

# A Theoretical Study on the Mechanisms of How Digital Finance Reshapes Corporate Social Responsibility

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## Abstract

This paper studies the impact of digital finance on CSR practices from a theoretical perspective. Based on existing literature, this paper first clarifies the definition and features of digital finance and the dimensions of CSR. We then construct a theoretical framework to explore how digital finance shapes CSR from the triple mechanism, including an enhanced external oversight mechanism, an optimized internal incentive mechanism and an algorithm-driven mechanism. These mechanisms reveal how digital finance has gradually incorporated CSR into firms' strategic and operational choices. The paper provides a new perspective for understanding CSR against the backdrop of digital transformation.

**Keywords:** digital finance, corporate social responsibility, enhanced external oversight mechanism, optimised internal incentive mechanism, algorithm-driven mechanism

## 1. Introduction

Traditional Business operations have undergone a significant transition with the widespread use of the Internet [2]. As the meeting point of traditional finance and technology, digital finance began to emerge at the end of the 20th century and the beginning of the 21st century. Not only do finance and technology provide new opportunities for development, transformation, and digitalization [10], but they also improve efficiency, inclusiveness, and interconnectedness [31]. In addition to reshaping traditional finance, digital finance also affects the strategic choices and social behaviours of companies.

Meanwhile, Corporate Social Responsibility (CSR) has become a vital path for businesses to meet social expectations and uphold their moral obligations. Digital finance improves information transparency and decision-making efficiency and provides more accurate data support and real-time feedback for the CSR implementation. Against this background, the relationship between digital finance and CSR has gradually attracted academic attention. However, most of the existing studies focus on the influence of digital finance on financing, corporate governance or risk control [3][21], and fewer systematically explore how it shapes the social behavior of enterprises through structural mechanisms. As the relationship between firms and fintech platforms deepens, digital finance is gradually evolving into a key variable affecting firms' external reputation, moral judgment and internal governance [6,11]. In this process, it is worth considering whether digital finance is reconfiguring CSR behavior? Therefore, this paper attempts to explore how digital finance shapes CSR behaviors from a theoretical perspective. To this end, based on the existing literature, this paper first clarifies the definition and features of digital finance and the dimensions of CSR. We then construct a theoretical framework to explore how digital finance shapes CSR from the triple mechanism, including an enhanced external oversight mechanism, an optimized internal incentive mechanism and an algorithm-driven mechanism, in an effort to provide a valuable perspective for relevant theories and practices.

## 2. Digital Finance and Corporate Social Responsibility

As the digital economy is increasingly transforming traditional business, it is vital to clarify the definition and summarize the features of digital finance as well as the link with CSR, which not only helps to construct the theoretical framework but also contributes to a thorough examination of the relationship between the two.

### 2.1 Definition and Characteristics of Digital Finance

Digital finance refers to the new model of providing financial services through digital technology [2], which represents the integration of information technology and traditional financial services, including the use of online

platforms, tools and strategies to facilitate financial operations, improve the customer experience and provide new opportunities for business in the financial sector [2]. By applying blockchain, cryptocurrency, fintech breakthroughs and artificial intelligence [31], digital finance has played a vital role in reforming financial services [31] and making financial services more inclusive and efficient for more people. The following are the characteristics of digital finance.

First is technology driven. The rise of fintech, such as crowdfunding, initial coin offerings, and fintech lending, has made it easier for people to access financial resources and is widely used in the process of offering financial services[22]. For instance, many companies are trying to apply the latest blockchain technology to their existing operating systems[19]. Second is service innovation. Digital finance exerts significant influence on the traditional financial industry by increasing efficiency, inclusiveness and interconnectedness [31]. Particularly, digital finance can reduce risk and increase efficiency [29]. Fintech can enhance retail banking, cryptocurrencies, and persuade people without a bank account to use fintech through online[16]. Digital finance gives rise to new types of financial services, such as mobile payment, online lending, and digital currency to meet various financial needs. Digital finance changes the competitive environment of commercial banks and challenges their traditional competitive advantages in terms of services, channels, customer information, and capital[26]. Third is inclusion. Inclusive digital finance provides financial services to rural residents through the use of digital technology, and it is an effective way to achieve common prosperity [30]. Their analysis of county-level digital financial data and rural survey confirms that inclusive digital finance significantly contributes to shared prosperity through the creation of job opportunities, property incomes, and income from farming [30]. Based on data from the World Bank Enterprise Surveys for 2,700 private firms in China from 2011 to 2013, it is confirmed that the development of digital finance increased the probability of loan approval for private firms, lowered barriers to obtaining bank loans, and helped small and medium-sized enterprises (SMEs) to access bank loans more easily [5].

