate that FinTech significantly increases the number of cases involving defendants with intermediate and high levels of education. This trend suggests that committing online ICR crimes using FinTech tools requires a certain level of education (Nițu et al., 2020), which contributes to the increasing prevalence of higher-educated individuals involved in these crimes.

Finally, we categorized the cases by the number of defendants, distinguishing between individual crimes (involving a single defendant) and gang crimes (involving three or more defendants). The results, presented in columns (5)–(6) of Table 5, show that FinTech significantly increases the incidence of both individual and gang-related online ICR offenses, implying that FinTech affects the incidence of online ICR offenses in both individual and group contexts, with no significant difference in their prevalence between individual and gang offenses.

4.4. Heterogeneity analysis

Given the regional differences in economic and financial development across China, the impact of FinTech on online ICR activities may vary across regions. Therefore, we stratify the sample cities based on both opportunity cost and level of formal financial development. This approach allows us to assess how FinTech affects ICR activities in different economic and financial contexts.

4.4.1. Heterogeneity of opportunity costs

Opportunity costs are a critical factor in criminal decision making (Freeman, 1999). In regions with higher employment rates and labor incomes, legitimate work becomes more attractive, increasing the opportunity cost of engaging in criminal activity. To capture the variation in the impact of FinTech on online ICR across different labor market conditions, we used the natural logarithm of GDP per capita and the urban registered unemployment rate as proxies for labor market health. In Table 6, columns (1) through (4), we stratified the sample cities into developed and underdeveloped regions, and further divided them into high and low unemployment rates based on the annual median of national GDP per capita and urban registered unemployment rates.

The results show that the impact of FinTech on online ICR is mainly significant in underdeveloped and high-unemployment regions. In contrast, the coefficients are smaller and lack statistical significance in developed and low-unemployment regions. This suggests that higher opportunity costs in regions with more robust labor markets reduce the attractiveness of illicit activities. The presence of FinTech in these economically vibrant areas tends to create more legitimate entrepreneurial and employment opportunities, further increasing the opportunity costs of crime.

4.4.2. Heterogeneity in traditional finance development

The impact of FinTech on online ICR crime may also depend on the development of traditional financial services within a region. To measure traditional financial development, we use the number of banks per capita in each city and divide the sample into high and low financial accessibility regions based on the annual median. Columns (5) and (6) of Table 6 show that the significant positive effect of FinTech on online ICR crime is mainly observed in cities with low financial accessibility.

A likely explanation is that in regions with higher financial accessibility, investors face lower costs when seeking formal financial services (Liang & Jiang, 2020). This makes them less inclined to turn to informal financial institutions or high-risk, unregulated alternatives. In contrast, in regions where formal financial services are less accessible, FinTech-driven platforms may fill this void, leading to increased exposure to fraudulent schemes and a higher incidence of online ICR crimes.

Table 6. Heterogeneity analysis

Variables	(1) High unemployment region	(2) Low unemployment region	(3) Developed region	(4) Underdeveloped region	(5) High financial accessibility	(6) Low financial accessibility
	ln *Online ICR rate*					
ln *FinTech*	0.203** (0.081)	0.052 (0.097)	0.095 (0.080)	0.818** (0.319)	0.131* (0.079)	0.319** (0.143)
Control variable	Yes	Yes	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	761	751	758	765	771	763
R-squared	0.331	0.333	0.325	0.387	0.317	0.363

Note: (i) Control variables are consistent with Table 2; (ii) Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

5. Endogeneity problem

This study faces endogeneity concerns from three primary sources: First, reverse causality is a key issue. As the incidence of online financial crimes has risen sharply in recent years, FinTech has been increasingly used to combat these crimes. In regions where illegal online fundraising is more prevalent, judicial authorities are more likely to work with financial institutions and use FinTech to combat these issues. This increased use of FinTech may then feed back into and further stimulate the development of FinTech, making it difficult to disentangle the direction of causality between FinTech growth and crime rates. Second, omitted variable bias poses a significant challenge. Numerous factors, such as the strength of Internet regulation or the effectiveness of local law enforcement, may affect the incidence of online ICR. Many of these variables are unobservable or unavailable at the city level. As a result, even after controlling for regional and temporal fixed effects, the omitted variables may still influence the error term. Third, measurement error arises because different types of FinTech firms vary widely in terms of business scope and size. Relying on a simple count of FinTech firms per capita may not accurately capture the actual level of FinTech development in a city. This mismeasurement can bias the results, potentially leading to further endogeneity issues.

To mitigate these endogeneity concerns and ensure more robust and reliable results, the results will be further tested using instrumental variables (IV), generalized method of moments (GMM), and difference-in-differences (DID) methods. These approaches help to address reverse causality, control for unobserved heterogeneity, and correct for potential measurement errors, thereby providing more credible estimates of the impact of FinTech on online ICR activities.

5.1. Instrumental variable regression

Following Chong et al. (2013), this study used the average FinTech growth in other cities within the same province as an IV for FinTech progress in a firm's home city. This approach is based on the reasoning that FinTech development in other cities within the same province is unlikely to directly influence unobservable institutional factors, such as the level of law enforcement in the target city, thereby satisfying the exclusivity requirement. At the same time, because cities within the same province are geographically close and share administrative ties, FinTech development in neighboring cities is likely to influence FinTech growth in the target city, satisfying the relevance requirement.

