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How far can digital innovation improve credit to small firms in emerging market economies?

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How far can digital innovation improve credit to small firms in emerging market economies?

Key takeaways

- *Small and medium-sized enterprises (SMEs) in emerging market economies struggle to access credit, partly due to firms' short financial histories and lack of collateral.*
- *The rise of big tech and fintech lenders that make better use of data and digital innovation could reduce the need for collateral and improve SMEs' access to credit. However, big tech and fintech lending so far constitutes only a small share of the total.*
- *Digital innovation by itself may not be enough to substantially improve SME lending without further progress in overcoming more deep-seated obstacles.*

Introduction

Small and medium-sized enterprises (SMEs)[1] account for a major share of employment in emerging market economies (EMEs). Yet many have short financial histories, lack sufficient collateral and are perceived as inherently riskier than larger firms. Hence, many SMEs struggle to access credit and face high borrowing costs, which stymie their investment, innovation and growth.

Big techs and fintechs have seen rapid growth in many EMEs. By using advanced analytics to more efficiently process new types of data, these firms can overcome information problems in loan markets and generate credit scores for SMEs that could potentially reduce the need for collateral and alleviate credit constraints. However, while tech-savvy lending has improved financial access for some previously financially excluded firms, the new loans still constitute only a small share of total credit in most countries and often carry higher interest rates than bank loans.

After documenting recent trends in SME finance, this Bulletin discusses the potential benefits and policy challenges involved in furthering the use of digital technology in SME financing. It concludes by stressing that digital innovation on its own is unlikely to be a game changer, as policies to enhance tech-savvy lending need to be flanked by actions addressing other structural constraints.

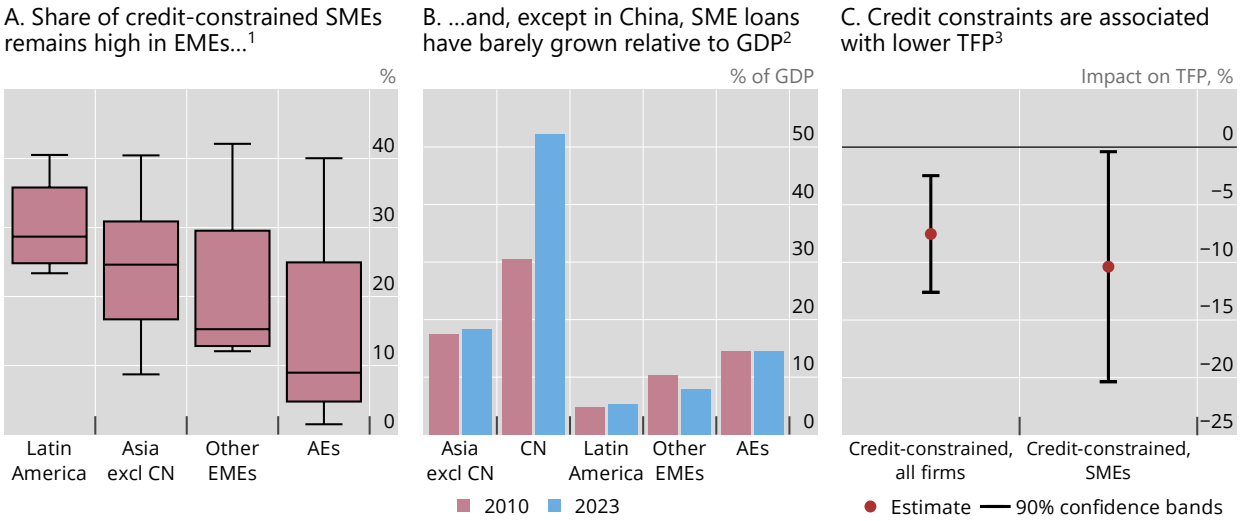
[1] The definition of an SME varies across countries but is often based on the number of employees. The World Bank Enterprise Surveys consider firms SMEs if they employ between five and 99 workers. Many of the channels and evidence discussed below also apply to micro enterprises (those with typically fewer than five to 10 employees).