### *2.2 Reconstruction of the Dimensions of Corporate Social Responsibility*

The understanding of corporate social responsibility (CSR) has been going through a profound change, from a compliance obligation to strategic responsibility. Traditionally, CSR was deemed as a compliance obligation, requiring firms to abide by laws and regulations to avert negative consequences. However, CSR is gradually evolving into a strategic tool for businesses as society expects more from them [28]. Strategic CSR attempts to solve a classic problem facing businesses, that is how to fulfil social responsibility and meanwhile staying profitable. Therefore, firms are no longer satisfied with only following laws and regulations but take the initiative to integrate social responsibility into their core strategies and business operations. Strategic CSR mechanisms encompass corporate reputation, interaction with stakeholders, risk management and innovation. A conceptual framework is proposed to integrate CSR into corporate strategy, these dimensions include integration of CSR into company history, culture and values; the formalization of CSR; the emphasis on organizational responsibility; the link of CSR with core business and competencies; the inclusion of CSR to supply chain activities; the combination of CSR and the use of resources, and the participation in CSR-related activities [24]. This transformation means that companies need to reexamine their relationships with stakeholders and actively participate in campaigns aimed at addressing social and environmental problems. Through the implementation of strategic CSR, the company can enhance its reputation and brand, attract and retain talents, reduce operating costs, promote innovation and eventually make a profit.

This can also be seen in the change of CSR dimensions, in which the three-dimensional CSR model (environmental, social, and governance, ESG) is receiving increasing attention. ESG provides a holistic framework for companies to manage and evaluate their CSR performance. The environmental dimension reflects the corporate impact on the natural environment, such as emissions reduction and saving resources and the corporate capability to survive climate threats, such as climate change; the social dimension reflects the corporate relationship with the people, such as fair wages, and promoting the development of the community; the governance dimension is about the corporate internal management, seeking to improve transparency and accountability [17].

### *2.3 Digital Finance and Corporate Social Responsibility*

When ESG becomes more important to firms, digital finance is instrumental in fulfilling CSR. Digital finance can reduce carbon emissions by promoting the industrialization of digital technology and optimizing industrial structure [23]. Digital finance can also enhance the ability of companies to compete and innovate by driving the digital transformation of old industries. Digital finance can improve energy consumption through increasing carbon emission reduction by promoting the digital transformation of old industries. Moreover, the development of inclusive digital finance helps lower the intensity of carbon emissions in agriculture, contributing to the achievement of carbon reduction goals [6]. Digital finance helps companies better handle environmental

challenges and fulfil social responsibilities by improving the efficiency of resource allocation and promoting technological innovation. Thanks to the inclusiveness of fintech, companies can use resources more efficiently to take social responsibilities while reducing financial risks.

Existing research shows that digital finance affects CSR performance through various mechanisms. Regarding financing, digital finance significantly reduces corporate financing constraints, thereby promoting ESG investment. This effect is more evident among non-state-owned, smaller, less market-oriented firms, and firms in the central and western regions [14]. The research results prove that efficient financial institutions can give a strong boost to cleaner production through clean energy projects, R&D support, and green finance [9]. Concerning green technological innovation, the development of inclusive digital finance can fuel corporate green technological innovation by alleviating financing constraints and optimizing internal controls [13]. The growth of digital finance enhances corporate green technological innovation, which in turn improves their ESG performance [12]. Digital finance, which is empowered by big data, has transformed traditional financial services. Digital finance improves the ESG performance of firms by promoting green innovation in firms and alleviating financing constraints. Digital finance's spatial spillover effect on ESG performance is not limited to firms in the region but also exists in firms in neighboring regions [23]. Digital finance has this spatial spillover effect mainly through the mobility of factors, including labor, capital and technology.

### **3. Theoretical Analysis: The Triple Mechanism of How Digital Finance Influences CSR**

In the above parts, we discussed digital finance's practical role in alleviating financing constraints of enterprises, promoting green technological innovation, improving ESG performance and playing an important role in fulfilling CSR. However, the impact of digital finance is not limited to these areas. It can shape CSR awareness and behaviors in a deeper way. This paper constructs a theoretical framework to analyze how digital finance shapes CSR from three aspects, including enhanced external oversight mechanism, optimized internal incentive mechanism and algorithm-driven mechanism.

#### *3.1 Enhanced External Oversight Mechanism: From Untransparent Responsibility to Calculable Responsibility*

Under the traditional institutional environment, fulfilling corporate social responsibility is often hindered by information asymmetry and a lack of effective monitoring, making CSR activities difficult to assess and incentivize. Due to the high degree of information asymmetry, it is not easy for external investors, regulators, the media, and the public to access the real CSR performance in environmental protection, employee treatment and community involvement. Therefore, the practice of CSR often risks devolving into formalism and may even be exploited as tool for greenwashing

The technological support of digital finance, especially big data and artificial AI, makes it possible to monitor CSR behavior in real time, improving the transparency and traceability of CSR behavior. Through real-time data analysis, the capital market and the public can keep informed of CSR performance in environmental emissions, labor practices, and product safety, and make investment and consumption decisions accordingly. Fintech such as blockchain, AI, digital payment system promotes green investment for all, improve the transparency of ESG reports and promote financial inclusion. digital finance can improve ESG performance by enhancing environmental information disclosure. Sustainability disclosure also affects earnings management [1]. In short, this trend of information transparency has changed CSR from untransparent responsibility to calculable responsibility.

