More technology, more money? How advanced digital technologies are shaping firms' financing conditions

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Abstract

The paper investigates whether the adoption of advanced digital technologies (i.e., "Industry 4.0") signals the transformation of the firm's technological capabilities and how this impacts the firms' financing conditions. The rationale is that, within a framework of imperfect financial markets, the adoption of advanced digital technologies may exert a signaling effect on financial intermediaries, eventually improving the firm's financial performance and access to credit conditions. To test the hypotheses, the econometric analysis exploits the microdata from the Bank of Italy's "Survey on Manufacturing and Service Firms", merged with Cerved balance sheet data, covering the period 2015–2019. To address a potential issue of reverse causality, a binary treatment model with heterogeneous average treatment effect and treatment endogeneity is employed. The results can be summarized as follows: i) the adoption of digital technologies reduces the likelihood of being credit rationed; ii) the adoption improves the overall financial conditions, measured with a composite index; iii) the debt expansion is associated with a decrease in its cost, while a composition effect between different types of debt is observed. From a technological standpoint, a strongly differentiated effect between operational and information technologies is noted, suggesting a few considerations on the drivers of change in the current wave of technical progress.

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Keywords: Digital technologies; Industry 4.0; Signalling effect; Credit rationing.

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