SME credit constraints in EMEs

Credit constraints among SMEs are pervasive and persistent. Nearly 30% of SMEs in Latin America and 25% in EME Asia (excluding China) report being partially or fully credit-constrained, compared with fewer than 10% in advanced economies (AEs) (Graph 1.A). Credit constraints are generally more severe for the smallest firms and female-owned SMEs (Pavlova and Gvetadze (2023)). Moreover, over the past decade, bank credit to SMEs has not grown much as a share of GDP in most EMEs (Graph 1.B). One exception is China, where bank loans to SMEs have risen, in line with a broader increase in corporate debt.

Reliance on collateral remains prevalent in SME lending due to SMEs' often limited financial histories and non-standardised reporting. For instance, 90% of SMEs in Colombia and 68% of those in Chile must provide collateral for loans. The required collateral can be high, ranging from 100 to 300% of the loan value in some EMEs. At the same time, small business owners may own few or no assets which are eligible as collateral. Taken together, available collateral is often insufficient for meeting SMEs' credit needs.

SME credit constraints are pervasive and persistent in EMEs, slowing growth — Graph 1



[1] Percentage of manufacturing SMEs classified as fully or partially credit-constrained. Median, interquartile range and min–max range across eight Asian, four Latin American and four other EMEs, and four AEs. [2] Outstanding loans from commercial banks to SMEs, simple averages across regions. Asia excl CN = ID, IN, KR, MY and TH; Latin America = AR, BR, CL, CO, MX and PE; other EMEs = AE, PL, TR and ZA; AEs = CA, ES, FR, GB, IT, JP and US; where data are available. [3] Estimated effects of being credit-constrained on the level of total factor productivity (TFP) of manufacturing firms in 17 EMEs.

Sources: IMF, *Financial Access Survey* and *International Financial Statistics*; World Bank, *Enterprise Surveys*; BIS.

Not only the amount of credit but also its price is a significant issue. SMEs tend to pay a higher interest rate on conventional bank loans than large enterprises do. For EMEs with available data, the interest rate spread between large firms and SMEs averages 5 percentage points and exceeds 7 percentage points in some countries in Latin America (OECD (2024)).

Credit constraints and the high cost of credit faced by SMEs can hamper economic growth. Cross-country estimates with firm-level data suggest that credit-constrained SMEs are less productive (Graph 1.C), probably because they can spend less to build their capital stock.

Lenders leveraging data and technology

In recent years, tech-savvy lenders catering to the needs of SMEs have emerged. These include big techs – ie large, platform-oriented firms primarily focused on technology that have diversified into

financial services – as well as fintech lenders, broadly defined as firms offering credit through electronic platforms not operated by commercial banks.

Tech-savvy lending has the potential to ease SME credit constraints in two complementary ways. First, digital technology allows SMEs to create a "data trail" that can be scrutinised by lenders. Second, lenders can leverage machine learning and big data to improve credit assessment. Depending on whether the lender is a big tech or a fintech, the relative importance of these factors differs.

For big techs, data are generated as a by-product of users transacting in their "ecosystem" through the so-called data-network-activities loop (BIS (2019)). As more users join and transact on a platform, they increase activity and thereby generate user data, which big techs then use to improve services. Thus, big techs can exploit the vast pool of information gathered from SMEs transacting in their ecosystems.

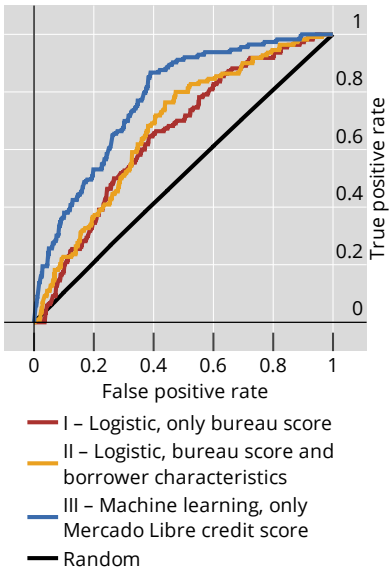
By contrast, fintechs rely on external sources of data to screen and monitor SMEs, as they do not operate such ecosystems. They often leverage technology to assess credit risk, for example by processing firms' payments data or their transaction histories with banks.