Table 7 reports the results of the IV analysis. The first-stage regressions in column (1) confirm that our IV is positively correlated with the FinTech growth metric. Since the first-stage F-statistic is significantly above the benchmark of 10, the concerns about weak instruments are allayed. The second-stage regressions in column (2) show a pronounced positive effect of FinTech development on online ICR, an effect that is stronger than that observed in the fixed-effects models in Table 2. This suggests that latent endogeneity is likely to mitigate the negative impact of FinTech on online ICR crimes.

Table 7. Endogenous problem: instrumental variable regression

Variables	(1) ln *FinTech*	(2) ln *Online ICR rate*
ln *FinTech*		1.440** (0.587)
IV: *Average level of FinTech development in other cities in the province*	0.087*** (0.019)	
Control variable	Yes	Yes
City fixed effects	Yes	Yes
Time fixed effects	Yes	Yes
Observations	1,542	1,542
Phase I F-value		20.098

Note: (i) Control variables are consistent with Table 2; (ii) Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

5.2. GMM dynamic panel analysis

The difference generalized method of moments (DIFF-GMM) and system generalized method of moments (SYS-GMM) are two key methods for dealing with endogeneity issues (Arellano & Bond, 1991; Blundell & Bond, 2023). To further test the robustness of the previous findings, this study also employs GMM regression. The test statistics presented in Table 8 show that for both DIFF-GMM and SYS-GMM, the Arellano-Bond test results indicate that the residuals exhibit first-order serial correlation, but not second-order serial correlation. In addition, the Sargan test results confirm that the additional instrumental variables are valid, indicating that the GMM method meets the necessary assumptions. The regression coefficients for FinTech are consistently positive and significant at the 1% level, demonstrating that even after controlling for the lagged dependent variable and addressing potential endogeneity, the impact of FinTech on the rate of ICR crimes remains robust.

Table 8. Endogenous problem: GMM regression

Variables	(1) DIFF-GMM	(2) SYS-GMM
	ln *Online ICR rate*	
ln *Online ICR rate*$_{t-1}$	–0.173 (0.129)	0.151 (0.093)
ln *FinTech*	0.209*** (0.072)	0.231*** (0.078)
Control variable	Yes	Yes
City fixed effects	Yes	Yes
Time fixed effects	Yes	Yes
Observations	1,241	1,529
AR (1)	0.011	0.001
AR (2)	0.845	0.196
Hansen P value	0.762	0.740

Note: (i) Control variables are consistent with Table 2; (ii) Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

5.3. Difference-in-differences estimation (DID)

To better address the endogeneity issue in our regression model, it is crucial to identify an exogenous variable that significantly influences FinTech development. An effective strategy is to use a DID model by identifying an exogenous policy shock as an instrument.

In December 2015, China’s State Council issued the “*plan to promote the development of inclusive finance* (*2016–2020*)”, which encouraged financial institutions to incorporate emerging information technologies, such as big data and cloud computing, into their operations. The policy aimed to promote the establishment of digital financial service platforms and provide inclusive financial services, including information dissemination, financing, and financial products. Notably, this was the first time that FinTech was formally promoted in a national government document, marking a pivotal moment in the digital transformation of China’s financial industry.

Because this policy was implemented at the central level, it serves as a relatively exogenous shock-a standardized intervention that affects all regions differently, depending on their readiness to adopt FinTech innovations. This provides an opportunity to construct a DID model that helps mitigate concerns about reverse causality and omitted variable bias by using a policy-driven exogenous variation to isolate the impact of FinTech development, thereby providing clearer insight into its influence on financial crime trends.

We construct the control and treatment groups based on the heterogeneous response of different regions to the "*Plan for Promoting the Development of Inclusive Finance* (*2016–2020*)." In regions where inclusive finance was already well developed, financial services were more accessible and it was easier for FinTech to grow after the policy, so these regions experienced a larger impact. Using the median level of inclusive finance development across Chinese cities in 2015, we classify regions with an inclusive finance index above the median at the end of 2015 as the treatment group (*Treat* = 1) and those below the median as the control group (*Treat* = 0) [3]. The specific DID model is as follows:

$$ICR_{it} = \alpha_0 + \alpha_1 Treat_{i,t} \times Post_{i,t} + \boldsymbol{\beta X_{i,t-1}} + \delta_i + \lambda_t + \varepsilon_{it}, \quad (5)$$

where the $Treat_{i,t}$ is the treatment group indicator and $Post_{i,t}$ is the policy timing variable, which equals 1 for 2016 and later and 0 for earlier years. Other variables are the same as those described above.

Table 9 reports the results of the DID estimation. The coefficient is significantly positive at the 5% level, indicating that regions more affected by the policy experienced a notable increase in online ICR crime rates. In other words, the development of FinTech significantly increased the incidence of online ICR in these areas. The assumption of parallel trends is critical to the unbiasedness of the DID estimators. We tested this assumption by including interaction terms between the Treat and Year dummy variables in the regression to see if there were significant differences in online ICR crime between the two groups before the policy was implemented. The results in column (2) of Table 9 show that, using the year of policy implementation (2016) as the baseline, the interaction terms between Treat and the year dummies before the policy (*year 2014* and *year 2015*) are not significantly different from zero. This suggests that before the policy was implemented, there was no significant difference in online ICR crime rates between the two groups, satisfying the parallel trends assumption. After the policy was implemented, the interaction term *Treat* × *year 2019* is significantly positive at the 5% level, indicating that by the third year after the policy was enacted, the online ICR crime rate had significantly increased in treatment cities compared to control cities.

