

Research on the impact of digital transformation on Enterprise Risk

Yihang Zeng^{1, a}, Ming Guo^{1, b}

¹Shanghai Tech University School of Entrepreneurship and Management, Shanghai200120, China

^azengyh@shanghaitech.edu.cn, ^bguoming@shanghaitech.edu.cn

Abstract. This paper selects Shanghai and Shenzhen A-share companies from 2011 to 2020 as research samples to explore the impact of digital transformation on enterprise market risk and its mechanism. The results show that digital transformation can effectively reduce the market risks faced by enterprises. Mechanism test shows that digitalization reduces enterprise risks by improving enterprise total factor productivity and alleviating financing constraints, and production efficiency and financing constraints play a part of the intermediary effect. The conclusion of this paper has certain reference significance for boosting the confidence of enterprises in digitalization and reducing the market risk of enterprises.

Keywords: Digital transformation; Enterprise risk; Total factor productivity; Financing constraints

1. Journals reviewed

1.1 Economic consequences of digitalization

Enterprise digitalization refers to a systematic process that takes data as the key element, revitalizes the underlying data assets of the enterprise, and improves the enterprise benefits [1]. Driven by the digital economy, more and more enterprises use ERP, SCM and other systems to improve the level of enterprise digitalization [2]; Digital transformation transforms non-standard assets of enterprises into standard assets, which can improve the credibility of enterprise information [3]; By reducing the communication cost between internal employees, improve the internal governance structure [4], improve the efficiency of asset use and thus promote the improvement of enterprise performance[5]; At the same time, digital transformation can also improve the production efficiency of enterprises, reduce the operating costs of enterprises, enhance the value of enterprises[6], and reduce the risk of stock price collapse[7]. In addition, digital transformation can alleviate the problem of information asymmetry by reducing the external financing constraints of enterprises, thereby improving the R&D capability of enterprises and promoting innovation performance and quality [8] [9][10].

To sum up, digital transformation provides valuable opportunities for enterprises and enhances their competitive advantages in the competitive industry atmosphere [11].

1.2 Influential factors of enterprise risk

Enterprises are faced with many different risks, such as market risk, operation risk, financial risk, fraud risk and so on. predecessors have explored the influencing factors of enterprise risk from different angles. From the external factors of the enterprise, the international political situation is unstable, and the uncertainty of domestic economic policies and international trade policies will affect the normal production and operation activities of the enterprise, and increase the enterprise risk [12] [13]. The fluctuation of financial expenditure caused by the change of local officials has an inverted U-shaped relationship with the systematic risks faced by enterprises, that is, before the change, the fluctuation of financial expenditure will aggravate the enterprise risks, while the fluctuation of financial expenditure after the change will reduce the external risks faced by enterprises [14]. From the perspective of internal factors of enterprises, keeping close contact with the government or holding shares by "national teams" with government background can provide more effective information for corporate governance, alleviate agency problems and thus reduce enterprise risks [15] [16]. The more diversified an enterprise's business, the stronger its ability to

resist risks. The speed of diversification can reduce the enterprise's market risk [17]. The enterprise actively performs its social responsibilities, such as making social donations, participating in targeted poverty alleviation, establishing a good public image, improving the reputation of the enterprise, and effectively reducing the impact of exogenous events on the enterprise [18] [19]. However, some behaviors of enterprises will also aggravate the market risks faced by enterprises. For example, in order to capture short-term excess returns in the capital market, enterprises purchase a large number of financial assets, which leads to enterprises "detaching reality to void" and aggravates the systematic risks faced by enterprises [20]. The audit fees of listed companies in China are uneven, and the abnormal audit fees will cause close attention of the capital market, thus exacerbating the market risks faced by enterprises [21].

2. Theoretical analysis and research hypothesis

2.1 Direct impact mechanism of digital transformation on enterprise risk

Digitalization can enable the quality of information disclosed by enterprises to the outside world, improve the transparency of information disclosed by enterprises to the market, better alleviate the problem of internal and external information asymmetry of enterprises, and thus reduce enterprise risks.

2.2 Indirect impact mechanism of digital transformation on enterprise risk

2.2.1 Internal production efficiency mechanism

The improvement of enterprise production efficiency directly brings about the improvement of enterprise performance. Enterprises have more free cash flow to resist market risk, thereby reducing the market risk faced by enterprises.[22]

2.2.2 External financing constraint mechanism

The digital transformation of enterprises can significantly reduce the financing cost of enterprises by improving information asymmetry and enhancing the positive expectation of the market, effectively improve the quality of accounting information disclosure, improve the credit level of enterprises, and significantly reduce the risk of debt default [23] [24].

3. Research Design

(1) model design

Weconstruct the following intermediary effect test model:

$$Tfp_lp/FC_{i,t} = \beta_0 + \beta_2 Digital_{i,t} + \sum \beta_k controls_{i,t} + Year_t + Industry_j + \varepsilon_{i,t}$$

$$Beta_{i,t+1} = \beta_0 + \beta_3 Tfp_lp/FC_{i,t} + \beta_4 Digital_{i,t} + \sum \beta_k controls_{i,t} + Year_t + Industry_j + \varepsilon_{i,t}$$

The above formula is used to test the intermediary effect of enterprise production efficiency and financing constraints. It is expected that when testing the intermediary effect of enterprise production efficiency, $\beta_2 > 0$, $\beta_3 < 0$; When examining the intermediary effect of financing constraints, $\beta_2 < 0$, $\beta_3 > 0$.

4. Conclusion and enlightenment

According to the conclusions of this paper, there are the following research implications:

First, digitalization has a significant inhibitory effect on enterprise risks. Enterprises should not be afraid to make decisions about digital transformation. They should treat digital transformation with a more active, open and inclusive attitude, fully grasp the opportunities of digital transformation, and form their own core competitiveness.

Second, when an enterprise is faced with large market risks, it can employ CEOs with financial or academic experience to conduct business management, which can effectively prevent and control risks.

Third, the government should speed up the establishment of a digital economy system based on big data technology, with enterprises as the main body and the market as the guide, give preferential policies to enterprises implementing digital transformation, promote the application and innovation of digital technology, and achieve the goal of driving the construction of "digital China" with Chinese digital technology.

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