Existing evidence suggests that credit scoring based on new data trails and the use of machine learning can outperform traditional methods and reduce SMEs' need for collateral. For example, the internal rating process of Mercado Libre – an Argentine big tech with operations in various countries in Latin America and the Caribbean – predicts loan delinquency more accurately than the local credit bureau's credit score (Graph 2.A). Moreover, big tech credit shows a negligible correlation with house prices in China, suggesting a diminished role for real estate collateral in lending and a more important one for firms' transactions in the big tech ecosystems (Gambacorta et al (2023)). Digital payments, in particular,

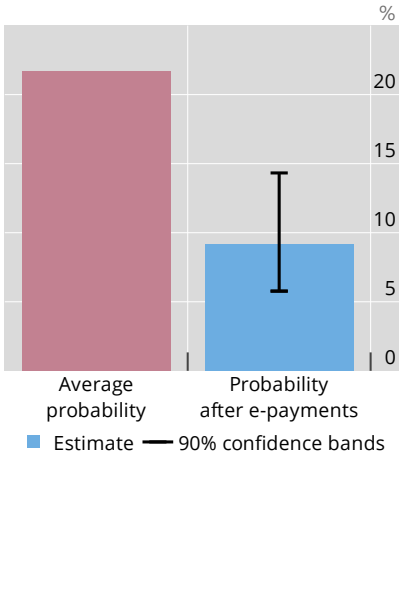
Big data and machine learning can improve credit scoring and access to credit

Graph 2

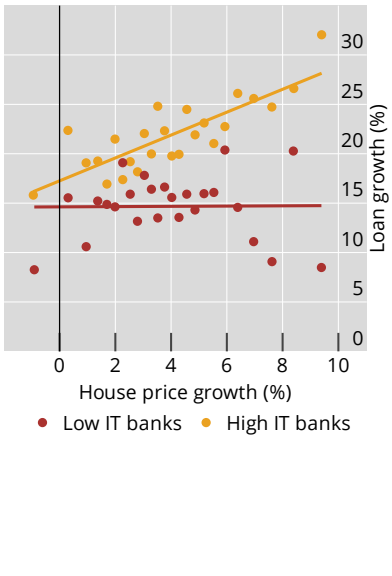
A. Machine learning models excel at predicting default[1]



B. Digital payments reduce the likelihood of credit constraints[2]



C. Lending by IT-savvy banks responds more to collateral values[3]



[1] The receiver operating characteristics (ROC) curve measures the predictive accuracy of credit scoring models by evaluating the model's ability to distinguish between defaulters and non-defaulters. Results are shown for different models used by Mercado Libre for small firms in Argentina; a line closer to the upper left-hand corner indicates better predictive accuracy. [2] Unconditional (red bar) and implied probability (blue bar) of being credit-constrained, the latter after receiving e-payments amounting to at least 25% of total sales. The sample includes manufacturing SMEs in five EMEs. [3] Correlation between house price growth and small business loan growth as a function of banks' information technology (IT) adoption in the United States, with banks grouped into those in the top and bottom terciles of IT adoption (see Ahnert et al (2024) for details).

Sources: Frost et al (2019); Ahnert et al (2024); World Bank, *Enterprise Surveys*; BIS.

produce information that lenders can process to build a data trail and extend credit. Indeed, in a sample of EMEs, receiving digital payments is estimated to reduce an SME's likelihood of being credit-constrained by around 12 percentage points (Graph 2.B).