[3] We plotted trends in FinTech development for both the treatment and control groups before and after policy implementation. While both groups experienced significant growth in FinTech development after the policy, the treatment group showed a much faster pace of growth compared to the control group. This suggests that the treatment group was more responsive to the policy introduction (see Appendix Figure A1 for FinTech development trends).

Table 9. Endogenous problem: DID regression

Variables	(1)	(2)
	ln *Online ICR rate*	
Treat × Post	0.067*** (0.023)	
Treat × year 2014		–0.024 (0.031)
Treat × year 2015		–0.000 (0.032)
Treat × year 2017		0.045 (0.037)
Treat × year 2018		0.072 (0.046)
Treat × year 2019		0.130** (0.053)
Control variable	Yes	Yes
City fixed effects	Yes	Yes
Time fixed effects	Yes	Yes
Observations	1,543	1,543
R-squared	0.321	0.325

Note: (i) Control variables are consistent with Table 2; (ii) Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

6. Mechanism analysis

The previous analysis has shown that the development of FinTech significantly increases the rate of online ICR crime in cities. In this Section, we explore the underlying mechanisms driving this relationship and examine the channels through which FinTech affects crime. Building on the literature reviewed earlier, we examine how FinTech affects online ICR crime by focusing on two key aspects: the costs and benefits of crime.

6.1. FinTech development and crime costs

The certainty of punishment plays a crucial role in the cost assessment of criminals (Ehrlic, 1973; Li & Sun, 2024). While FinTech promotes financial innovation, it also expands the boundaries of traditional financial markets, rendering existing regulatory frameworks outdated and inadequate (Yuan & Xu, 2020). This regulatory lag reduces the certainty of punishment, creating an environment in which criminal activity can flourish in FinTech markets. Increasing regulatory investment is one way to increase the certainty of punishment (Chen, 2012), but due to data limitations, we only had access to financial regulatory spending at the provincial level. Therefore, we interacted the FinTech variable with provincial regulatory intensity (calculated as financial regulatory expenditure divided by financial industry value added, *Regulation*). If stronger financial regulation reduces the positive effect of FinTech on online ICR crimes, it suggests that FinTech's role in enabling these crimes is partly due to weak regulation, leading to lower certainty penalty costs for crimes.

As shown in Table 10, the interaction term between FinTech and provincial regulatory expenditure is significantly negative. This implies that in regions with higher regulatory intensity, where the certainty of punishment is greater, the impact of FinTech on online ICR crime is reduced, supporting that weak regulation contributes to increased crime in FinTech-driven environments. Hypothesis 2 has been verified.

6.2. FinTech development and criminal proceeds

According to Becker's (1968) rational choice theory of crime, potential offenders weigh costs and benefits before engaging in criminal behavior, and higher expected criminal gains can be a strong motivator. In the context of FinTech, the reduction of barriers for investors to enter financial markets, such as lower transaction costs and expanded investment opportunities, leads to increased participation in online financial activities (Kubilay et al., 2023). This increased participation in Internet finance increases the potential pool of victims for online illegal capital raising (ICR) schemes, which in turn increases the expected illegal profits for criminals (Liang & Jiang, 2020). Thus, higher expected proceeds of crime serve as a key mechanism through which FinTech contributes to the increase in ICR activities.

To test whether FinTech encourages consumers to use internet financial services, we use data from the 2015 China Household Finance Survey (China Household Financial Survey Project, 2015). We use the following two indicators as proxies for consumers' use of online financial services. First, we examine whether respondents use mobile/online banking services (*online banking*) [4]. Second, whether respondents participate in an Internet-based wealth management service (*Internet-based wealth management*) [5]. We assigned the indicator a value of 1 if the respondent used the corresponding online financial service and 0 otherwise. Columns (2) and (3) of Table 10 show that the regression coefficients of FinTech on Online banking and Internet-based wealth management are significantly positive at the 1% level, indicating that in cities with higher levels of FinTech development, consumers are more likely to participate in mobile/online banking and Internet-based wealth management services.

Moreover, the value involved in a case, as determined by the outcome of the crime, represents the actual proceeds of criminal activity, and the fines imposed for such crimes are highly correlated with the value of the case. As a proxy for the proceeds of crime indicator, we collected data on case fines through adjudication instruments to test the expected beneficial effect of FinTech on online ICR. In columns (4) and (5) of Table 10, the dependent variable ln Fine represents the fine for ICR. Online ICR is a dummy variable equal to 1 for an online ICR case and 0 for a traditional ICR case. The result in column (4) shows that the fine amount of online ICR cases is significantly higher compared to traditional ICR cases. In Column (5), we add the interaction term of online ICR and FinTech, and the cross-multiplication coefficient is statistically significant at the 5% level, suggesting that the development of FinTech in the case location significantly increases the number of penalties in online ICR cases compared to traditional ICR. This indirectly confirms that FinTech, by increasing the profits from criminal activities, contributes to an increase in the rate of online ICR crimes. In summary, Hypothesis 3 has been confirmed.