Fintech enterprises use big data and AI to automatically collect non-financial information from other information islands, such as carbon emission monitoring, donation to charity and environmental audit reports. In practice, fintech tools can compare various ESG rating standards and generate unified rating reports in real time. The increasing computability of CSR not only improves the efficiency of external supervision but also reshapes how the social value of CSR is manifested. Thanks to the unique technological advantages, digital finance is transforming the framework of external corporate governance, making CSR activities more transparent, traceable, and accountable.

#### *3.2 Optimized Internal Incentive Mechanism: From Resource Constraints to Responsibility-Driven*

Another main challenge facing CSR is the resource constraints, especially for SMEs and high-growth firms. The high barriers and high cost of financing in the traditional financial system led firms to view CSR as optional rather than a strategic priority. Digital finance alleviates this resource constraint to a certain extent with its inclusive, low-threshold and efficient features. It is attested that digital finance can significantly ease the financing constraints of firms, thus encouraging their investment in ESG practices, and this positive effect is more evident in firms that are non-state-owned, small-sized, and less market-oriented, as well as those in the central and western regions [14].

The financial resources unlocked by digital finance enable firms to redirect funds to CSR-related activities, such as green technology innovation [12-13]. The dual role of digital finance as a financing platform and a social platform facilitates innovation breakthroughs and indirectly enhances CSR performance. This reallocation of resources stimulates internal motivation, creating a mutually reinforcing cycle between innovation and CSR. Some digital financial platforms have included CSR performance in the credit rating system. For example, Alibaba's Mybank uses big data and AI to complete the three-step process of recognizing green practices, evaluating green performance and measuring carbon reduction for small and micro enterprises, and provides more preferential green loans to enterprises with good green ratings [15]. This link between CSR and credit granting mechanism makes enterprises aware that responsible behavior can be converted into assets and become an intrinsic incentive to reduce financing costs and obtain more financial resources.

According to the resource-based view, it is more likely for firms to actively promote CSR and even embed CSR into their business models when resource constraints are alleviated. The reallocation of firm resources induced by digital finance motivates firms to view CSR as value co-creation rather than mere compliance. On one hand, through reducing information asymmetry in financial market, digital finance makes it easier for firms to obtain financing and alleviates their financing constraints. On the other hand, digital finance helps pollution-intensive firms invest more in CSR, which not only helps them build brand image but also promotes sustainable development and the common good [7,27].

### *3.3 Algorithm-Driven Mechanism: From Technological Neutrality to Rules Embedding*

In addition to external and internal dimensions, digital finance exerts even deeper influence on CSR through an algorithm-driven mechanism. In addition to tracking corporate behavior, technology platforms also embed certain values and behavioral norms through algorithm design and platform rules. A company's digital finance platform performance, including its credit score, risk level and ESG rating, is all generated automatically by algorithms. Algorithms have pre-set standards of what makes a firm "good" or "responsible". For example, CSR performance can be measured from dimensions, such as environmental protection, employees' rights, charity and public welfare [20]. In turn, companies begin to make efforts to improve their CSR performance in order to meet these algorithm-based standards, which can be called "algorithmic disciplining". In the long run, the scoring system embedded in platform rules becomes an important reference for firms when making strategic plans.

Influenced by algorithmic systems, companies with better CSR performance are more likely to be supported and provided with more resources. For instance, institutional investors' shared ESG preferences significantly promote low-carbon innovation in family-owned enterprises[26]. Therefore, through its platform rules and systems, digital finance strengthens the role of CSR in business strategies and practices. How digital finance affects CSR is neither monolithic nor linear, but through strengthened external oversight mechanism, enhanced internal incentive mechanism and algorithm mechanism. Thus, it demonstrates that firms should be clear-minded and proactive about various mechanisms induced by digital finance before making business decisions. On the one hand, firms should enhance information transparency and data practices to satisfy external supervision. On the other hand, firms should rely on digital tools to motivate employees and management to engage in CSR. Besides, firms should respond proactively to scoring systems induced by digital finance because it plays an increasingly important role in firms' access to resources and reputation.

## **4. Conclusion**

In sum, this paper has constructed a theoretical framework to explore how digital finance shapes CSR from the triple mechanism, including an enhanced external oversight mechanism, an optimized internal incentive mechanism and an algorithm-driven mechanism. These mechanisms reveal how digital finance has gradually incorporated CSR into firms' strategic and operational choices. For managerial implications, firms should treat digital finance as an important means to achieve strategic transformation and the creation of shared social value. Based on external oversight, internal incentives and technological support, a responsible development model can be established in the era of digital finance.

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