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<https://doi.org/10.61796/jaide.v1i5.596>**DIGITAL FINANCE AND ENTERPRISE
FINANCING CONSTRAINTS****Mamayusupova Shokhina Ulugbek kizi**Tashkent state university of economics, Finance and accounting
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Abstract: In this study, we utilize panel data of A-share listed companies spanning from 2011 to 2020 to examine the effectiveness of the WW index in characterizing the level of enterprise financing constraints in China. Specifically, we explore the impact of regional digital finance (DF) development on these financing constraints. Our findings indicate that the WW index serves as a robust measure for assessing enterprise financing constraints. We observe that the development of digital finance has a substantial mitigating effect on these constraints, particularly benefiting small and medium-sized enterprises (SMEs) and private enterprises. Moreover, DF helps to address traditional finance's biases against private SMEs, such as size and ownership discrimination, as well as the mismatch of financial resources. Additionally, our results suggest that DF plays a crucial role in reducing information asymmetry in both the securities market and between banks and enterprises, thereby enhancing external financing capabilities. Furthermore, DF contributes to increasing total factor productivity (TFP) and optimizing internal financing capacity within enterprises. Overall, our study underscores the significant role of digital finance in alleviating enterprise financing constraints in China.

Keywords: Financial policy, Globalization, Development, Sustainability, Concept, System, Direct And Indirect Taxes.

This is an open-access article under the [CC-BY 4.0](https://creativecommons.org/licenses/by/4.0/) license**Annotation**

Digital finance (DF) represents a new era of financial services merging traditional methods with internet and information technology. In recent times, DF has profoundly reshaped the landscape of the capital market, significantly influencing the investment and financing practices of enterprises (Campanella et al., 2023; Huarng and Yu, 2022). However, existing research lacks a micro-foundation for assessing whether DF can mitigate enterprise financing constraints and an exploration of its impact mechanism. Prior literature on factors influencing enterprise financing constraints predominantly focuses on two aspects: macro-level factors such as imperfect financial systems (Shi et al., 2023) and inefficient credit environments (Kariya, 2022; Guo et al., 2023), and micro-level factors including corporate financial status (Stiebale and Wößner, 2020; Lian and Ma, 2021) and ownership discrimination (Bai et al., 2021). Yet, limited studies analyze these factors from the perspective of DF. [1]

China's ongoing economic transformation and the burgeoning DF sector provide an ideal context for investigation. As China transitions towards high-quality development, traditional

industries face pressing demands for industrial transformation and upgrading. Concurrently, enterprises as market participants continually increase investments in capital, technology, and talent, driving their escalating financing needs (Li et al., 2023). However, financing constraints persist among the majority of Chinese enterprises due to the imperfect financial market, leading to high external financing costs and inadequate financing, hindering optimal investment levels (Ali et al., 2019). Elevated financing constraints signify heightened difficulty in securing external investment financing for companies. [2]

Research by Didier et al. (2021) underscores the significance of external financing in restraining enterprise growth. In a 2012 survey by the World Bank involving 2,700 Chinese enterprises, 22.4% cited financing constraints as the primary challenge in the business environment, ranking highest among ten alternatives. The "Chinese Enterprises' Operators Questionnaire Investigation Report (2021)" similarly identifies financing constraints as a crucial obstacle for Chinese enterprises, particularly private small and medium-sized enterprises (SMEs). Additionally, China's financial market, characterized by its late inception, inadequate system construction, low market maturity, and widespread information asymmetry, fails to meet the financing needs of private SMEs, resulting in a "Macmillan Gap." Furthermore, scale and ownership discrimination prevail in China's financial market, exacerbating financing constraints for SMEs and private enterprises (Bai et al., 2021). [3]

The recent surge in DF presents a potential solution to enterprise financing constraints. Leveraging digital technologies, DF empowers traditional finance and enhances financial system operations (Li et al., 2022). However, can DF effectively alleviate enterprise financing constraints? Can it mitigate traditional Chinese financial institutions' scale and ownership discrimination? What is its mechanism of action? This article endeavors to address these questions, with understanding the mechanism serving as the primary challenge. [4]

Therefore, this study focuses on Chinese A-share listed companies from 2011 to 2020, exploring DF's impact on enterprise financing constraints. Initially, by assessing various indicators' applicability to Chinese enterprise financing constraints, the study finds that the WW index outperforms the KZ and SA indexes, aligning better with China's current financing constraints. Subsequent empirical regression analysis and mechanistic exploration reveal that DF can mitigate enterprise financing constraints, with each standard deviation increase in DF development level correlating with a 0.199 standard deviation reduction in financing constraints. The effect is notably pronounced for private SMEs. DF can partially alleviate traditional finance's scale and ownership discrimination against small and medium-sized private enterprises. Additionally, DF enhances external financing capabilities by optimizing financial markets and internal financing capabilities by improving total factor productivity (TFP). [5]