[4] The question in the questionnaire reads "Which of the following forms of banking services has your household primarily used?" We assigned a value of 1 when the response was Mobile Banking/Internet Banking and 0 otherwise.

[5] The question in the questionnaire reads, "At present, does your family hold such Internet financial products as Yu'E Bao, Jingdong slush fund, Baidu baizhuan etc.?" Positive responses to holding Internet financial products are assigned a value of 1 and 0 otherwise.

Table 10. Mechanism analysis

Variables	(1)	(2)	(3)	(4)	(5)
	ln *Online ICR rate*	*Online banking* (CHFS)	*Internet-based wealth management* (CHFS)	ln *Fine*	
ln *FinTech*	0.253*** (0.075)	0.077*** (0.010)	0.023*** (0.007)		0.163* (0.096)
Regulation	0.267 (0.990)				
ln *FinTech* × *Regulation*	–8.384** (3.778)				
Online ICR (1 = yes)				0.142*** (0.043)	0.038 (0.065)
ln *FinTech* × *Online ICR*					0.164** (0.078)
Control variable	Yes	Yes	Yes	Yes	Yes
Province fixed effects	No	Yes	Yes	–	–
City fixed effects	Yes	–	–	Yes	Yes
Time fixed effects	Yes	–	–	Yes	Yes
Observations	1,542	16,564	24,109	22,360	22,360
R-squared	0.330	0.236	0.087	0.047	0.048

Note: (i) Control variables in Columns (2)–(3) include respondents' age, gender, household income, years of education, marital status, and household registration type; (ii) Control variables in Columns (1), (4) and (5) are consistent with Table 2; (iii) Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

7. Conclusions

This study shows that FinTech has a significant impact on the rise of online ICR crimes in China. By analyzing data on 44,063 defendants from 26,201 ICR criminal cases between 2014 and 2019, we find that FinTech development not only increases the rate of online ICR, but also increases the proportion of online crimes within the broader ICR landscape. While prior research suggests that digital finance can reduce overall crime rates (Li & Sun, 2024), our findings suggest that FinTech's impact varies significantly across different types of crime. Specifically, FinTech has created new vulnerabilities, particularly for online ICR, by increasing access to internet financial services and expanding the potential for criminal gain. These findings remain robust across different model specifications, adjusted samples, and after accounting for potential endogeneity. The study further shows that the impact of FinTech is more pronounced in economically underdeveloped regions with high unemployment and limited access to formal financial services. This highlights the need for a tailored regulatory response. Based on the empirical findings of this study, we propose two primary policy recommendations to mitigate the risks associated with FinTech-enabled online ICR:

First, enhancing the regulatory framework is critical. The rapid expansion of FinTech often outpaces current regulatory systems, leaving vulnerabilities for criminals to exploit. The

Chinese government has made progress in this area, most notably by shutting down many P2P platforms in 2020 following widespread fraud and defaults. To build on these efforts, China's regulators, including the People's Bank of China and other financial regulators, should focus on early detection mechanisms for fraud. Regulatory sandboxes, where FinTech innovations are tested under supervision, have been effective in other jurisdictions and could be more widely implemented in China. In addition, while real-time oversight and compliance are necessary, regulators need to adopt supervisory technology that leverages AI and big data to more effectively monitor financial activity. This will improve real-time oversight and help FinTech platforms identify and address risks early. In addition, recent laws such as the *Data Security Law* (NPC, 2021b) and *Personal Information Protection Law* (NPC, 2021a) pose new challenges for FinTech firms, particularly in terms of compliance with the handling of personal data. These firms need clearer guidance and more robust support to navigate these regulations without stifling innovation, and to ensure that compliance challenges do not become barriers to sound financial management.

Second, strengthening crime control is crucial to reducing FinTech-related financial crimes. Enhanced cooperation between the Ministry of Public Security and FinTech platforms can help detect and prevent illegal financial activities more effectively. Further cooperation between regulators such as the China Banking and Insurance Regulatory Commission (CBIRC) and the Cyberspace Administration of China (CAC) should ensure that FinTech platforms report suspicious activities promptly. Public awareness campaigns, while common, need to focus more on FinTech-specific risks. Many investors remain unaware of the unique risks associated with online financial products. In regions with low financial accessibility or underdeveloped financial literacy, public campaigns should focus particularly on raising awareness of online fraud. Their research suggests that these areas are most vulnerable to ICR-related crimes, making targeted awareness efforts in such regions essential. Finally, increasing penalties for online financial fraud in high-risk areas can act as a deterrent. This approach is consistent with recent policy changes in China, where financial crimes, particularly those involving large groups of investors, are increasingly being treated with greater severity.

This study acknowledges certain limitations due to data constraints. First, as online ICR is a form of criminal activity, the personal characteristics of its leaders and organizers may significantly influence the scale and spread of such schemes. However, inconsistencies in the structure and format of legal documents have limited our ability to extract detailed personal information. As a result, we have not yet compiled data on key personal characteristics of defendants, such as their place of origin, life experiences, or specific case details. In future research, we intend to systematically collect this information and use tools such as machine learning for more in-depth textual analysis. Social network analysis will also be used to examine the characteristics and movement patterns of key individuals, which will help design optimal regulatory strategies and improve regulatory mechanisms. Second, this study does not fully explore how enhanced financial regulation can mitigate the risks of FinTech-related crime. Given that different regions have different levels of regulatory strength and understanding of FinTech, regulatory measures also differ. Future research will aim to better understand the incentives and strategies of different stakeholders in different regions, as this is crucial for improving FinTech governance and ensuring financial security.

