# Exploring the Impact of Financial Technology on the Sustainable Development of Enterprises

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**Abstract.** In recent years, the rapid development of financial technology (Fintech) has aroused extensive attention in academic circles regarding its relationship with sustainable development. Most studies have empirically confirmed that Fintech plays a significantly positive role in sustainable development, providing important references for subsequent academic exploration and the promotion of sustainable development through Fintech in practice. However, existing studies still have obvious limitations, such as the one-sidedness caused by data sources mostly concentrating on specific regions or industries, and the neglect of key variables like policy interventions and cultural differences. This paper systematically sorts out relevant literature, focusing on elaborating the achievements and progress of Fintech in three major sustainable development fields: economic development, social progress, and environmental protection. It reveals its core mechanism of action — reducing information asymmetry and transaction costs through technical means, while broadening investment channels to increase capital input in sustainable fields. On this basis, this paper deeply analyzes the deficiencies of existing studies and provides targeted ideas and potential directions for future exploration of the specific application paths and impact mechanisms of Fintech in corporate sustainable development.

## 1 Introduction

Under the macro trend of global economic transformation toward green and low-carbon development, sustainable development has become a key issue for the survival and competition of businesses. Its scope includes three aspects: economic growth, social progress, and environmental protection, specifically reflected in economic development, social equity and stability, and ecological health. This concept has garnered widespread attention since its inception, and since then, the United Nations has been dedicated to achieving coordinated economic, social, and environmental objectives through the implementation of sustainable development. Today, with the ongoing progress of digital transformation in the global economy, Fintech has been widely adopted across various financial sectors, including sustainable finance, and makes significant contributions to achieving sustainable development goals [1].

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In recent years, with the rapid growth of Fintech, research on its impact on sustainable development has steadily increased. Currently, most studies focus on the positive role of Fintech in promoting sustainability, covering three areas: economy, society, and environment. Many analyze the Peking University Digital Inclusive Finance Index and various financial data using basic economic models to show how Fintech benefits sustainable development, offering ideas for using Fintech to achieve future goals. However, some research remains limited to specific fields and cannot fully connect the role of Fintech across the three dimensions of sustainability. For example, according to Huang et al., Fintech drives technological innovation, boosts regional Research and Development (R&D) investment, and promotes economic growth [2]. Additionally, integrating Fintech with traditional inclusive finance has improved lending efficiency and contributed to social harmony and stability [3]. Further, studies indicate that Fintech helps reduce information asymmetry between banks and businesses and enhances green credit policies [4]. Nevertheless, most existing research is limited in scope when exploring sustainable development and tends to emphasize the positive impacts of Fintech. As a result, these studies may not fully reflect the future potential of Fintech in sustainable development, possibly leading to misguidance in policy-making and practical application.

Therefore, this article divides past literature into three areas: economy, society, and environment, and offers a review of each. Combining the current development of Fintech and the state of sustainable development, the data perspectives of relevant research are analyzed and integrated, and previous research findings are evaluated to summarize Fintech's contribution and prospects in the field of sustainable development.

## 2 Fintech and the economic dimension of sustainable development

### 2.1 Research on the application of fintech to promote economic growth

By analyzing the financial data of all listed companies in the A-share markets of Shanghai and Shenzhen in China from 2011 to 2022 and combining it with model analysis, it is concluded that fintech has reduced information asymmetry in the financial market, increased opportunities for enterprises to obtain trade credit, and promoted enterprise development and regional economic growth [5]. Due to the alleviation of information asymmetry in the financial market, more "soft information" of enterprises has been understood by banks and other financial institutions, which has led to more reasonable credit pricing, reduced financing application time, lowered financing costs, and improved capital structure [6]. Additionally, the integration of technology with traditional financial services encourages regional research investment, decreases credit-related costs, and enhances the savings-investment ratio by improving capital allocation efficiency and expanding financial service coverage, thereby fostering regional economic growth [2]. Moreover, empirical evidence indicates that Fintech has intensified competition among banks, thereby speeding up the adjustment process of corporate capital structure [6].