This study's main contributions are threefold. Firstly, it analyzes and compares different enterprise financing constraint indices' applicability to Chinese enterprises. While existing literature constructs indexes to study enterprise financing constraints, including the KZ index (Kaplan & Zingales, 1997), the SA index (Hadlock & Pierce, 2010), and the WW index (Whited & Wu, 2006), this study assesses their suitability for Chinese enterprises. It finds the WW index to be more accurate and objective in describing enterprise financing constraints, aligning better with their definition. [6]

Secondly, the study verifies DF's mitigating effect on enterprise financing constraints. While prior literature explores DF patterns (Iheanachor & Umukoro, 2022) and its impact on financial inclusion, residents' market participation, and bank performance, limited research delves into corporate finance issues (Wang et al., 2022; Wang, 2022). This study, employing robust empirical

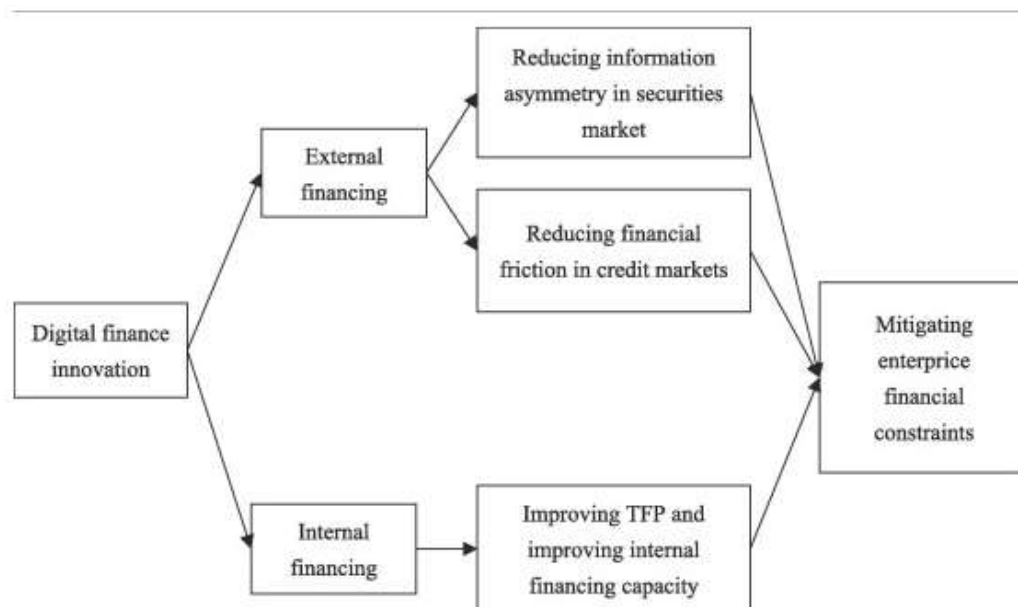
methods to address endogeneity concerns, provides micro empirical evidence of DF's effectiveness in serving the real economy. Heterogeneity analysis further validates DF's corrective role in traditional financial resource misallocation, offering valuable policy insights for financial supply-side reform.

Lastly, the study examines various mechanisms and pathways through which DF affects enterprise financing constraints from a micro-enterprise perspective. While existing literature investigates factors influencing enterprise financing constraints from corporate and macroenvironmental perspectives, less research explores DF's mechanism's impact. This study examines direct and indirect financing channels, distinguishing between different duration indirect financing channels. It finds that DF primarily enhances long-term loan abilities by reducing information asymmetry between banks and enterprises rather than short-term loan abilities by cutting market transaction costs. Furthermore, it proposes and verifies that enhancing enterprise TFP constitutes a critical mechanism for DF in alleviating enterprise financing constraints. These novel findings enrich empirical research in existing literature and offer new research avenues for analyzing DF's impact on the real economy. [7]

The remainder of this paper is structured as follows. Section 2 presents the theories and hypotheses. Section 3 details sample selection, variable setting, and empirical model formulation. Section 4 discusses empirical regression analysis, including baseline regression, robustness testing, endogeneity processing, and heterogeneity analysis. Section 5 conducts further mechanism tests. Finally, Section 6 concludes the paper, presenting implications and limitations.

Digital finance (DF) is increasingly shaping the real economy (Hsu et al., 2014). It fosters the proliferation of regulatory arbitrage and shadow banking, which are often more efficient in providing loans to enterprises. Additionally, DF leverages technologies such as artificial intelligence, facilitating various applications aimed at alleviating the financing challenges of small and medium-sized enterprises (SMEs), including online loans, robo-advisors, and crowdfunding platforms, among others. Furthermore, DF excels in addressing frictional issues and reducing transaction costs within the capital market. Figure 1 illustrates the mechanisms through which digital finance innovation influences enterprise financial constraints.