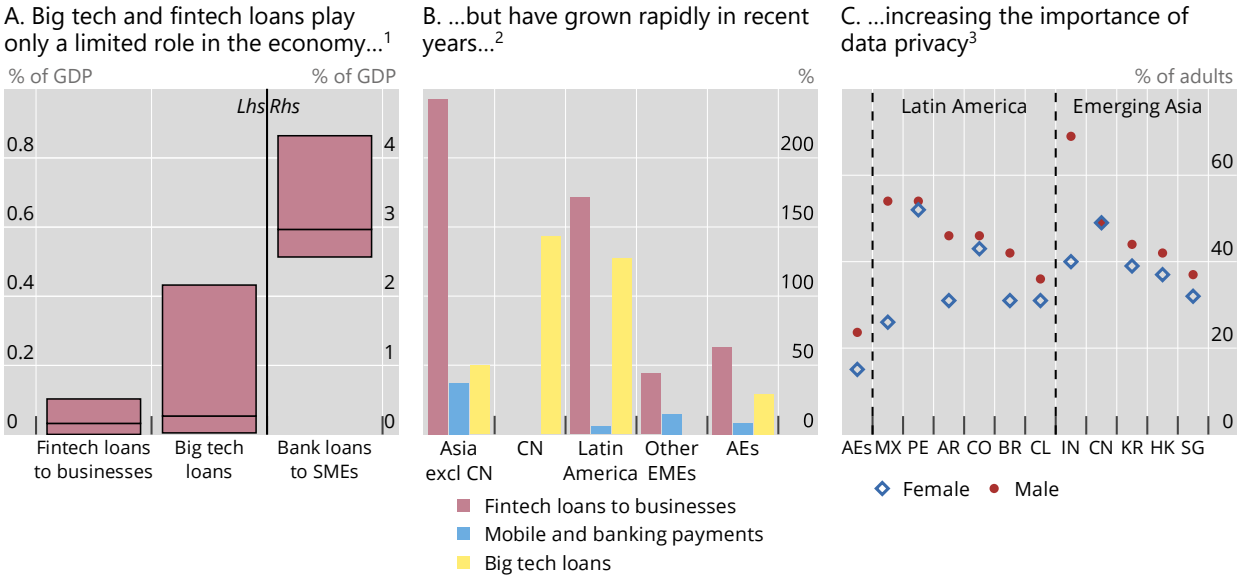
That said, even with greater use of advanced analytics and data, collateral values could remain important. For example, banks' adoption of information technology (IT) has been shown to spur lending against housing collateral (Graph 2.C). It does so by improving banks' ability to assess collateral values, especially when appraisal is more complex (Ahnert et al (2024)). Relatedly, some evidence suggests that fintech lenders seem more adept at processing hard rather than soft information for lending (Di Maggio and Yao (2021)). Thus, whether the rise of digital lending will make credit more or less responsive to changes in collateral values and house prices remains an open question.

Fintech and big tech credit in EMEs: current state of play

The weight of the new tech-savvy lenders in the economy generally remains small. Fintech and big tech lending is still very limited compared with bank lending, as new fintech loans averaged only 0.03% of GDP and big tech loans 0.05% in EMEs in 2019 (Graph 3.A). At 8% of GDP in 2023, big tech credit in China is a notable exception, reflecting the greater role of big tech platforms in the Chinese economy.

Nevertheless, these new lenders can play a key role in providing credit to underbanked firms, a contribution not captured by aggregate figures or other conventional indicators of financial deepening. For instance, almost one third of borrowers from Mercado Libre would not have qualified for credit from a traditional bank (Frost et al (2019)). Furthermore, recent growth in these new forms of credit has been rapid: fintech loans averaged 240% annual growth in EME Asia (excluding China) and around 170% in Latin America (Graph 3.B, red bars). Big tech lending has seen a similar expansion (yellow bars).