However, although previous studies have shown through regression analysis that fintech has alleviated market information asymmetry, reduced corporate financing costs, stimulated bank competition, improved corporate capital structures, and thereby promoted economic growth, there are still limitations in earlier research. First, there are issues with data selection. For example, the data used in Liu et al.'s study were all from developed regions of China, raising questions about whether these findings apply to economically underdeveloped areas. Additionally, the study lacks control over company-specific variables such as liquidity and asset intensity. Second, some conclusions are not sufficiently rigorously derived. For instance,

in the study suggesting that Fintech accelerates the adjustment of corporate capital structures by stimulating bank competition, while literature supports the idea that bank competition promotes faster adjustment, and empirical research indicates that Fintech benefits this process, the data analysis results, or relevant literature have not demonstrated the impact of Fintech on bank competition.

### 2.2 Research on fintech and policy promoting economic growth

Another type of research examines how Fintech and government policies influence economic growth. This is mainly divided into two areas: how Fintech affects monetary and fiscal policies, and how these policies impact Fintech. Taking the United States as an example, studies using the SVAR model during the pandemic have shown that the Fintech index is highly sensitive to Federal Reserve policy actions and demonstrates stronger risk resistance than traditional banks during crises, aligning with investor expectations [7]. Additionally, research indicates that China's pilot Fintech policies optimize financial resource allocation by introducing emerging technologies, expedite economic transformation, and foster technological innovation and quality growth in enterprises. However, these policies also restrict the development of general enterprises by increasing entry barriers for non-technical fields [8].

Through comparison, it was found that the above two studies share certain similarities in data selection, specifically, both include periods of epidemic and economic depression. However, the difference lies in the former's focus on the impact of monetary and fiscal policies on fintech in the special context of the pandemic, as well as fintech's response to economic growth after being affected, which makes its research results unique. Therefore, the applicability of this study's conclusions to future crises remains questionable. In the latter study, the epidemic was an interference factor, and it cannot determine whether the second study effectively excluded the direct impact of the epidemic itself on the secondary and tertiary industries, lacking a certain degree of rigor.

## 3 The social aspects of fintech and sustainable development

### 3.1 The impact of fintech on financial inclusiveness

There are two types of research included. One examined the changes made by fintech in inclusive growth from three aspects: innovation, entrepreneurship, and human capital. Some studies have used econometric models based on ordinary least squares methods to conclude that in terms of capital supply and demand, technologies such as artificial intelligence included in fintech can effectively alleviate information asymmetry, enabling traditional financial exclusion groups to obtain equal financing opportunities, promoting social harmony and financial inclusion, and innovation and entrepreneurship are particularly sensitive to the response of Fintech [9]. Another approach is to conduct a questionnaire survey and model analysis of VTB banks in various provinces of China and find that the development of Fintech has improved the feasibility of mobile banking, strengthened competitive incentives, and thus enhanced financial inclusiveness [10].

Regarding the selection of data in the previous study, some studies selected 281 prefecture-level cities in China as panel data and controlled for variables and eliminated the influence of heteroscedasticity in data unification and analysis. For the situation in rural areas, this study adopts the formula analysis method. However, due to the lack of empirical analysis of rural data, the conclusions drawn from formula analysis may deviate from the actual situation. Secondly, the selection of research variables may be improved. For example, in the

study of the impact of Fintech development on VTB financial inclusiveness, researchers used the number of Fintech companies as an indicator to measure the development of Fintech. This selection has some rationale but is still incomplete. Although the number of fintech companies to some extent reflects the level of fintech coverage in a region, it is still one-sided to reflect the progress of fintech. Perhaps the variable of "whether they have mastered the latest fintech technology" can be added further to reflect the development level of fintech in a region.

### 3.2 The impact of fintech on rural income

The study analyzes the impact of Fintech on rural household income, employment income, and land income to demonstrate its role in rural economic development [11]. In the identification strategy, Hangzhou's proximity serves as the instrumental variable to establish causal inference. Meanwhile, this study analyzes the relationship between the penetration rate of Fintech in rural households in China and their per capita income. It is found that Fintech has promoted the shift of employment from agriculture to non-agricultural sectors and is therefore positively correlated with rural household wages and property income, and negatively correlated with operational and transfer income [11]. Further empirical research through the decomposition framework shows that Fintech can help increase rural household employment rates, promote the transition from the agricultural sector to the non-agricultural sector, reshape the labor force structure, and facilitate labor force transformation [11]. At the same time, Fintech has increased the circulation rate of arable land, expanded land use, but also reduced subsidies related to agricultural production [11].