References

Agarwal, S., & Chua, Y. H. (2020). FinTech and household finance: A review of the empirical literature. *China Finance Review International*, *10*(4), 361–376. https://doi.org/10.1108/CFRI-03-2020-0024

Allen, F., Gu, X., & Jagtiani, J. (2022). Fintech, cryptocurrencies, and CBDC: Financial structural transformation in China. *Journal of International Money and Finance*, *124*, Article 102625. https://doi.org/10.1016/j.jimonfin.2022.102625

Amoah, B. (2018). Mr Ponzi with Fraud scheme is knocking: Investors who may open. *Global Business Review*, *19*(5), 1115–1128. https://doi.org/10.1177/0972150918788625

Arellano, M., & Bond, S. (1991). Some tests of specification for data panel: Monte Carlo evidence and an aplication of employment equations. *The Review of Economic Studies*, *58*(2), 277–297. https://doi.org/10.2307/2297968

Becker, G. (1968). The economics of criminal behavior crime and punishment: An economic approach. In *The economics of crime and punishment* (pp. 383–420).

Bhadra, S., & Singh, K. N. (2024). Ponzi scheme like investment schemes in India – Causes, impact and solution. *Journal of Money Laundering Control*, *27*(2), 348–362. https://doi.org/10.1108/JMLC-02-2023-0040

Blundell, R., & Bond, S. (2023). Reprint of: Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *234*, 38–55. https://doi.org/10.1016/j.jeconom.2023.03.001

Bollaert, H., Lopez-de-Silanes, F., & Schwienbacher, A. (2021). Fintech and access to finance. *Journal of Corporate Finance*, *68*, Article 101941. https://doi.org/10.1016/j.jcorpfin.2021.101941

Bosley, S., & Knorr, M. (2017). Pyramids, Ponzis and Fraud prevention: Lessons from a case study. *Journal of Financial Crime*, *25*(1), 81–94. https://doi.org/10.1108/JFC-10-2016-0062

Bradley, C. G. (2018). FinTech's double edges. *Chicago Kent Law Review*, 93, 61–95.

Buchak, G., Matvos, G., Piskorski, T., & Seru, A. (2018). Fintech, regulatory arbitrage, and the rise of shadow banks. *Journal of Financial Economics*, *130*(3), 453–483. https://doi.org/10.1016/j.jfineco.2018.03.011

CEIC China Economic Database. (n.d.). https://www.ceicdata.com/en/products/china-economic-database

Chen, S. (2012). Judical inputs and crima prevention in transitional China. *China Economic Quarterly*, *11*.

Chen, S., & Zhang, Y. (2014). Crime and punishment policies in contemporary China. *China Economic Quarterly*, *13*(4).

Cheng, H. (2018). The death and revival of Usury in China: An Institutional Analysis. *Journal of Economic Issues*, *52*(2), 527–533. https://doi.org/10.1080/00213624.2018.1469932

China Daily. (2022a, October 13). *Top court takes aim at financial criminals*. Supreme People's Court of the People's Republic of China. https://english.court.gov.cn/2022-10/13/c_819843.htm

China Daily. (2022b, September 23). *Courts crack down on financial crimes*. Supreme People's Court of the People's Republic of China. https://english.court.gov.cn/2022-09/23/c_815282.htm

China Household Financial Survey Project. (2015). *China Household Finance Survey 2015 dataset*. https://chfs.swufe.edu.cn/

China Judgment Online. (n.d.). https://wenshu.court.gov.cn/

Chong, T. T.-L., Lu, L., & Ongena, S. (2013). Does banking competition alleviate or worsen credit constraints faced by small- and medium-sized enterprises? Evidence from China. *Journal of Banking and Finance*, *37*(9), 3412–3424. https://doi.org/10.1016/j.jbankfin.2013.05.006

Conrad, J., Karpoff, J., Lewis, C., & Ritter, J. R. (2016). Statement of the financial economists roundtable: Crowdfunding. *Financial Analysts Journal*, *72*(4), 14–16. https://doi.org/10.2469/faj.v72.n4.6

Cortés, D., Santamaría, J., & Vargas, J. F. (2016). Economic shocks and crime: Evidence from the crash of Ponzi schemes. *Journal of Economic Behavior and Organization*, *131*(185), 263–275. https://doi.org/10.1016/j.jebo.2016.07.024

Cumming, D., Hornuf, L., Karami, M., & Schweizer, D. (2023). Disentangling crowdfunding from fraudfunding. *Journal of Business Ethics*, *182*(4), 1103–1128. https://doi.org/10.1007/s10551-021-04942-w

Deloitte. (2018). *FinTech regulatory challenges and financial crime exposure*.

Dow, J., & Werlang, S. R. da C. (1992). Uncertainty aversion, risk aversion, and the optimal choice of portfolio. *Econometrica*, *60*(1), 197–204.