Despite growth, new lenders remain small; data privacy issues loom large — Graph 3



[1] New lending in 2019. Median and interquartile range across 16 EMEs (where data are available). [2] Average annual growth rates of new lending over the period 2015–20, or earliest/latest available; for mobile and banking payments, 2015–23. Averages across regions. [3] Based on a survey of 27,000 individuals. The exact question reads: "I would be comfortable with my main bank securely sharing my financial data with other organisations if it meant that I received better offers from other financial intermediaries." The dots show the percentage of respondents answering yes to the question. For AEs, simple average across 14 countries.

Sources: Chen et al (2023); Cornelli et al (2020); OECD, *SME Scoreboard*; World Bank, *Global Findex database*; Cambridge Centre for Alternative Finance; BIS.

Despite their growing availability, big tech and fintech loans typically remain small and of short maturity. For instance, big tech credit is often granted for periods of six months to one year and tends to be repaid well in advance of the maturity date (Liu et al (2022)). For fintechs, evidence from Brazil, France and India suggests that borrowers are smaller and more leveraged, and that the loans have a shorter maturity and a higher interest rate than the average SME bank loan (Beaumont et al (2024); Ghosh et al (2024); Ornelas and Pecora (2022)). It remains to be seen whether fintechs and big techs will eventually venture into providing larger loans with longer maturities.

So far, alternative credit appears to complement traditional bank credit. By transacting with and borrowing from big techs and fintechs, SMEs can build a financial history in the credit registry, which then helps traditional banks to screen them and eventually extend credit to them. Consequently, SMEs that borrow from fintechs or big techs are more likely to obtain a bank loan or credit line (Beck et al (2022)). In this way, fintech and big tech credit can provide a stepping stone for bank credit that, in turn, might allow for a more sizeable expansion in SMEs' production capacity. The complementarity between different forms of credit is also evident in the increasing number of partnerships of big techs and fintechs with banks. In these arrangements, the tech-savvy firms provide credit scoring capabilities while banks supply the necessary funding.

Policy challenges

Policies can foster SME lending by improving credit risk assessment and creating the conditions for making lending to SMEs less risky.

To foster digital lending, adjustments to data-sharing policies hold great promise. For instance, expanding the scope of open banking can allow or make it easier for SMEs to share their bank transaction history with other banks or lenders that employ more advanced credit screening algorithms. Big techs and fintechs could also be legally obliged to share their data and credit scores with credit registries. Government involvement is crucial, as established lenders are likely to be reluctant to share data with competitors. In addition, if the transition to open banking increases competition within the banking sector, supervisors would need to monitor and potentially respond to the increase in risk-taking by banks that could arise (Xie and Hu (2024)).

That said, fostering the wider sharing and use of data comes with important challenges, especially regarding data privacy and commercial secrecy. SMEs would want reassurance that their business secrets remain protected from competitors and that confidentiality agreements are upheld. Importantly, data privacy concerns vary substantially across jurisdictions, as well as between men and women, requiring a careful and measured approach (Chen et al (2023); Graph 3.C). Privacy regulation that grants users control over their data has been shown to make borrowers more willing to share their data with fintechs, resulting in lower loan rates (Doerr et al (2023)). All these factors put a premium on collaboration between central banks, financial regulators and data privacy authorities to ensure adequate safeguards are in place.

While there is room for improvement, digital lending alone is unlikely to be a game changer. SME lending is limited by structural factors that cannot be addressed by digital tools alone. Advanced analytics can help to better assess SME credit risk but are unlikely to reduce the underlying risk. In some economies, the lack of robust digital infrastructures could prevent the diffusion of digital innovations. Similarly, weak creditor protection or inadequate bankruptcy frameworks can stymie lending. Possible solutions to improve firms' access to credit include enlarging the menu of assets that can be credibly offered as collateral – for example, by enabling borrowers to pledge immovable as well as movable assets (Campello and Larrain (2016)). Such measures are likely to be particularly effective when paired with bankruptcy reforms that increase secured creditors' protection (Ponticelli and Alencar (2016)). In conclusion, a more holistic policy approach is required to make significant strides in boosting SME lending in EMEs.

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