Although the empirical analysis of the study covers three major areas of rural economic impact and conducts heterogeneity analysis of cross regional and household economic conditions after empirical analysis, it is concluded that the impact of Fintech on rural economy is more significant in developed areas and high-income households due to their higher education level and more comprehensive financial knowledge [11]. However, in the analysis of rural household income, employment income, and land income in this study, the influence of other factors between different regions on the rural economy was not excluded. For example, pilot policies in some countries may have an impact on rural economies in different regions, and some national key projects that only involve some cities may also affect the accuracy of experimental results, but this factor has not been shown in the research analysis..

## 4 Environmental aspects of fintech and sustainable development

### 4.1 Initial investment in fintech and environmental protection

Green bonds, as the core product of green finance, play a crucial role in environmental financing and green development. Research has shown that Fintech promotes the growth of green bond issuance from both market intermediaries and the demand side by reducing management transaction costs and improving information transparency [12]. Liu et al. conducted regression analysis on datasets obtained from financial disclosures such as WIND database and corporate annual reports by constructing moderation effect models and moderation effect models. They found that fintech can improve corporate ESG performance by increasing investment in environmentally friendly projects, stimulating research and development innovation, and other means [13].

In Liu et al.'s study, it was found that the impact of Fintech on the subcomponents of corporate environmental governance is not significant, and a hypothesis was made that this

phenomenon may be due to the offsetting of positive and negative effects of Fintech on the subcomponents of corporate environmental governance. However, no significant analysis has been found on the positive and negative impacts of the environmental governance subcomponents of fintech companies. Therefore, it cannot be directly concluded that the impact of fintech on the environmental governance subcomponents of companies is not significant. This research result is due to the offsetting of the positive and negative impacts of fintech. In future related research, significant studies on the positive and negative impacts of Fintech on the subcomponents of corporate environmental governance, as well as endogeneity testing of its impact as a Fintech, may become a new research direction. How to improve the positive impact of Fintech and reduce its negative impact will also become a new direction for future research.

### 4.2 Post-governance of fintech and environmental protection

Fintech not only has an impact on initial investments such as environmental protection but also plays a role in the later stages of environmental governance and maintenance. By employing a multidimensional framework integrating financial, environmental, economic, and resource indicators, it is ultimately concluded that FinTech development significantly enhances environmental quality. The green index improvement is mediated primarily through operational efficiency optimization and green technology innovation acceleration [14]. In addition, Fintech has also contributed to the energy transition to a certain extent. However, although Fintech can support green finance plans by improving financial service efficiency, its ability to promote transformative energy technologies or significantly reduce carbon emissions is still limited [15].

Lu et al.'s study also considered resource and financial indicators in the selection of indices, effectively expanding the three pillars of early green environment indices: economy, society, and environment. However, in terms of data selection, perhaps due to the difficulty of data collection, Lu et al.'s study only selected data from 2012 to 2019, so their conclusions may be questionable in today's era of significant development in Fintech.

## 5 Conclusion

Fintech utilizes technologies such as artificial intelligence and blockchain to have positive impacts on sustainable development in three aspects: economy, society, and environment. There is now sufficient literature to empirically analyze and confirm that fintech is conducive to sustainable development by mitigating information asymmetry, optimizing capital structure, promoting labor and economic transformation, and facilitating green investment. However, existing literature still has certain limitations. This limitation is mainly reflected in the limitations of data selection and the neglect of some interfering factors, which also inspires future research to follow comprehensive and universal principles as much as possible when selecting data, and to avoid situations where the dataset is too one-sided. It should also be noted that when conducting heterogeneity analysis, all possible interference factors that may affect the experimental results should be taken into account as much as possible.

Existing research still focuses on the current impact of Fintech on sustainable development, and some studies make recommendations and predictions for future policy planning based on existing experimental analysis results. However, there are still a few studies that make relevant feasibility analyses while predicting future policies. Therefore, further research is needed in the future to provide recommendations and feasibility analysis on how to increase the positive impact of Fintech on sustainable development through relevant policies, to promote the role of Fintech in promoting sustainable development.

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