Ehrlic, I. (1973). Participation in illegitimate activities: A theoretical and empirical investigation. *Journal of Political Economy*, *81*(3), 521–565. https://doi.org/10.1086/260058

Financial Action Task Force, Interpol, & Egmont Group. (2023). *Illicit financial flows from Cyber-Enabled Fraud*. https://www.fatf-gafi.org/content/dam/fatf-gafi/reports/Illicit-financial-flows-cyber-enabled-fraud.pdf.coredownload.inline.pdf

Fintech. (n.d.). *China FinTech Index*. http://data.fintechcass.cn/webroot/decision/link/shpP

Frankel, T. (2012). *The Ponzi scheme puzzle*: *A history and analysis of con artists and victims*. Oxford Academic. https://doi.org/10.1093/acprof:osobl/9780199926619.001.0001

Freeman, R. B. (1999). The economics of Crime in Britain. In O. C. Ashenfelter & D. Card (Eds.), *Handbook of labor economics* (Vol. 3, pp. 3529–3571). Elsevier. https://doi.org/10.1016/S1573-4463(99)30043-2

Fuster, A., Plosser, M., Schnabl, P., & Vickery, J. (2019). The role of technology in mortgage lending. *Review of Financial Studies*, *32*(5), 1854–1899. https://doi.org/10.1093/rfs/hhz018

Gabor, D., & Brooks, S. (2017). The digital revolution in financial inclusion: International development in the fintech era. *New Political Economy*, *22*(4), 423–436. https://doi.org/10.1080/13563467.2017.1259298

Goldstein, I., Jiang, W., & Karolyi, G. A. (2019). To FinTech and beyond. *Review of Financial Studies*, *32*(5), 1647–1661. https://doi.org/10.1093/rfs/hhz025

Gomber, P., Koch, J. A., & Siering, M. (2017). Digital finance and FinTech: Current research and future research directions. *Journal of Business Economics*, *87*, 537–580. https://doi.org/10.1007/s11573-017-0852-x

Gopal, M., & Schnabl, P. (2022). The rise of finance companies and FinTech lenders in small business lending. *Review of Financial Studies*, *35*(11), 4859–4901. https://doi.org/10.1093/rfs/hhac034

Griffin, J. M., Kruger, S., & Mahajan, P. (2023). Did FinTech lenders facilitate PPP Fraud? *Journal of Finance*, *78*(3), 1777–1827. https://doi.org/10.1111/jofi.13209

Hidajat, T., Primiana, I., Rahman, S., & Febrian, E. (2021). Why are people trapped in Ponzi and pyramid schemes? *Journal of Financial Crime*, *28*(1), 187–203. https://doi.org/10.1108/JFC-05-2020-0093

Huang, L., & Pontell, H. N. (2023). Crime and crisis in China's P2P online lending market: A comparative analysis of fraud. *Crime*, *Law and Social Change*, *79*, 369–393. https://doi.org/10.1007/s10611-022-10053-y

Huang, R. H., & Wang, C. M. (2023). FinTech-bank partnership in China's credit market: Models, risks and regulatory responses. *European Business Organization Law Review*, *24*, 721–755. https://doi.org/10.1007/s40804-023-00269-3

Ibish, E., & Nedelkovska, V. (2018). Banking management and economic crime of data abuse. *Economics and Management*, *14*(2), 134–137.

Jagtiani, J., & John, K. (2018). Fintech: The impact on consumers and regulatory responses. *Journal of Economics and Business*, *100*, 1–6. https://doi.org/10.1016/j.jeconbus.2018.11.002

Jagtiani, J., & Lemieux, C. (2019). The roles of alternative data and machine learning in fintech lending: Evidence from the LendingClub consumer platform. *Financial Management*, *48*(4), 1009–1029. https://doi.org/10.1111/fima.12295

Jain, J., & Ohalehi, P. (2018). *Why people fall prey to Ponzi schemes*: *An analysis of attitudes*, *behaviours*, *demographics and motivations of victims in India*. SSRN. https://doi.org/10.2139/ssrn.3263995

James Dow, & Werlang, S. R. da C. (1992). Uncertainty aversion, risk aversion, and the optimal choice of portfolio. *Econometrica*, *60*(1), 197–204. https://doi.org/10.2307/2951685

Jamil, A. H., Mohd Sanusi, Z., Yaacob, N. M., Mat Isa, Y., & Tarjo, T. (2022). The COVID-19 impact on financial crime and regulatory compliance in Malaysia. *Journal of Financial Crime*, *29*(2), 491–505. https://doi.org/10.1108/JFC-05-2021-0107

Jiang, H., & Liang, P. (2021). *Less cash, less theft? Evidence from fintech development in the People's Republic of China* (ADBI Working Paper No. 1282). Asian Development Bank Institute. https://www.adb.org/publications/less-cash-less-theft-evidence-fintech-development-prc

Karpoff, J. M. (2021). The future of financial fraud. *Journal of Corporate Finance*, *66*, Article 101694. https://doi.org/10.1016/j.jcorpfin.2020.101694

Kubilay, E., Raiber, E., Spantig, L., Cahlíková, J., & Kaaria, L. (2023). Can you spot a scam? Measuring and improving scam identification ability. *Journal of Development Economics*, *165*, Article 103147. https://doi.org/10.1016/j.jdeveco.2023.103147