Hypothesis 1 (H1): Digital finance innovation can mitigate enterprise financial constraints.

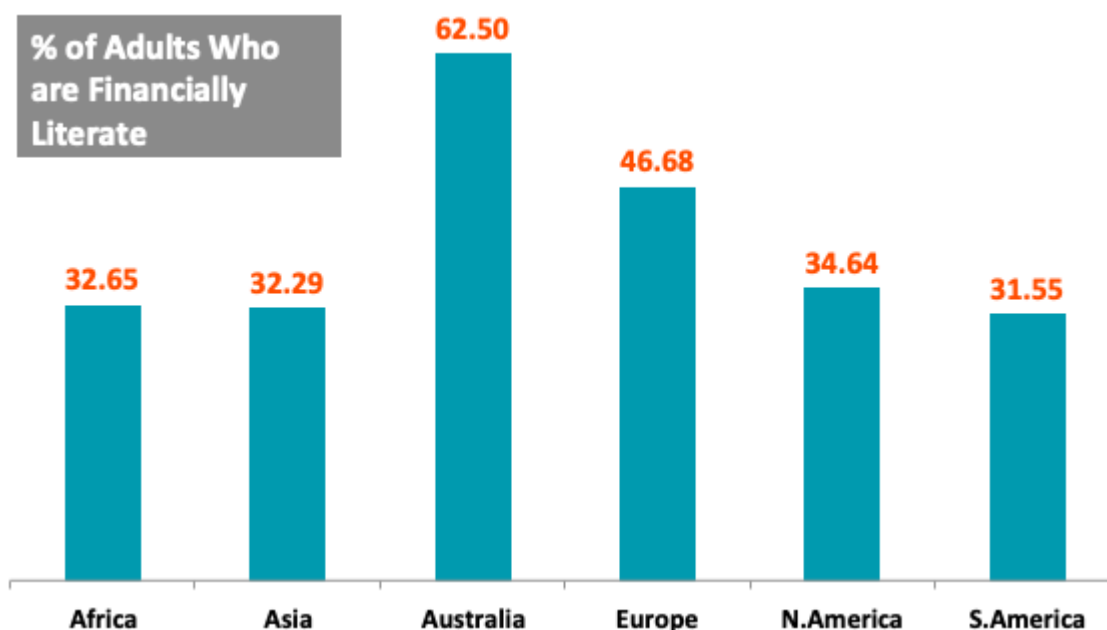


Nagano (2018) posited that the significant information asymmetry between firms and banks leads to constraints on credit availability in terms of both price and quantity. Additionally, he suggested that higher market transaction costs could be transferred to firms through elevated lending rates, exacerbating financial barriers for enterprises. These hurdles in the lending market hinder indirect financing avenues for businesses, intensifying their financing constraints. The advent of Digital Finance (DF), however, promises to ameliorate these challenges by facilitating seamless data and information exchange among various market participants through digital technologies. This enhanced connectivity aids in reducing market transaction costs and enhancing enterprises' access to loans. For instance, DF enables banks, tax departments, and enterprises to share data and streamline processes. This enables banks to efficiently process online loan applications, utilize automated loan models, and establish direct online data connections, potentially enabling the issuance of collateral-free loans based on tax credits.

H3: Digital finance innovation alleviates enterprise financial constraints by diminishing financial frictions in credit markets. [8]

The budget structure outlines the establishment of the state budget and the system of relations between its separate components, the activities of budgetary organizations entering the budget system, the legal framework, composition, and organization of budgets, as well as the procedures for forming budget funds and their utilization. It identifies the differences in budgetary rights at various levels of government within the state administration of countries, indicating the existence of various forms and models of budget structures. Centralized, decentralized, and mixed models of budget organization are considered.

The adoption of the Budget Code has led to the creation of a unified legislative framework that conforms to international financial standards, ensuring the unification of legislation. It is aimed at ensuring the application of uniform legal norms at all stages and levels of the budget process and providing equal participation of all stakeholders in budget processes through consistent regulation. This code serves as a crucial document not only for finance, treasury, or audit bodies but also for local representative and executive bodies directly involved in budget processes.



According to the proposals, approvals, confirmations, and acceptance of reports based on the

submissions of the Council of Ministers of the Republic of Karakalpakstan, regions and the city of Tashkent, as well as district and city governors concerning the budgets of their respective areas, although the main duties of these officials lie in the sphere of local representation and execution, it becomes evident from the responses of the representatives of local representative and executive bodies participating in the questionnaire that they do not always utilize their budgetary powers in practice.

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