Lai, J. T., Xie, J., Cao, S., & Zhang, H. (2022). Digital financial inclusion and illegal fundraising in China. *Applied Economics*, *54*(48), 5575–5590. https://doi.org/10.1080/00036846.2022.2047601

Lewis, M. K. (2012). New dogs, old tricks. Why do Ponzi schemes succeed? *Accounting Forum*, *36*(4), 294–309. https://doi.org/10.1016/j.accfor.2011.11.002

Lewis, M. K. (2015). What can behavioural finance tell us? *In Understanding Ponzi schemes* (pp. 119-134). Edward Elgar Publishing. https://doi.org/10.4337/9781782549109

Li, D., Peng, Z., & Xiong, K. (2021). Usury crimes in post-crisis China: The underlying economics and beyond. *Journal of Economic Issues*, *55*(4), 1023–1033. https://doi.org/10.1080/00213624.2021.1988628

Li, L., & Sun, C. (2024). How does digital finance reduce urban crime rate? *Finance Research Letters*, *63*, Article 105382. https://doi.org/10.1016/j.frl.2024.105382

Liang, P., & Jiang, H. (2020). Financial access and internet financial risk alleviation – An empirical analysis based on internet pyramid scheme judicial documents. *China Industrial Economics*, *4*, 116–134.

Liebman , B., Stern, R., Wu, X., & Roberts, M. (2023). Rolling back transparency in China's courts. *Columbia Law Review*, *123*(8), 1–23.

Lu, J. (2021). Crime statistic and optimizing crime governance. *Social Sciences in China*, *10*.

Magnuson, W. (2018). Regulating fintech. *Vanderbilt Law Review*, *71*(4), 1167–1226.

National Bureau of Statistics of China. (n.d.). *China City Statistical Yearbook*. China Statistics Press.

National Enterprise Credit Information Publicity System. (n.d.). https://www.gsxt.gov.cn/index.html

National Financial Regulatory Administration. (2020, December 8). *FinTech developments, challenges and supervision in China* [Video speech]. https://www.nfra.gov.cn/en/view/pages/ItemDetail.html?docId=947697

National People's Congress. (2021a, August 20). *Personal Information Protection Law of the People's Republic of China*. https://www.gov.cn/xinwen/2021-08/20/content_5632486.htm

National People's Congress. (2021b, June 10). *Data Security Law of the People's Republic of China*. http://www.npc.gov.cn/npc/c2/c30834/202106/t20210610_311888.html

Ng, A., & Kwok, B. K. B. (2017). Emergence of Fintech and cybersecurity in a global financial centre: Strategic approach by a regulator. *Journal of Financial Regulation and Compliance*, *25*(4), 422–434. https://doi.org/10.1108/JFRC-01-2017-0013

Nikkel, B. (2020). Fintech forensics: Criminal investigation and digital evidence in financial technologies. *Forensic Science International*: *Digital Investigation*, *33*, Article 200908. https://doi.org/10.1016/j.fsidi.2020.200908

Nițu, M., Paraschiv, D., & Dumitrescu, M.-S. (2020). The economic-financial crime of the 21st century. *The Romanian Economic Journal*, *75*, 84–92.

O'Flaherty, B., & Sethi, R. (2015). Urban crime. In G. Duranton, J. V. Henderson, & W. C. Strange (Eds.), *Handbook of regional and urban economics* (Vol. 5, pp. 1519–1621) Elsevier. https://doi.org/10.1016/B978-0-444-59531-7.00023-5

Rao, Y. (2021). Dreaming like a market: The hidden script of financial inclusion in China's P2P lending platforms. *Economic Anthropology*, *8*(1), 102–115. https://doi.org/10.1002/sea2.12200

Skogan, W. G. (1977). Dimensions of the dark figure of unreported crime. *Crime & Delinquency*, *23*(1), 41–50. https://doi.org/10.1177/001112877702300104

Soares, R. R. (2004). Development, crime and punishment: Accounting for the international differences in crime rates. *Journal of Development Economics*, *73*(1), 155–184. https://doi.org/10.1016/j.jdeveco.2002.12.001

Tianyancha. (n.d.). https://www.tianyancha.com/

United States Securities and Exchange Commission (n.d.). *Ponzi Schemes*. https://www.investor.gov/introduction-investing/investing-basics/glossary/ponzi-schemes

Ünvan, Y. A. (2020). Financial crime: A review of literature. In S. Grima, E. Boztepe, & P. J. Baldacchino (Eds.), *Contemporary Issues in audit management and forensic accounting*: *Vol. 102*. *Contemporary studies in economic and financial analysis* (pp. 265–272). Emerald Publishing. https://doi.org/10.1108/S1569-375920200000102019

Walch, A. (2015). The Bitcoin blockchain as financial market infrastructure: A consideration of operational risk. *Legislation and Public Policy*, *18*, 837–894.

Weiyang Research. (2019). *Weiyang broadcast today*: *Beijing's Dongcheng District and Haidian District P2P platforms will enter a new round of administrative verification*. https://www.weiyangx.com/326283.html

Wronka, C. (2023). Financial crime in the decentralized finance ecosystem: New challenges for compliance. *Journal of Financial Crime*, *30*(1), 97–113. https://doi.org/10.1108/JFC-09-2021-0218

Xinhua. (2020). *China's P2P platform number falls to zero*. CninaDaily. https://english.www.gov.cn/statecouncil/ministries/202011/28/content_WS5fc21393c6d0f72576940d63.html#:~:text=BEIJING%20%E2%80%94%20The%20number%20of%20Chinese%20peer-to-peer%20%28P2P%29,to%20crack%20down%20on%20risky%20forms%20of%20financ

Yuan, K., & Xu, D. (2020). Legal governance on fintech risks: Effects and lessons from China. *Asian Journal of Law and Society*, *7*(2), 275–304. https://doi.org/10.1017/als.2020.14

Zakaria, P. (2023). Financial inclusion to digital finance risks: A commentary on financial crimes, money laundering, and Fraud. In A. N. Turi (Ed.), *Financial technologies and DeFi*. *Financial innovation and technology* (pp. 123–130). Springer. https://doi.org/10.1007/978-3-031-17998-3_9

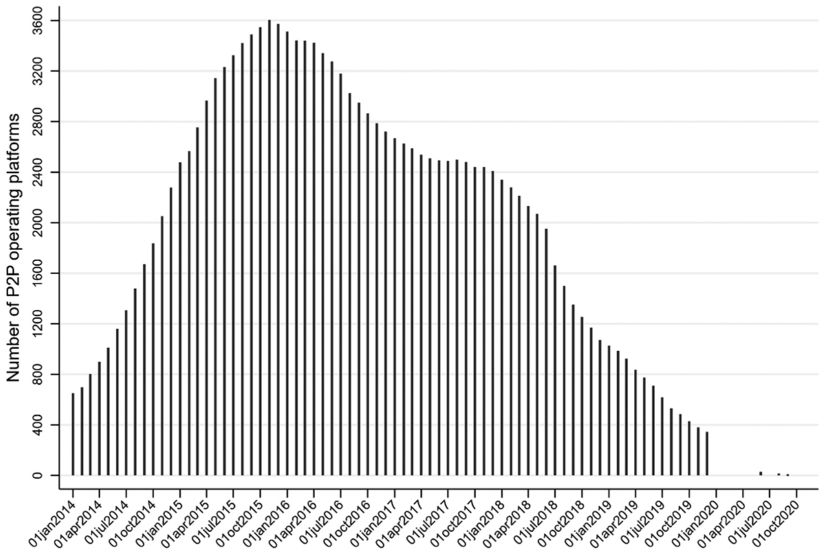
Zetzsche, D. A., Buckley, R. P., Arner, D. W., & Barberis, J. N. (2017). *From FinTech to TechFin*: *The regulatory challenges of data-driven finance* (EBI Working Paper No. 6). European Banking Institute. https://doi.org/10.2139/ssrn.2959925

Zhang, Y., Liu, S., & Liu, L. (2011). Can we attribute increasing criminal rate to enlarging urban-rural inequality in China? *Economic Research Journal*, *2*, 59–72.

Zhao, J., Li, X., Yu, C.-H., Chen, S., & Lee, C.-C. (2022). Riding the FinTech innovation wave: FinTech, patents and bank performance. *Journal of International Money and Finance*, *122*, Article 102552. https://doi.org/10.1016/j.jimonfin.2021.102552

Zhu, A., Fu, P., Zhang, Q., & Chen, Z. (2017). Ponzi scheme diffusion in complex networks. *Physica A*: *Statistical Mechanics and Its Applications*, *479*, 128–136. https://doi.org/10.1016/j.physa.2017.03.015

APPENDIX



Note: Data from the CEIC China Economic Database (n.d.).

Figure A1. FinTech development trend of treatment group and control group

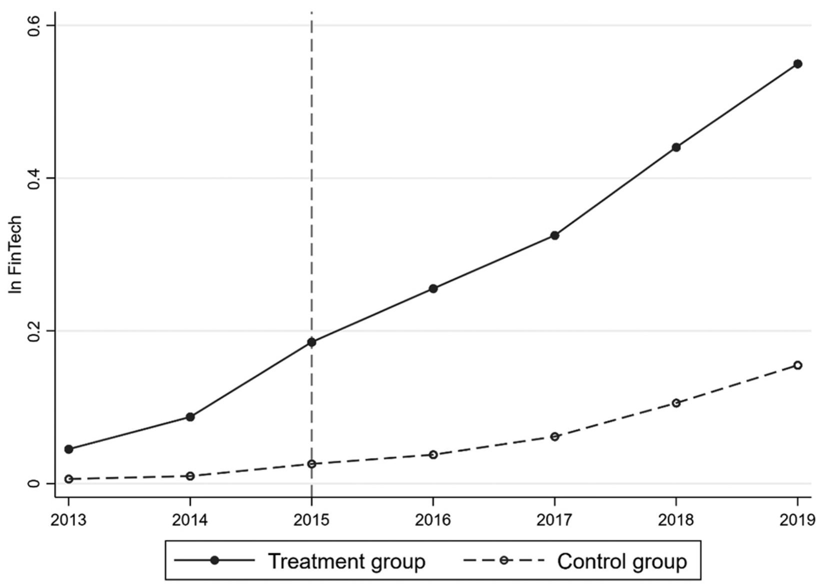


Figure A2. The number of P2P lending platforms operating